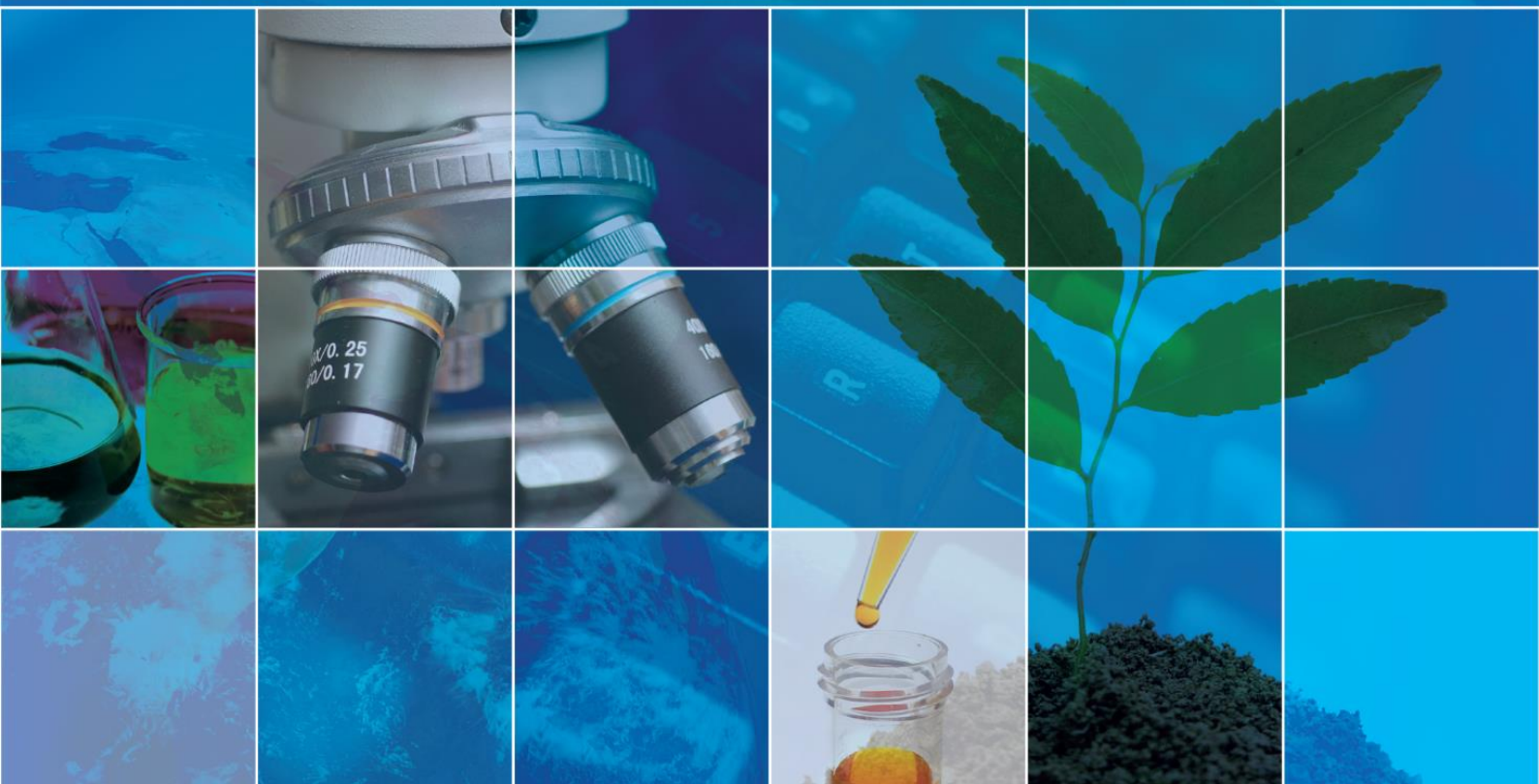


Research and Community Service Institute
Semarang State University



conference
proceedings

1st Unnes International Conference
on Research Inovation and Commercialization (UICRIC) for Better Life 2015

Patra Jasa Hotel Semarang, November 27 - 28th 2015





1st UNNES INTERNATIONAL CONFERENCE

on Research Inovation dan Commercialitation for Better Life 2015

Ramayana Ball Room, Patra Jasa Hotel Semarang
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FOREWORD

First, we would like to express our gratitude to Allah Almighty for His blessings so that this proceeding of the “1ST UNNES International conference on research and commercialization for better life 2015” can be published. These proceedings consist of all papers presented at the conference on 27th-28th November 2015 at Patrajasa Hotel Semarang Central Java Indonesia. The papers were internally reviewed by the qualified reviewers.

The theme of the conference was ” 1ST UNNES International conference on research and commercialization for better life 2015”. It was expected that through this proceeding, we are able to disseminate the results of studies in the field of research.

This event invited seven speakers who presented materials closely related to the theme, namely: (by Prof. Muhammad Nasir), (by Prof. Fathur Rokhman), (by Prof. Prof. Rahim MD.Sail), (by Joop Van De Flier), (by Asst. Prof. Rotchanatach Darnsawadi), (Prof. Chow Yang lee) and (by Dr. Ayami Nakaya). We hope that this proceeding will be beneficial for the society in terms of education, research, and community services.

Semarang, 26th November 2015

Editorial Board

WELCOMING SPEECH FROM THE COMMITTEE CHAIR PERSON

In order to realize the vision of Semarang State University (UNNES) as the University of Conservation with an international repute, Institute for Research and Community Services (LP2M) establish *1st UNNES International Conference on Research Innovation and Commercialization (UICRIC) for the better life 2015*. This event aims to increase the number of research publications and improvement of academic atmosphere through improving the quality of research works which we expect to occur downstream of research results to be a product that can be mass produced in an attempt to increase the welfare of society in general. It also aims to increase the capacity of researchers in generating better quality of research proposals in the future.

The scope of the research clusters that will be presented in this international seminar are: Education Innovations, Science and Technology, Quality of Life and Resource Development, Conservation, and the Art, Culture and Humanity.

Chairman of the Committee

Evi Widowati, S.KM., M.Kes.

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4. Dr. Subiyanto, M.Si.
5. J. A. van der Flier
6. Prof. Rahim MD. Sail
7. Asst. Prof. Rotchanatch Darnsawasdi

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Research and Universities' Responsibility to Shape a Better and Sustainable World

Fathur Rokhman
Rector of Semarang State University, Indonesia

Abstract — On this article, I would like to convey and justify my two major arguments regarding the roles of the university in shaping better and sustainable world via research: (1) universities by nature, has to improve its research outputs as parts of its competitive value but this endeavour should not pursue economical gain only, but it must pursue environmental gain as well and (2) although the bulk of the research nowadays is to introduce better and greener technology to tackle

Keywords— *Research, Universities*

INTRODUCTION

The first thing that I would like to bring to you is the awareness of the world as a huge and complex ecosystem and the fact that human is part of this system. According to Hugget (1999), the term global ecosystem can be referred to a biosphere in a much more wider sense. Biosphere is 'the totality of living things residing on the Earth, the space occupied by living things, or life and life-support systems (atmosphere, hydrosphere, lithosphere and pedosphere)'. By this definition it is already possible for us to include human into this equation: that human has been part of the biosphere all along.

There is an indication of problem at this level. Human beings in general, think that they have the 'right' to manipulate other members of the biosphere for their own

environmental problems but research on human behaviour, culture and characters in preserving the environment should not be forgotten. This article is not a means of a counter action to the mainstream efforts but it is a reshifting of paradigm so it can be recentered towards the balance: between research commercialization and environmental conservation; and also between physical conservation and character conservation.

sake. This right of manipulation has been rooted from the human needs and their ability to create and invent technology to solve their problems. It has been happening for thousand of years and technological advancement has been intensified in the last hundred years. Human endeavor in perfecting and developing technology always concerns more on improving the quality of their species but born very little concern to the improvement of the quality of other members of the biosphere.

It must be clear at this point that human is part of the system in biosphere but in the last decade they have been part of the problems. This concept might be denied by some, but this view has also been supported by several studies and experts (Handoh & Hidaka, 2010). The relationship between human population and biosphere is as follows:

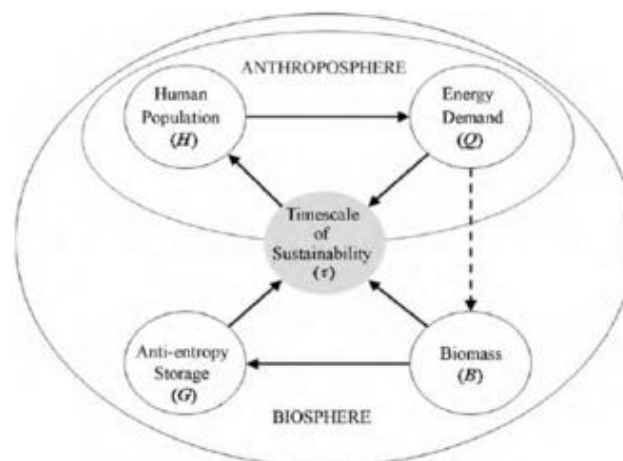


FIG 1. HUMAN POPULATION AND ENVIRONMENTAL SUSTAINABILITY (HANDOH & HIDAKA, 2010)

To summarise the graphic, there are direct and indirect impacts of human population and human needs of energy in reducing the quality of the environment. To balance this situation, human should find a way to be part of the solution. Humanity must include the welfare of the people and their supporting life system, i.e. environment.

Universities should understand this phenomenon and apply appropriate actions to respond to this global problem.

Research output and environmental conservation.

Pavitt (1998) has realised that universities have been 'pressured' by the government and society at large to push the outputs of the research. By the modern trends,

universities are also measured by the number of intellectual properties which have been registered, in this case most of the time is translated as the number of patents. This is a global phenomenon which has been and is still haunting the top management of the universities around the world. The nature of patent itself is related to the protection of ideas in accordance with their possibility and potentials in trading and business world. If we look at it as a continuum, patent is closer to the side of money matter instead of intellectual matter. As most of us have expected, research outputs driven by society demand and/or motivated by number of patents, would care less

about the research effects to the environment. The universities might entertain the ideas from the society and industries with the consequence that the universities might put the environment aside (Banal-Estanol, et al, 2013).

The trending relationship between universities and industries nowadays has been converging into one pattern. The universities are ‘desperate’ to get attention from the industries and most universities would make themselves look more attractive to the industries. We can look at the graphic below showing how the universities try to fulfil the needs of the industries.



FIG 2. UNIVERSITIES’ EFFORTS TO FULFIL THE DEMAND OF INDUSTRIES (KARMAKAR, 2014)

None of the efforts in the picture represents the universities’ efforts to mitigate the adverse effects caused by the industries to the environment. Both industries and universities do not count environment-based research as a common interest. Triple-helix concept developed by Stanford university and now talked highly by a number of governments including Indonesia, also does not focus on environmental preservation. We can analyse the following explanation from IEEE.

The triple helix thesis has the potential for innovation and economic development in a Knowledge Society ... in the hybridisation of elements from university, industry and government to generate new institutional and social formats for the production, transfer and application of knowledge (IEEE, 2014)

Looking at the statement above, triple helix coordination including government, industries and universities focuses more on economic development and not the wellbeing of the environment. I have mentioned in the previous section that human courage to improve their

wellbeing will almost always take its toll to the environment.

It comes to my first argument that universities should reduce its tendency to please government and industries and even societies. What have been deemed by ‘measurable research outputs’ by the government, industries and societies are likely the ones which have financial and economical implication. Universities should have self-reminder to allocate some of their resources and research capability in overcoming environmental problems although this effort is not yet regarded and rewarded highly by the stakeholders.

Do not Forget to Grow Greener People

I always love to see the facts that researchers and universities around the world have been working on creating new technology to combat environmental deterioration. Xie, et al. (2013) for example, have elaborated in details the potentials and current invention of nanotechnology for better future. Nanotechnology is a promise that one day we would have technology which is clean and self-healing. I use the word ‘self-healing’ to

underline the smart nature of nanotechnology. In the future, the materials using nanotechnology will fix themselves when they are ‘damaged’ and at the same time they will fix the damages they have done to the environment. All is done on their own with minimum interference from human operators. That is the future.

We are living at the present now and those types of technology are either still contained in the lab or regarded as science fiction by some. Here is the time gap in front of us to deal with. No matter how we develop greener technology, it would not improve the environmental condition around us if people do not change the way they think and the way they live.

Two studies in China and Korea have helped me to understand that green technological advancement can be

improved hand in hand with the development of the people.

The SUCCESS (Sustainable Users Concepts for China Engaging Scientific Scenarios) project in China has been a proof of effort to create villages which understand the need of future sustainability. The villages have been designed to cover sustainable mobility, energy and housing. Village people are trained to use greener technology and adjust their way of life (Dumreicher, 2008). This is what I call as a true integrative research.

The other success story comes from Korea. To summarise what the results of the study are, we can take a look at the following figure.

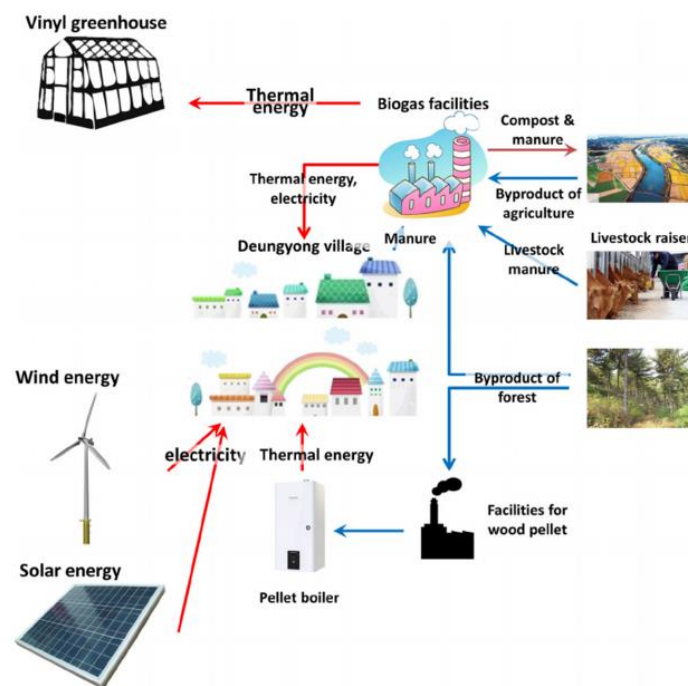


FIG 3. THE CONCEPT OF DEUNGYONG VILLAGE IN KOREA (PARK & OHM, 2015)

Looking at the concept portrayed above, this particular village in Korea is self-reliant in terms of energy. This village is a prototype which can be adopted in villages around Korea and even around the world. Countries with thousands of villages, including Indonesia should pay more attention on creating self-reliant villages to fulfil their energy demands without sacrificing the environment.

The examples from the two villages are the prototype research that I would like to propose for the universities around the world. Green technology is a big thing in environmental conservation but educating people on the values of conservation has even bigger impacts.

UNNES Fulfilling its Roles

Semarang State University or UNNES is the best place for you and me to test my arguments above. My first argument is that universities by nature, have to improve their research outputs as parts of its competitive value but this endeavour should not pursue economical gain only but it must pursue environmental gain as well. For me and for many others, UNNES is a living conservation laboratory. UNNES has mandated that research in conservation must be prioritized and upheld. The research institute at UNNES has designed research roadmap based on the university’s views of conservation and researchers with high interests in conservation are facilitated. My second argument is that universities should develop research in both physical conservation and non-physical conservation i.e. characters, cultures and values.

In physical conservation, UNNES has strong directions in biodiversity, green architecture and internal transportation, waste management, green energy, paperless policy, culture, arts and ethical conservation and conservation cadre recruitment. In non-physical conservation, UNNES has put its energy to preserve traditional cultures especially Javanese culture, foreign culture, local wisdom, development of green villagers and students green character. As a Rector and researcher at same time, I try to link my arguments with the management of the university I currently lead. I also encourage you to make the most of your position and your role at the society to think about how human can be part of the solution of the environmental problems we face.

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Quality of life and resource development (health and sustainability issues), an overview of the current situation in the Netherlands

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INTRODUCTION

Quality of life and resource development are high topics for many modern people. They experienced during the last decades a significant increase in the quality of their life and became at the same time really concerned about the impact of their life style on the material resources of our planet. A number of institutes produce a regular stream of (warning) reports and NGOs claim attention for more sustainability policies by seeking publicity in press and by lobbying politicians. In this contribution to the first UNNES conference on 28th and 29th of November 2015 we will discuss the current situation in the Netherlands and invite the participants of the conference to reflect on similar issues in Indonesia. The Netherlands is densely populated with 16,9 million people on a 41.500 km² territory. Concerns about declining environment are widespread and lot of measures has been taken to protect the physical and social welfare. The Netherlands is an old landscape partly made by the Dutch people themselves. During the last thousand years we cut most of our forests (Holland means woodland), live for 50% below sea level and are constantly pumping water to the sea. The limited availability of land (high density) and the consequences of the climate change are major concerns. We are further very concerned with the creation of jobs for all inhabitants. The current official unemployment rate is 6-7% with 70-80% of population active in labour market (CBS key figures). A lot of women work in part time jobs and around 1 million people work as independent workers (small entrepreneurs with no hired employees). Temporary work agencies are for many people the entry to the labour market. The big problems for the Dutch labour market at present are: the slow recovery of the economy after the 2008 crisis (but picking up from 2014) and high unemployment rates for a special groups like: immigrants/refugees or people with disabilities and persistent long term unemployment for people above 45 years. And most of all our salaries are high: so we are expensive.

Indonesia is characterised by a variation in density of population per island (around 900 habituated islands) and

is a low income country. The fast growing population of Indonesia (257 million, 1% per year) demands for 1.000.000 new jobs per years. Creation of these numbers of new jobs, together with raising the quality of life and not destroying the natural resources is a difficult task for the Indonesian government. But Indonesia has also several advantages with a fertile soil, abundant water supply and lot of natural resources (wood, plantations, minerals and oil reserves) and a young population with low salaries. So the country could compete with other South East Asian countries and become a major workshop for the rest of the world. But action on these strong points makes Indonesia also more vulnerable to the ups and downs of the world economy and to exploitation of its natural resources by bigger companies.

We may conclude that both countries have to be careful about their habitat, but in a different way.

Main dilemma's

The main dilemma's between quality of life and resource development arrive from the wish to have higher quality of life with limited damage to the natural resources. This dilemma has further a generation split: what one generation consumes is less available for the next generations or the next generations have to solve the "sustainability" problems which are left for them. But future generations have also advantages. These generations have better access to information and could use newer technologies, like fast computing, 3d printing and incorporated recycling. Could these generations restore the depletion of our natural habitat?

Quality of life and resources

Quality of life is according to Maslow a pyramid. There is a hierarchy in our needs. Lower needs are the basis for the higher needs. That is a simplification of the reality, but it helps in our analysis. We will shortly discuss: food, housing, health and security. At our disposal are: soil, water, air, natural resources/deposits and community.

What are the interactions between these two groups?

| | | | | | |
|--------------------------------------|--|---|---------------------------------------|--|---|
| FOOD | Soil | Water | Air | Natural resources (deposits) | Community |
| Enough food | Enough soil | Enough water | | Enough fertilisers | Sharing food |
| Safe food | Not polluted soil | Clean water | Not polluted air | Safe fertilisers | Caring food |
| Healthy food | Upgraded soil | Water management | Clean air | Reduced use of fertilisers | Controlled productions systems |
| Biofood / Ecofood/ Local food | Cleaning soil from contamination and pesticides | Reduced water consumption (dripping irrigation) | Reduced contribution to air pollution | Partly back to natural fertility systems/crop rotation | Production systems open to society (controllable) |
| House: | Soil | Water | Air | Natural resources (deposits) | Community |
| Comfort | Stable position, accessibility | Stable supply | Good climate | Solid construction material | Contact with community and Privacy |
| Healthy | Clean area | Clean water | Low pollution | Non polluting materials (no asbestos) | No threats to community |
| Low energy | Use of natural resources (solar energy/ earth temperature) | Reduced water consumption | In-built climate control | New technologies to reduce consumption of deposits | Low energy foot print |
| Recycle | Reusable construction material | Recycling of water | Natural air filtering | Recycling of materials | Low natural resources |

| | | | | | |
|-----------------------|-------------------|-------------------------------------|---|--------------------------------------|--|
| Health | Soil | Water | Air | Natural resources (deposits) | Community |
| Medium health | Low contamination | Functioning water andsewage system | Few polluting industries in neighbourhood | Low influence from mining activities | Collection of garbage and functioning health system |
| Maximum health | No contamination | No chemicals in water Sewage system | No polluting industries in neighbourhood | No influence from mining activities | Support for clean environment full access to health system |

| | | | | | |
|-----------------|------|-------|-----|------------------------------|-----------|
| Security | Soil | Water | Air | Natural Resources (deposits) | Community |
|-----------------|------|-------|-----|------------------------------|-----------|

| | | | | | |
|--------------------------|---------------------------|----------------------------------|-----------------------|----------------------------------|-------------------------------|
| No threat for life | System to divide land use | System to divide water resources | Control of emissions | No damage from exploitation | Awareness, religion education |
| Respect for human rights | Law system | Law system | Government inspection | Sharing benefits with population | Religion and education |

These tables demonstrate the intensive interaction between growing needs of people and the limited natural resources. It's a wake-up call to be careful about nature and its resources and to protect nature. Full restoration of burned forest takes 50-100 years.

Changes in stakeholders on improving quality of life

The traditional division of power between government, parliament and judiciary changed by the growing influence of new players as: trade unions, independent press, NGOs, international organisations and recently social media.

Independent press took over the daily representation of the popular vote. Strong NGOs, take the role of representing special interests like: ecology, refugees or people with disabilities. And social media are more and more influencing the politicians and policies of

government. The accountability of these new powers is lower than for the traditional forces. Countries become member of international organisations, which limit their self-determination and gave their inhabitants the right to appeal against their government by the juridical system. Carrying out policies on e.g. reduction of emissions and of pollution became a balancing act in cooperation with other organisations and less an activity from the political system in itself.

An interesting development is further the increasing role of local/regional government. A growing part of world population live in cities and quality of life is mostly made at that level. At city level the needs are concrete and politicians are more under pressure to take action. If city administrations do not organise the garbage collection in separate streams, maintain the sewage system or organise the traffic, the cities will collapse.

Photo of garbage collection in separate streams



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Current developments in quality of life and resource development in the Netherlands Climate change, rising sea levels and bigger variations in river flows

Rising sea levels and greater flows in the rivers can be contained by higher dikes, but there are limitations to

these possibilities. That caused a change in the Dutch thinking: don't see nature as a threat, but use the nature as

a companion. The big trust in hard dikes was lost and the new approach is to use the dynamics of nature e.g.: use the sea streams to carry sand to the shore (Zandmotor) and create in this way a natural sea barrier. To decrease the possibility of inland dike breaches it's now accepted that high river flows cannot always be managed by

dredging to enlarge the outflow capacity. So slowing the water supply by reintroducing meandering and storing overflows of water in temporary basins became new (old) measures. Fighting against water became a high sophisticated science or even a sort of dance.

Photo of meandering of rivers

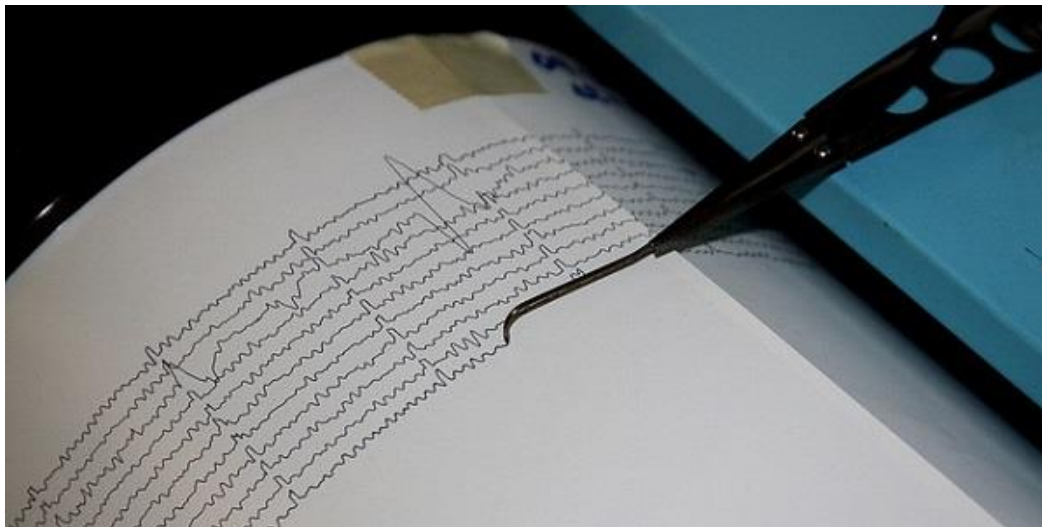


Gas extraction in the Netherlands

In the sixties big natural gas reserves were found in the north of the Netherlands and a lot of smaller reserves in the North Sea. The smaller reserves were first depleted, but finally the big fat one had to produce at maximum capacity. It was expected that gas extraction would cause limited problems in the form of a decline of the surface and that these problems could be solved by more pumping. Then came a surprise: a series of earth quacks; in the beginning smaller ones, but gradually also stronger

ones, up to 3,5 on the scale of Richter. These earth quacks caused damage to around 40.000 houses which need repair and lost a part of their value. The inhabitants protested from the start, but the government did not listen really until a new study from a government institution warned that earth quacks up to 5 could not be excluded. That was a trigger for the inhabitants, the local government and the NGOs. The national government reacted quickly: the gas extraction has been reduced with 30% in the first year and a further reduction of 20% is foreseen in the coming years.

Seismograph



Huge investments (up to 1 billion Euro) are needed to repair and strengthen all premise in the extraction region and a court ruling obliged the gas company (50% state owned) to compensate the losses in value of premise to all owners. Suddenly the big gift of natural gas became a headache for the government.

To compensate the reduced extraction of gas from the main field, higher intake of natural gas from Russia or liquefied gas from Qatar or Algeria is necessary. Two reception facilities are built, one in the north and one in the south.

Supply routes of liquefied gas



EU targets on reduction of carbon emission and renewable energy

In order to keep the global warming below 2% during this century the EU set concrete goals for the energy reduction, reduction of carbon emission and a switch to renewable energy. This means an overall and **obligatory** reduction of green house gases of 20% by 2020 and 50 % by 2050 by all EU members states. The 2020 targets for the Netherlands are: 20% reduction in energy

consumption and 20% switch to renewable energy (wind, solar and biomass).

The Netherlands started slowly with the reduction of carbon emission and counted too much on relative clean energy from its gas reserves. Also the energy production by renewable energy is behind schedule. The targets of 20% renewable energy in 2020 has been postponed till 2023. So the reality on reduction of carbon emission and conversion to renewable energy consumption in the Netherlands is not so brilliant.

The reduction in energy consumption

Reduction of energy consumption is a corner stone in the Dutch policies, but it's a long process.

The big chemical industry is by nature energy consuming (25% of total costs) and obligatory reductions of energy consumption have therefore direct impact on the production, on the production processes, employment

and the national trade balance. In the chemical industry energy is also used as feed stock so energy consumption fluctuates with the economy as a whole. Overall there is much interest in energy saving in the business sector and a system of buying or selling emission rights has been installed. The direct impact of transferrable emission rights, which was seen as a market mechanism to reduce energy consumption, is until now very limited, but it could become very influencing and stimulating innovation.

In the transport sector big gains have been made with more fuel efficient cars by EU regulations.



To challenge the automotive industry the EU regularly decreases the emission norms. That creates an incentive for innovation on motor technology and introduction of electrical cars. Recent scandals on measuring emissions demonstrate that free press, public opinion, independent judiciary and tax incentives can make the difference in case public transport is well organised. Local governments are keen to demonstrate their contribution in reducing emissions by buying electrical busses or on natural gas.

built on central heating and cooking on gas; with 7 million houses the conversion goes slowly. Subsidies were introduced for better isolation and more effective heating installations. An energy label for energy consumption per house is introduced, which is needed at selling a house. The impact of these combined measures on the household consumption of energy is seen in the table below.

Schedule of energy consumption and energy reduction for private households

Reduction of energy consumption at household level is a process of 20-30 years. Houses in the Netherlands are

| Per household | 2000 | 2012 | % of total energy consumption |
|-------------------|-------|-------|-------------------------------|
| Natural gas (M2) | 1.747 | 1.341 | 38% |
| Electricity (KWh) | 3.378 | 3.495 | 28% |
| Motor fuel (ltr) | 1067 | 1018 | 37% |

Renewable energy

Currently the Netherlands is speeding up with establishing wind parks (at land and at sea) and investing in biomass.



Middle Grunden wind farm Denmak

The pressure from EU and NGOs to comply with the obligatory targets is mounting and the government has to defend itself against accusations of negligence of the well being of the population. One court recently ordered the government to speed up the carbon reduction to 25% in 2020, while 13% is expected. So carbon reduction will be and stay a key issue in the national politics during the coming years.

A small part of the conversion to renewable energy is coming from the consumers-producers in the form of solar power. This is becoming a success story.

Home production of energy (solar)

Making your own solar electricity is already known for years, but it became more popular after a regulation that the home producers could sell their excess energy to the electricity companies at a profitable price. The explanation behind the popularity of home production of electricity is that there are subsidies available, prices of installations are going down and it feels good to reduce your own energy bill. While the production of solar energy is not very stable the capacity to produce all electricity by power plants should still available. The costs of this excess of capacity are paid by all households. Overall solar energy is not very cheap and can produce

maximum 5% of the national electricity consumption, but it's worth to promote this, while it raises the interest of the public in the necessary energy reduction transition policies.

The current debate on electricity production with no CO2 emission

There is a serious debate in the Dutch society on reduction of CO2 emission coming from electricity production. One question is: do we have the techniques to comply with the targets for 2020 and 2050. The answer is: we have a good idea on the different techniques that could bring us in line with the targets for 2020. For the necessary reductions after 2020 we will need improved or new technologies or unconventional practices.

Some of the carbon reducing techniques are already in action, while other techniques need still a lot of innovation (normally taking 10 to 15 years). But there is strong evidence that big problems evoke their own innovations. If 100 people think on the same problem more solutions will come up and the best solutions may survive.

In the Monitor Sustainable Netherlands 2014 the following figures are presented:

| Type of electricity production | Investment costs per unit in USD in 2050 | Remarks |
|--------------------------------|--|---|
| Powder coal | 2.100 | Well known technology but high CO2 emission |

| | | |
|------------------------------|-------|--|
| Coal to gas plus CO2 capture | 2.700 | Storage of gas meets big resistance by population |
| Gas plus CO2 capture | 1.350 | Gas has lower emission, but capture is a problem |
| Nuclear 4th generation | 5.600 | Big resistance from public on 3rd generation nuclear power production |
| Biomass with CO2 capture | 3.000 | Biomass could compete with food production and CO2 capture is a problem |
| Wind on land | 1.700 | Well know technology, location receives resistance from people from neighbourhood |
| Wind on sea | 2.000 | High cost for exploitation. Coastal parks receive resistance from tourism industry and fishing |
| Solar energy | 1.000 | Half year not productive for lack of sun shine in Netherlands in autumn and winter |

Some technologies are mature so their contribution to the CO2 reduction depends on their introduction in the market. The contribution of these technologies can be influenced by government with regulations, pricing, subsidies, promotion but also by the acceptance of the population. For the near future the Dutch government put all cards on wind energy.

Powder coal is inherently a polluting technology and should be banned long before 2050. The large coal deposits in USA, South Africa and Australia and reduced consumption in USA derailed the price of coal and make this (polluting) technology very cost effective. Recently 3 new coal energy plants were established.

Coal to gas with carbon capture and storage (CCS) is a promising candidate for the long future, but there is no experience with storing carbon in the ground. And a first experiment to store carbon in the underground met so much resistance in the Netherlands that the original licence was cancelled. So we still lack the experience with this technique, which will be a cornerstone of the carbon reduction strategy.

Gas plant is a mature technology and less polluting than coal, but as said before the carbon capturing is still a problem.

Nuclear energy from 3rd generation is cheap (except demolition costs), but public resistance is strong. The inherent safe 4th generation lacks sufficient well functioning examples and has still a number of problems to solve. One of these problems is that the technology is still not familiar, so costs overriding is 50-100% and only bearable by governments. In all cases the public acceptance will be a problem.

Bio mass looked as a miracle solution for a number of problems, but growing biomass could compete with food production. Biomass is currently used as 5-10% feedstock for energy plants. Capturing the carbon is a problem. But

innovation may support the bigger use of energy from biomass. Biomass is regarded as a very promising direction.

Energy production by wind is environmental clean and very well known in the Netherlands. We pumped our polders and milled our grain with wind mills. A wind mill is still a sign for some bakeries in Indonesia. Unfortunately wind mill parks on land meet a lot of resistance from neighbours and in sea from the tourism industry and fishery. A big problem of wind energy is the variability of wind in the Netherlands and lacking technology to store electricity. So innovation on storing electricity is necessary and might go parallel with storage systems in electrical cars.

Solar energy is like a road in progress on which cars are already driving. There are constant new developments with more flexible solar panels and panels at lower prices. Still the contribution of solar energy for the Netherlands is a maximum of 5%. But it's well accepted by the people.

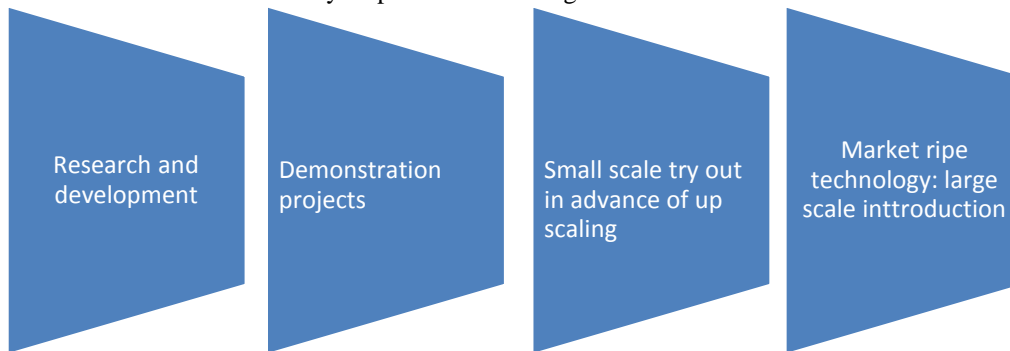
Geothermal energy could come from the temperature in the earth. This is hardly used in the Netherlands as we are afraid to dig through the (water containing) layers in the underground. The capacity of geothermal energy is large and experiments are under way for 5-25 houses in one system.

CONCLUSION

In total a reduction of 50% of carbon emission with electricity production could be expected from the present technologies. The next 40-50% should come from innovation and newer technologies. Innovations costs normally 10-15 years before they have demonstrated their value in practice. So the Dutch government allocated a significant budget per year for innovative energy projects.

Innovation process and government support to innovations

The innovation process is a sequence of four steps with an assessment between every step if there is enough confidence and evidence to make the next step.



The Dutch government promotes innovations clustered in 9 top sectors (sectors in which the Dutch industry could and should be excellent). These sectors are seen as the engines of our future economy. Energy is one of these 9 top sectors.

Research and development is made by scientific institutes, inventors and industry. Dutch government finances the scientific institutes and provides subsidies to lower the costs of research by inventors and industries. **Demonstration** projects are necessary to see if laboratory scaled inventions can work on a bigger scale and what problems will arise from the introduction. Sometimes the ideas are less scalable than expected. **Small scale try out** in the field of energy production is necessary while there is a lot of public interest public and resistance from the public could block the large scale introduction in the market. And **Market ripe** is the position where government can leave the new technology to the market parties.

The system of promoting innovations in the various top sectors is very clear, but most of the budget is allocated to the Research and Development and the Demonstration step. The budget allocation for the small scaling might be too small, so that promising innovations are not coming into the market. Together with frequent changes in regulations on subsidies the promotion of new energy sources could have more power.

Conclusion on solutions for quality of life and resource development in the Netherlands

An effective reduction of the ecological footprint for households can only come from a combination of raising awareness (publicity), pricing, subsidies and behavioural incentives. The social system is still more influential than all concerns on destruction of the ecosystem. The business sector is more price oriented, but with regulations, innovations and subsidies.

The final message is positive: the Dutch people will manage to improve its quality of life and reduce its ecological footprint. It's necessary, we have the systems

for innovations and we have the capacity to invest in new technologies.

Comments:

1. Joop, it is interesting paper. You have focused on the Dutch government's policy. In my humble opinion, do you think it would be better to also provide examples of what small community (ies) has done in NL to also contribute to the sustainable development/conservation? Includes what works and does not work already? I remember that Albert Hein does not provide plastic bag for their buyers unless they pay for it. I think is just incredible because in Indonesia every shop provides plastic bags for free ☺ . Is it government's initiatives or the shops'? Indonesia should have such rules. ☺

Dear Uut,

Local is garbage collection in separated streams and processing garden/green garbage and biomass into compost = new soil.

Local but disputed are the clean air zone in Utrecht and a lot of similar initiatives in Germany: so old polluting cars are banned.

The plastic bag is an EU or Dutch?? plan and will become obligatory in 1 or 2 years.

I could insert this in my presentation

2. You also mention like behavioral incentives in your conclusion. It reminds me of my friend from Belgium. He said that his government gives incentives (after reaching certain distance)for those who ride bike to office aiming to lessen air pollution. That's amazing. Is there any in the Netherlands? or in a kind of different form?

There was a very popular bike program: employers could give a bike to employees for free, but the employee could not get any transport costs for the next two years. That program was so succesful that the government stopped it.

3. Joop, Albert, I found this (in facebook' timeline) such an interesting news from the Netherlands. The title is "**Solar-Powered Glowing Bicycle Path In Netherlands Inspired By Van Gogh's Starry Night**". It is so amazing (I regret that I don't know it is there in NL when I was there). Do you know about this? It is is Brabant. I think this one is also related to Joop's paper how the Dutch is very brilliant!!! This is the link <http://www.boredpanda.com/van-gogh-starry-night-glowing-bike-path-daan-roosegaarde/>

Uut, I knew that project. There was a call for innovation projects on road construction; some innovations were on self repairing road and roads that produce electricity. This bicycle plan is a derivate from the latter, which is important for unlighted biike roads. I will mention this in my contribution.

3. Joop, I highlighted some words that I think they are typos.

You are a geat reader and my spelling check did not work, but you did. Thanks.

River Management based on Local Wisdom: Flood Preparedness in Hatyai, Thailand and Semarang, Indonesia

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Abstract — Flood issues often associated with resource degradation due to lack of management in upstream and downstream area of a river. Many efforts have been done by various stakeholders but only in partial and in terms of an aspect, while human aspect often ignored. Community adaptation to the river and flood management produced a form of very important wisdom in preserving river. The aim of the research was to observe the model based on community and local wisdom in river and flood management in Semarang, Indonesia and Hatyai, Thailand. The research objects include river's characteristics, land use, and local wisdom in flood management. This study examined a local wisdom in flood management model. It is a new innovation in community-based watershed management across the country, linking relations within physical environment aspect and community behavior. Based on field survey in Semarang, Indonesia and Hatyai, Thailand found that there are some similar factors that triggered flood disaster. They are land use change and functional change of catchment area in upstream from natural forest become productive land like rubber plantation and settlement area. Community action in Hatyai, Thailand show effective result in decreasing of flood event within 3 years left (2012-2015). Beside, government effort to build "canal pass" through the main river of U-tapao has been given higher capacity of the river itself in drain off water to Songkhla Lake. In addition, Semarang has the same community participation in flood management; however, it needs to be more developed. Semarang has to learn more from Hatyai in the case of flood management. This is the first study to highlight application of local wisdom in prevention, mitigation, and adaptation to flood disaster in Indonesia and Thailand.

Keywords— *flood management; local wisdom; river management*

INTRODUCTION

Climate change has been affecting a large number of ecosystems across South East Asia. The effect includes inconsistency in monsoon and rainfall pattern, increase in average temperature, rising in sea level, and increased severity of extreme weather events, such as floods, cyclones, and droughts. It is also marked by increasing number of ratio between maximum water debit during the rainy season and minimum water debit during the dry season. Since long time ago, devastating floods have been occurring both in Semarang, Indonesia and in Hatyai, Thailand. The flood disasters in both countries are caused by heavy rain in the monsoonal depression. Flooding in Semarang and Hatyai are also caused by the water

overflowing from the river. By this reason, flooding is a natural phenomenon and will occur unavoidably from time to time. However, several human activities, deforestation, poor drainage, change of land usage, expanding agriculture and grassland have worsened the flood effect.

In Semarang, Indonesia, Beringin River is inducing flood periodically in region of Mangkang Semarang. Flooding is caused by the river path which is unable to accommodate water stream debit. Last flash flood was occurred in 2010; the floodwaters inundated 23 sub-district areas and it exhibited negative impacts such as distracting people activities, infrastructural damage, and paralysis in economic activity causing huge losses. Hatyai, the largest tourism and commercial city in Southern part of Thailand had experienced a great flood during monsoon of November 2010. This flood disaster was the worst flood affected by the water overflowing from U-Tapao River which initiating the massive economic and society losses. The flooding areas and the depth of floods were increased comparing with the last 2000 flood, though there was a preventive system (constructions such as bypass drainage canals, pumping stations, retarding ponds, and trunk drainage).

Having experiences of water-related disaster, both Indonesia and Thailand have accumulated numerous amount of skill in flood management. The examples of flood management in both countries are in the form of development of flood way, retarding basin, river bypass, flood canal, water damming, hydraulic facilities and the early warning system. Beside those methods of management, the local wisdom for flood management in Thailand, especially in Hatyai is also involved, especially those who live in the riverside. In Hatyai, the riverside communities are well-known on the development of a good system in order to coping with the flood disaster. They combine the local wisdom and modern technology as an integrated management. On the other side, the local wisdom forms have been rarely found in Indonesia, especially in Semarang. Natural conditions and community behavior of both countries are different. Among those differences, it is interesting to find the comparison of local wisdom concepts in both countries in river and flood management. Few studies have

investigated the concepts in Indonesia and Thailand. Therefore, comparative studies between Indonesia and Thailand will certainly lean-to new view on local wisdom in surviving with floods. The results of the studies are also needed for a better understanding of how flood emergencies should be managed under different physical, social, and cultural contexts. Furthermore, as information publicizes, it is hoped to help other countries to improve the flood management systems. By this thinking way, the present study is aimed at providing new understanding into flood management concepts based on local wisdom especially in Thailand. It focuses on the similarities and differences between Indonesia and Thailand through case studies, examination and comparison of flood management in both countries, i.e. preparation for flooding: includes installing early warning system; physical infrastructure; strengthening communities' capacity to manage floods through capacity building and awareness raising, in turn strengthening coping strategies.

DATA COLLECTION AND METHODOLOGY

Study approaches

The study was conducted by qualitative and semi-quantitative approaches. The research objects were river

and flood characteristics, land use, community behavior, and local wisdom in flood management. It focused on community-based watershed management across the country, linking relations within physical environment aspect and community behavior. It identified and in depth analyzed in order to formulate the most optimal river management in Indonesia and Thailand.

Study area

The study was conducted in two sites, Semarang-Indonesia and Hatyai-Thailand, which have similar problems with flood disasters. First location was in watershed area of Beringin River (DAS Beringin), Semarang, Central Java, Indonesia with total coverage is about 30.36 km² with main river length is 22.5 km. The upstream part is located in Mijen sub-district and the lower part is located in Tugu sub-district near Java Sea (Figure 1). Second location was in U-tapao River, in a sub basin at southern part of Thailand. Main river length is 68 km with total coverage is about 2,305 km² and flows through Hatyai city (Figure 2). U-tapao River upstream is from Bantad Mountain and it flows until the area of outer part of Songkhla Lake in Songkhla Province.

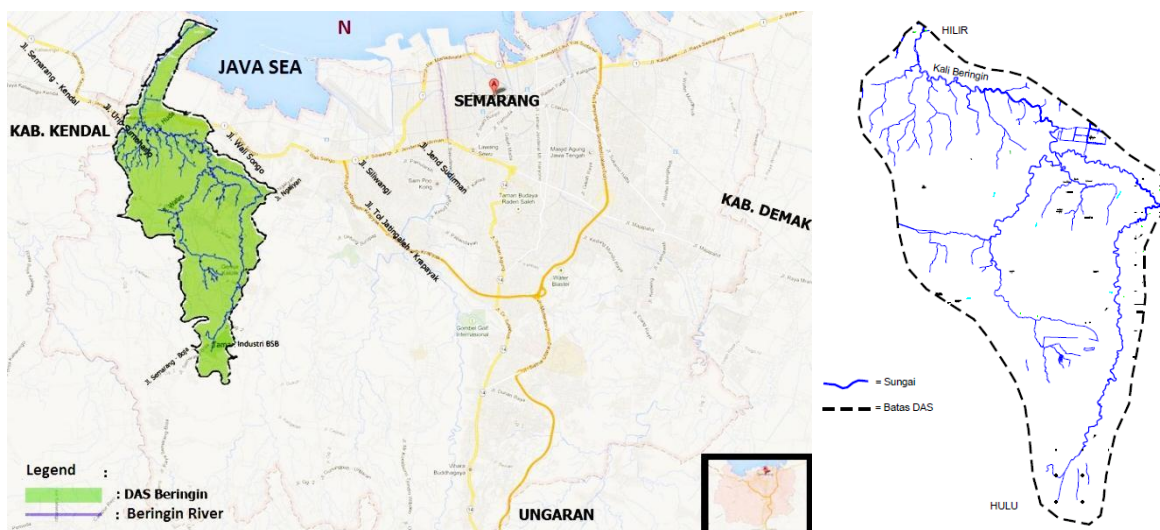


FIGURE 1. BOUNDARY OF BERINGIN RIVER MAIN WATER BODY AND ITS WATERSHED AREA

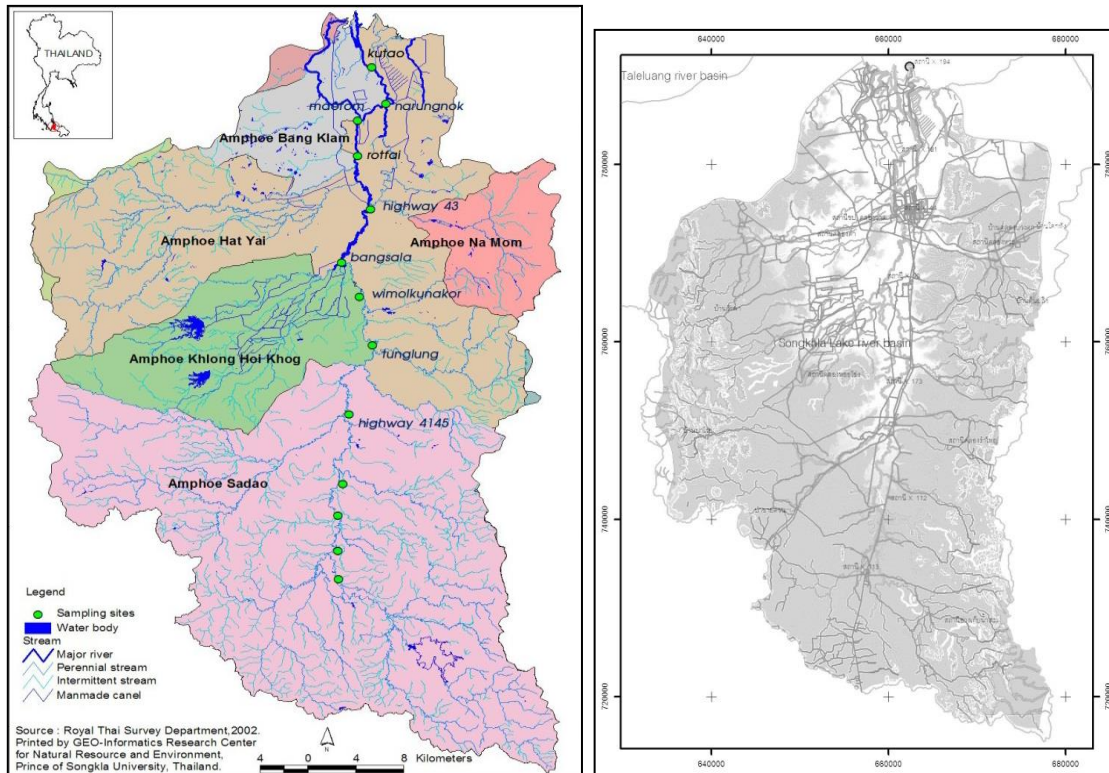


FIGURE 2. BOUNDARY OF U-TAPOO RIVER MAIN WATER BODY AND ITS WATERSHED AREA

METHODS

Data that used in this study were primary and secondary data. The primary data were collected by field survey i.e. visiting and interviewing the local community group in Semarang and Hatyai; consisted of adaptation form and local wisdom application in flood management as well as the early warning system technology implementation in flood mitigation. While the secondary data were flood characteristic, flood historical event and land use change conducted through literature study and government policy implementation analysis. Focus group discussion by researchers and local communities was also performed to catch the explanation of data obtained. The result will be used to formulate optimal model of river and flood management in both countries based on local wisdom. Research tools consist of field survey tools and computer for analysis. The field survey tools like GPS, handy-camera and camera used for recording data and evidences in research location. Computer which used for analysis is completed by ArcGIS/ArcView software.

RESULTS AND DISCUSSION

Geographical setting of study area

Geographically speaking, Semarang and Hatyai are situated in Southeast Asia. Semarang is a city in Central Java Province, Indonesia; it is located at $6^{\circ}58'S$ $110^{\circ}25'E$, whereas Hatyai is a city in southern part of Thailand, Songkhla Province which located at $7^{\circ}1'N$ $100^{\circ}28'E$. Beringin River is located in Semarang, whereas U-tapao

River is located in Songkhla Province. Since U-tapao River has a long waterway, the study was focused on the waterway which located in Hatyai municipality.

Topography and drainage

Beringin River is a river in the region of West Semarang. It flows in between Mijen sub-district and Ngaliyan sub-district before emptying in Tugu sub-district into Java Sea. Beringin River length reaches approximately 22.5 km with a watershed area of 30.36 km². The topography of Beringin River is hilly at its upstream area and has a flat slope on the downstream part. The ground elevation is approaching the sea surface level; therefore, it will be difficult for drainage process when the tidal water is rising. Beringin River width in the section of Jalan Nasional bridge area has about 20 m and gradually decreases towards the downstream part, narrowing into 9.5 m in Mangunharjo (Figure 3A). In the peak rainy season, these conditions have been affecting the capability of river basin to accommodate the water. The frequency of flood occurrence at the downstream part is more often than other regions; with the inundation depth is usually less than 0.5 m up to two days. The observations made at the Beringin River watershed area showed that at the upstream part, the area has taken for opening of new land of housing, thereby reducing the ability of soil to hold water. As a result, rain water is directly drain quickly into the river, adding a certain river flow, and a considerable surface runoff as the result of

erosion which caused in sedimentation in the cross section of the river downstream area.

The western border of Hat Yai Municipality is the Khao Bantad Mountain with peaks more than 1,200 m. a.m.s.l. to the South East sea level. Also, Hatyai is delimited by a lower mountain range that can be followed from the Malaysian border 15-20 km east of the main road from Sadao and up to the coast not many kilometres from south of Songkhla. The peaks can be higher than 600 m to the south. Generally speaking, these borders are identical with the watershed area of U-tapao River. The alluvial plain between the mountains is broken by isolated hills (Monadnocks), especially in the Province of Phatthalung, which they form peculiar topographic features. The alluvial plain turns into a coastal plain, mainly consisting of marine and dune deposits, along the Gulf of Thailand. Those are the reasons why Hat Yai Municipality could be called as a “floodplain” which gather water from other higher surrounding areas, before it flows to Songkhla Lake Basin (Gyawali *et al.* 2013).

Climate of study area

Beringin River water debit will increase in volume when high-intensity of rainfall in upstream areas happened. Water will flow to downstream area with the cramped river conditions then the water can no longer be accommodated and eventually will be overflow.

Similarly, rain continuously over a period of time in downstream areas can also caused the puddles in the plain of the river. Based on average rainfall data from 2009 to 2013, Beringin River has high rainfall. Semarang has two seasons; rainy and dry seasons. The wet season is influenced by monsoon and a rain storm begins in November and lasts until April, while the dry season is started from May to October. Rainfall is high with a small storage capacity of water in the river, it is potential that the water will overflow and inundate the lower area.

On the other side, Hatyai has a tropical climate, which is hot and humid, like other parts of Thailand. Two seasons; wet and dry occur in Hatyai. The wet season, which is influenced by monsoon and rain storms originating from the Pacific Ocean and South China Sea starts from May to December, while the dry season is only from January to April. Additionally, there have been occasional floods in Hatyai due to the heavy rain; sometimes, the rain falls for twenty-two days in November with more than 317 mm of precipitation. The average annual rainfall for the period has been calculated and showed in Table 1. The occurrence of rainfall in Semarang varies in between January to December which equally 2279.8 mm per year. The average of annual rainfall in Hatyai is lower than in Semarang, which is equal to 1726.3 mm per year.

TABLE 1. AVERAGE RAINFALL DATA OF BOTH SEMARANG AND HATYAI DURING 2009-2013 (MM)

| Month City | Jan | Feb | Mar | Apr | May | Jun | Jul | Agt | Sep | Okt | Nov | Dec | Year |
|---------------|-------|-------|-------|-------|-------|-------|-------|-----|-------|-------|-------|-------|--------|
| Semarang | 479.2 | 361.2 | 167.2 | 211.8 | 213 | 167.8 | 55.4 | 33 | 54.6 | 97.8 | 209.2 | 229.6 | 2279.8 |
| Hatyai | 53.8 | 24.4 | 75.1 | 118.6 | 147.7 | 119.3 | 104.5 | 113 | 157.3 | 227.8 | 317.1 | 267.7 | 1726.3 |

Source: Rainfall Station of Beringin River and Thai Meteorological Department

Land use

The development of urban activities in the watershed of Beringin River has been associated with changes in land use. In the upstream part of the river, the characteristic of land use in general is in the form rural activities. In the downstream part, there is a form of urban land use scattered in the activity center and along the lines of the road. The processing factories with high intensity and large scale production are directly adjacent to the

main road of Pantura Semarang-Kendal and close to the center of transportation services such as Ahmad Yani Airport and the Semarang port. Rapid growths of building are happened in these areas. Also, some of areas in the upper part of the river are used as a garden (81.04%). In the riverside area (Figure 3), the land use is mainly covered by residence and office building. It explains the less water infiltration which caused inundation in the area of the riverside.



A



B

FIGURE 3. A: RIVERSIDE AREA OF BERINGIN RIVER, B: RIVERSIDE AREA OF U-TAPAO RIVER

The present land use in the Hatyai Municipality has showed that there are many new building areas; since it is a central business district in Songkhla Province. Some types of land use dominates are settlement area and commercial area; while minor areas are used for industries and public service offices. In addition, three types of land use dominates are evergreen forests, para rubber plantations and paddy fields. Land use change in catchment area from natural forest become rubber plantations has been one of causal factor of flood in Hatyai. Also, the residential areas have threatened the infiltration process.

Flood characteristics

The flood disaster that occurred in watershed area of Beringin River is mainly caused by the condition of the downstream part which has a narrow shape. By this fact, the river can not be longer accommodating the enormous volume of water from the upstream part. The overflowing water will inundate the areas which are lower in vicinity. When the rainfall increase water debit, it will cause the flooding in areas of Beringin River. In addition, the floods that occurred in the estuary part of Beringin River is also influenced by tidal sea water especially during high tide in the afternoon and during the full moon. Thus the condition becomes more severe during the rainy season, where the flood from upstream areas could not be immediately thrown into the sea because of the insistence of tidal seawater into the mainland.

Flood in U-tapao River basin, i.e. Hatyai, becomes worst by year. In last decade (1998 - 2008), it was recorded four (4) flood event in 1998, 2000, 2005, and 2008. The worst one happened in November 2010, which caused million dollars lost. Actually, the worst flood which happened in 2010 still went on, even though there was a preventive system (construction of bypass drainage, canals, pumping stations, retarding ponds and trunk drainage). The flood characteristics in Hatyai are high chances of yearly flooding with great quantity and turbulence of floodwaters. The height is getting higher

and the widespread of overflow areas are getting larger every year.

Local Wisdom in River and Flood Management

River management actually means as a water resource management in river. In Indonesia's constitution, it has been mentioned that waters are non-renewable resources which useful for people's life. Therefore, in order to provide comprehensive management, integrated, environmental friendly, and sustainable for people's prosperity, there are three areas that must be fulfilled (Suciati 2010), i.e. 1) conservation part that aimed to preserve the existence, support capacity and function of water; 2) utilization part that aimed to water resource sustainable exploitation by prioritizing on fulfilled basic need of life through planting around riverbanks, coordination with institution and community fairly; and 3) destructive force of water control part which includes mitigation, relief and recovery of flood, erosion and sedimentation, landslide, cold lava flood, land subsidence, nature and physical water change, all of plants species endangerment, epidemics, intrusion or leakage. In this study flood management is included in the third area.

In connection with local wisdom in flood management, according to Keraf (2010), local wisdom is all knowledge, conviction, understanding or insight and culture or ethics that brought up human behavior in ecological community life. In fact, local wisdom is not only related to indigenous knowledge and understanding about human and the relationships between men, but also related to knowledge, understanding and culture about human, natural and how these all relationships within inhabitants of these ecological communities should be built. All this traditional wisdom at first found, practiced, taught and handed down from one generation to another which form behavior pattern in every days life, both in terms of within human beings and nature (Siswadi *et al.* 2011).

In Semarang, especially in the watershed area of Beringin River, some ways to prevent floods with

environmental wisdom are: 1) drainage clearance; 2) bio-pores holes or infiltration wells making; 3) bamboo and trees planting; 4) expand the land area in backyard; 5) always reminding the family members and neighborhood to maintain the environmental hygiene since it is not only government official responsibility but also every ones responsibility for common interest (Setyowati, 2013). Planting bamboo is one most popular of local wisdom form; it commonly planted along the riverside. Bamboo is the most sophisticated capillary technology from nature. It can be an absorber and water conservator. The proof is in every lushness Bamboo forest will be constant and stable springs out even though in dry season. Bamboo can keep a liter of water in average per day so it could maintain mountain water spring and river debit to prevent flood. It also can create micro-climate that allows micro-organisms growth (Setyowati, 2013). However, the form of environmental wisdom to prevent flood disaster is not enough for total prevention. The annual flooding always occurs since an overflow of water debit with the shape of a narrowing river that can not be longer to accommodate water volume. By this case, the mitigation and preparedness of community to cope and stand with the flood is needed. Local wisdom in preparedness of disaster mitigation has been done by the ancestor since long time ago. The gong (*kentongan*) as a traditional tool of early warning system has been used for long time and it still remains used nowadays. In the form of modern technology, the early warning system, water gate, water pump station and canal have been developed recently. The implementation of the early warning system has been started from 2012. Database related to the floods in Beringin River watershed area, flood debit, morphology, river cross section and rainfalls were accurately collected. Community participation in form of *Kelompok Siaga Bencana* has been developed as well. The early warning system together with the government, community participatory is hoped to be a good system for preventing high losses in economy, human, and natural resources.

There are two types of the local wisdom to manage the flood disaster in Hatyai, especially the people who live in the watershed area of U-tapao River as the follows. The first type is the original local wisdom combined with a modern technology including concrete dam, Watergate, irrigating tube, irrigation canal, water pump, water pump dynamo and underground water drilling that were found at the source, midst and tide tail of the river basin. They constructed it in order to storage water for using purposes in dry season and to mitigate flood plane during rainy season. Second type of local wisdom is the community participation in river and flood management. In Hatyai, there are some communities involved in river and flood management. In this study, a discussion on river and flood management, especially in flood mitigation, preparedness and post flood management had been conducted with Pratanterewat community, Tonlung community, Tarad community, and Yanyaw-oak community in Hatyai. The communities have been developing the system of flood adaptation. It is how they cope and stand with the flood

disaster. The early warning systems for flood anticipation are in the form of rainfall water debit measurement tool, CCTVs in water gate and the upstream part, automatic water level measurement tools monitor water level in the upstream part of U-tapao River. They also have been developing the automatic information system which integrated with the early warning system. When the water debit increases, the government together with the communities are participating to inform the citizens in form of flags information system via walkie-talkie, internet, mobile phone application, radio, television and short message service. Since the flood in Hatyai is a natural disaster, the people must stand with the flood. The local wisdom form also found in community's refugee camps and people's housing. They build a building with two or three floors in order to anticipate the water of flood when the flood is coming. Also, they develop traditional canoes and rafts as traditional transportation modes in flooding conditions. In order to evacuate the people in the middle of flood disaster, they have prepared life vest and ropes in every spot of community's refugee camps. In the refugee camps, they have well-developed logistics, medicine, traumatic center and health services. All these systems from preparation, anticipation and adaptation have been developed and applied in an upright way and having respectable results for people in Hatyai.

Community participation in mitigation and flood management is included in the local wisdom form. The community is involved in an activity or policy implementation; it cannot be separated from community role as the main actor who felt directly the benefit of river existence. Combination of local wisdom and technology implementation is a major part of integrated resource management (Kongsat *et al.* 2009). Also, the local knowledge in flood management based on sociocultural are classified in three parts, namely prevention and preparedness, emergency response, and post disaster management. The early warning system should be more emphasis on local wisdom that the impact of floods can be suppressed.

CONCLUSION

It is worth mentioning that until recently, the flood management could be characterized as a flood defense regime with a sectoral and technological focus, rather than an integral and spatial focus. Local wisdom application in the form of traditional and modern technology together with community participation on flood management is need to be preserved. After experiencing "wake-up" floods in 2010 both in Hatyai and Semarang, the river and flood management are now being most important issue to be concerned. However, Semarang needs to learn more from Hatyai in this case of flood management. Therefore, a comparative study between Thailand and Indonesia with regard to flood management concepts and practices is a subject worth exploring.

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Making Technical, Vocational Education and Training a Premier Choice among Communities with Integration of Social Skills and Social Values in Technical Subjects

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Abstract — The main purpose of this paper is to provide information and research findings to dispel negative perception of parents, teachers and students about technical, vocational education and training (TVET) as being second class, meant for the academically weak and low income jobs. Two studies were conducted, one in 2007 and the other in 2012. The first study was to determine the extent of knowledge acquisition among trainers and coaches of TVET institutes/ centers of government and the private sectors. The second study was to determine level of acceptance of skill training among communities in Malaysia. The findings of the first study indicated that trainers/ coaches gained about 20% of knowledge on social skills and social values after they had undergone a four-day training of trainers (TOT) workshop program using experiential learning approaches involving outdoor activities. While the findings of the second study confirmed the findings of previous studies in that only 10% to 15% of parents and students accepted skill training as a viable alternative to academic disciplines. Five dimensions related to acceptance of TVET by communities were selected for the study and were found to be positive and significantly related with acceptance of TVET. Communication skill was found to be the most important social skill while “ability to work with others” was the most desired work value required by employers. Several conclusions and implications can be drawn out from the two studies: (i) social skills and social values can be taught through integration with the teaching and learning of technical subjects to develop a dynamic employability traits among apprentices to become effective k-workers; (ii) several dimensions had been identified in the second study to have positive impacts on the acceptance of skill training among parents and students. These dimensions should be put forward in the form of strategies and approaches by government and related bodies to promote and convince parents, students and teachers that skill training can become a premier choice among good academic standing students as parallel (rather than alternative) to the academic disciplines.

INTRODUCTION

The vocational and skill training has never been a premier choice of parents, teachers and students of secondary schools in the Malaysian context. They regard vocational and skill training is for student who are academically weak, second class status and meant for low income jobs. The academic disciplines are still the focus of parents, teachers and students even though some academic disciplines are not directly related to present day needs of job markets. It is not uncommon to see academic discipline graduates who could not find employment two or three years after graduation. Many have to be retrained in specific knowledge and skills to

accommodate present needs of industries as well as to develop employability traits that could withstand present and future global challenges.

As a country moves to become an industrialized nation, it needs a pool of talents skilled and knowledgeable to operate and manage high technology industries to sustain global competition. To produce this pool of talents to become a competent workforce, our youths, parents and teachers must accept technical, vocational education and training (TVET) a viable alternative to academic disciplines in terms of employability, career prospects and remuneration. In line with the perception and belief about TVET, a number of strategies and promotions were undertaken by relevant government bodies and the private sector to overcome the problem. For example, Malaysia through its 7th Malaysia Plan (1996-2000) trained a total of 187,400 skilled and semi-skilled workers, while 88,500 more were trained in the 9th Malaysia Plan (2006-2010). An advanced training program leading to acquiring level four of the Malaysian Skill Certificate (MSC) (equivalent to diploma qualification) was instituted and in 2009 a total of 29,840 received their diplomas (10th Malaysia Plan, 2011-2015: 47). Also in 2006-2010 (9th Malaysia Plan), a total of 20,460 apprentices received vocational and skill training by the Department of Skill Training (Ministry of Human Resource) in collaboration with industries under the National Dual Training System (NDTS). This partnership (government sector and the private sector) in vocational and skill training was found to be successful where 90% of the graduates secured employment immediately after their training program.

In spite of the serious and aggressive effort undertaken by government departments and the private sector in trying to make TVET a premier choice among communities, it is yet to achieve the desired goal. A study on level of knowledge and acceptance of TVET among secondary school students and parents found that only 10% to 15% of them were knowledgeable about TVET and willing to accept TVET as an alternative to academic disciplines (Rahim M. Sail, et. al, 2012)¹. The study

¹ This study was funded by the Department of Skill Training, Ministry of Human Resources Malaysia

further identified several dimensions that were considered to be relevant and could influence acceptance of students and parents on TVET parallel² to that of the academic disciplines. The dimensions selected were: (i) image and pride at work; (ii) job and career security; (iii) employability; (iv) career prospects; and (v) remuneration and fringe benefits. Table 1 illustrates the correlation between the selected dimensions and level of acceptance of TVET among students and parents.

Table 1 shows that all the five dimensions had significant and positive relationships with acceptance of TVET among student and parent respondents. This means that each of the selected dimensions plays an influencing role in explaining level of acceptance of TVET among students and parents. In terms of scores of r value, image and pride at work had the highest r value with $r = 0.72$ and $r = 0.64$ for student and parent respondents respectively. Surprisingly, remuneration and fringe benefits had the lowest values of 0.64 and 0.56 respectively for student and parent respondents, indicating that TVET graduates progressed in their career both in terms of salary and promotions as an alternative pathway, particularly school leavers and underachievers, to achieve career success and enhanced social inclusion through higher salaries, job status and educational attainment (Zohara Omar et. al, 2011). In fact, TVET graduates value their contribution towards nation building – a feeling of pride and a positive image of a profession.

TABLE 1: CORRELATION BETWEEN STUDY DIMENSIONS AND LEVEL OF ACCEPTANCE OF TVET AMONG STUDENTS AND PARENTS.

| Respondents | Categories/ Dimensions | Students (m=897) r value | Parents (m=727) r value |
|--------------------------------|---------------------------|-----------------------------|----------------------------|
| Level of Acceptance | | 1 | 1 |
| Image & Pride at Work | | 0.72* | 0.64* |
| Employability | | 0.69* | 0.63* |
| Career Prospect | | 0.67* | 0.60* |
| Job & Career Security | | 0.66* | 0.57* |
| Remuneration & Fringe Benefits | | 0.64* | 0.56* |

*Significant level at 0.01 (1-tailed).
 Source: Rahim M. Sail, et. al, 2012.

Regression analysis on the five study dimensions explained 62% of the variance (adjusted R² value) for student respondents and 66% for parent respondents on acceptance of TVET. This means that the five selected study dimensions represent about two-thirds of relevant factors that may influence acceptance of TVET among communities in Malaysia. If these dimensions are given due attention in TVET promotions, campaigns and programs, couple up with the expansion and establishment of new TVET institutes/ centers, the goal of achieving a viable alternative parallel to academic disciplines would be achieved.

Development of a Competent Human Capital

² The term “parallel” was used rather than “alternative” to academic disciplines due to its potentials and future prospects which are similar, and in some cases better than the academic disciplines.

In any successful economy of today, skilled and knowledgeable human capital is highly emphasized, besides the availability of labor, capital and technology. This emphasis allows a competent workforce to adopt and utilize available and relevant technology to benefit industries as well as to expand and sustain growth to meet global and future challenges. To produce a competent workforce to operate and manage present day industries requires a comprehensive and detail technical training program. This technical training program would prepare apprentices to become competitive not only at the local level but also at the international level in today’s era of globalization where growth of technology brings changes at work to give impact to knowledge and skill of the individual workforce (Cullingford and Gunn, 2004). It has been found that technical knowledge and skill alone would not bring out the best of an individual workforce to produce maximum results. Technical knowledge and skill when combined with social and human skill enhance a holistic approach towards work where technical expertise and positive behavioral traits move in tandem to achieve and sustain organizational goals. However, a review of the literature on TVET graduates indicates that they are adequately trained in the technical areas, but lack in social skills and social values (soft skills) needed by industries to meet present needs of employers and customers (Bakar and Hanafi, 2007; Nurita et. al, 2004; Singh and Singh, 2008; Rahim M. Sail, et. al, 2007; Deil-Amen, 2006). TEVT apprentices of the past are generally equipped with core occupational technical competencies, leaving out the social skills and social values in the formal curriculum as they are assumed to have been “taught” and “inculcated” by parents at home in the process of upbringing and/ or societal influence through formal and non-formal institutions (Rahim M. Sail & Khadijah Alavi, in Maimunah et. al, 2007). In fact, some would even argue that the inclusion of social skills and social values in a formal technical curriculum would pose “difficulty of entry” as they may not be in consonant with the major focus of the technical curriculum. To support the inclusion of social skills and social values in a technical curriculum, Lussier (2003) asserts:

Anyone familiar with real world career dynamics understand that trustworthiness, loyalty and the capacity to effectively and punctually get a job done, are among the most highly sought after traits in every industry, organization and school. But characteristics of integrity and dependability do not just appear in a student or employee by magic. They must be taught, practiced and developed like any other subject or skill. No matter how promising a student’s future appears based on academic proficiency (GPA and test scores), their potential will always be limited if they lack a strong foundation of leadership, character and life-skill education and experience.

Implicit in the assertion by Lussier are: (a) a good job performance is a function of technical as well as human

and social competence; (b) career advancement among employees is determined more by social skills and social values rather than by technical skills alone; and (c) human and social competence cannot be left to happen through natural means such as family, peers and societal influence.

The Development of Knowledge Workers

Social skills and social values are integral partners of technical knowledge and skills to ensure good job performance in organizations. With present emphasis on knowledge workers (k-workers) to face global competition and challenges successfully, it is imperative that the workforce be equipped with sound technical, social and human as well as learning how to learn competencies. Zenger and Folkman (2002, p.45) argue:

The old paradigm of separating core academic curriculum from leadership, character and life-skill education in schools in many developed countries such as the United States and the United Kingdom is gradually beginning to shift. The time is coming when classes in leadership will be equally important as those in mathematics, science and English; and from a career stand point, possibly more important.

K-workers can be developed through TVET programs (pre-service training) as well as in-service training programs where trainers of institutes and coaches of industries are trained and have the knowledge and skills to integrate social skills and social values in the teaching and learning of technical subjects. Therefore, it is extremely important that trainers and coaches are exposed and trained in social skills and social values so that they are willing to buy the idea and disseminate them to their apprentices. If apprentices are exposed with social skills and social values through the teaching and learning of technical subjects, they would be able to develop the characteristics of k-workers, or at least they would be exposed with the benefits of what k-workers can achieve. In general, k-workers are able: (i) to speak, read and use information effectively; (ii) to solve problems and think critically and creatively; (iii) to co-operate and work in a team; and (iv) to work as professionals with high integrity and accountability (Rahim M. Sail et. al, 2007).

Training of Trainers in Social Skills and Social Values

A group of TVET trainers from public and private institutions were involved in training of trainers (TOT) program to acquire knowledge and skills on how to integrate social skills and social values in the teaching and learning of technical subjects. A four day TOT-cum-workshop was organized attended by trainers and coaches who had qualifications in the fields of engineering, automatic, ICT, beautification and spa and accountancy. These participants had never been formally exposed and trained in social skills and social values. The TOT-cum-workshop utilized 80% of the training time carrying out

outdoor hands-on experiential learning activities. The participants were asked to carry out several leadership, team-building and problem-solving exercises. The exercises and activities were videotaped and played back for group discussion as basis for developing contents on what social skills and social values the participants had learned during each exercise. A handbook on core social skills and social values³ was given to each participant as a reference to be used in each group discussion as well as in the preparation for group presentation.

A retrospective post-then-pre evaluation design was used to determine the acquisition of knowledge on social skills and social values among participants at the end of the four-day training program. A retrospective evaluation design is considered appropriate to measure self-reported changes in knowledge, awareness, skills, attitudes and behaviors as it takes less time, less intrusive, avoids pre-test sensitivity and response shift bias resulting from pre-test overestimation or underestimation (Rockwell and Kohn, 1989; Davis, 2003; and Griner-Hill and Betz, 2005). Eight social skills and eight social values were selected in this study. The eight social skills were: conceptual skill, learning skill, self-discipline, communication skill, interpersonal skill, teamwork, multitasking and prioritizing and leadership skill. The eight social values selected were: compliance, cooperation, diligence, honesty, meticulous, moderate, punctuality and self-reliance.

The findings of the study indicated that social skills and social values could be taught when the results showed that trainers and coaches gained about 20% increase in knowledge on the selected social skills and social values after the TOT-cum-workshop program. This indicates that, with appropriate teaching and learning techniques and appropriate learning environment, social skills and social values could be integrated in the teaching and learning of a technical subject. This augers well with the notion that social skills and social values enhance the development k-worker among TVET graduates.

Curriculum experts of TVET should revisit the technical curriculum to include the learning of social skills and social values in the form of individual/ group assignments, group discussions and presentations, gathering extra and relevant information from experts and using ICT to explore latest available technology and best practices of other industries/ organizations. Imbedded in the inclusion of social skills and social values in the learning of a technical subject in the study produce social skills of "teamwork", "multitasking and prioritizing", "communication skill", and "self-discipline", while some social values that emerged from the study are: courage, cooperation, compliance and meticulous. Trainers and coaches need to identify, discuss, highlight and emphasize the emerging social skills and social values in relation to

³ See Figure 1: Competencies of a Holistic K-Workers where eight (8) social skills and 16 social values are depicted in Rahim M. Sail et. al, National Dual Training System: Handbook on Social Skills and Social Values in Technical Education and Vocational Training (2nd edition). Ampang Press Sdn. Bhd. K.L., 2007.

strengthening the meaning and understanding of the technical subject in focus. Therefore, the integration of social skills and social values in the teaching and learning of technical subjects usually not only enhance better understanding of the technical subjects but also would open up apprentices' mindsets to be creative and positive in their work to solve problems and to face challenges.

CONCLUSION

Malaysia aims to be a developed nation by year 2020. A developed nation requires a strong economy with continuous and sustain high growth. A strong economy requires skilled and knowledgeable workforce to attract local and foreign direct investments (Fong Chan On, 2006;

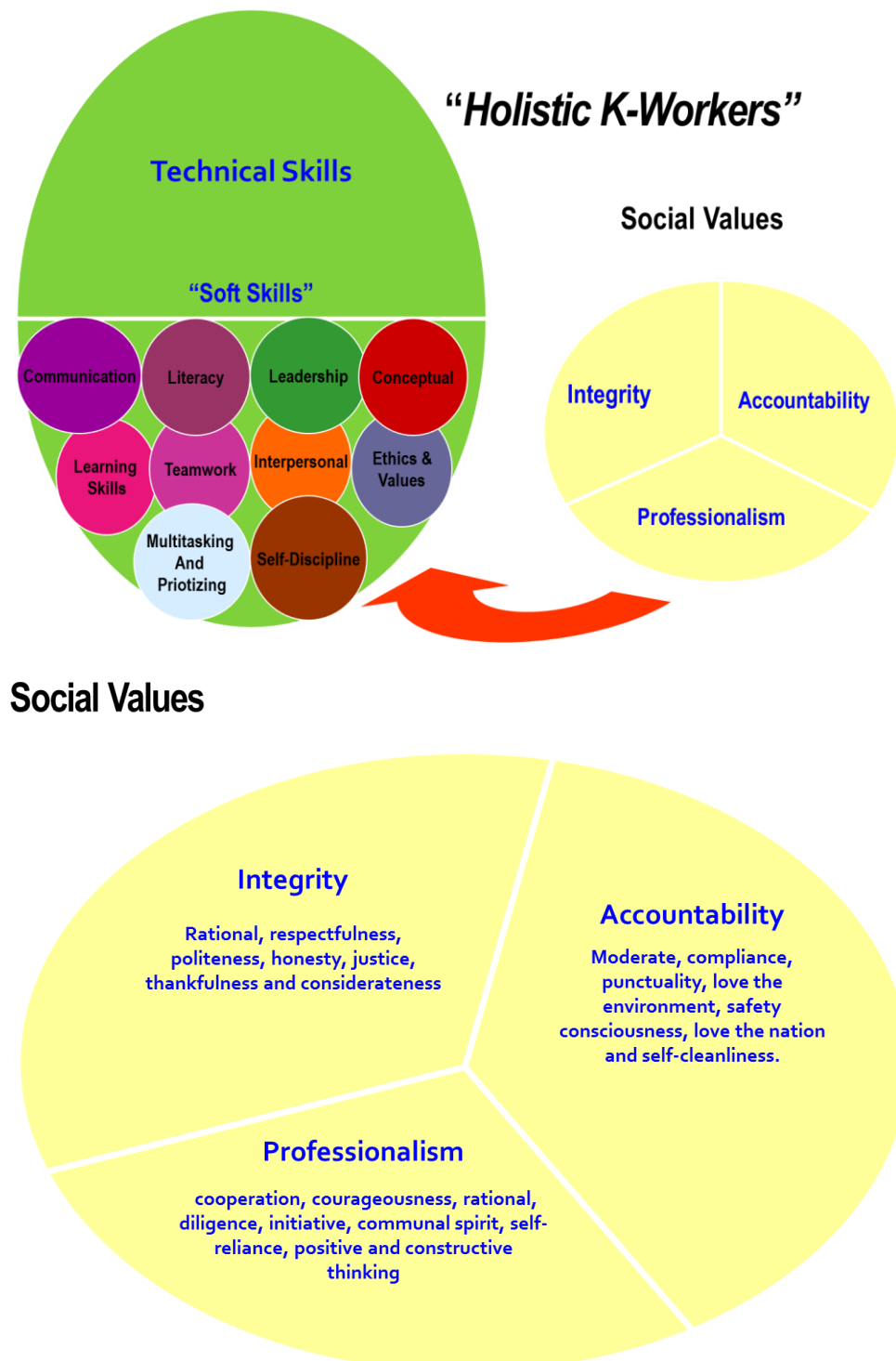


FIGURE 1: SOCIAL SKILLS AND SOCIAL VALUES FOR A HOLISTIC K-WORKER

Kanapathi, 1997; Tan & Gill, 2002). With this goal in mind, this paper has highlighted the role of vocational and skill training as an important ingredient to develop k-workers from the perspective of trainers/ coaches and apprentices. The discussion would not be complete if employers' views are not taken into account in terms of

what knowledge and skills TVET graduates should have. Table 2 shows several general technical attributes required by employers which would help industries to reduce work accidents, improve products quality, comply with industry requirements and follow best practices of advanced industries.

TABLE 2: GENERAL TECHNICAL ATTRIBUTES EXPECTED BY EMPLOYERS OF TVET GRADUATES (N=65)

| General Technical Attribute | Freq. | % |
|--|-------|------|
| Always give priority to safety and health in work environment | 51 | 78.5 |
| Always give priority on work quality | 47 | 72.3 |
| Follow standard operating procedures | 44 | 67.7 |
| Implement task according to work specification | 40 | 61.5 |
| Always follow the development of new technology and utilize them | 31 | 47.7 |
| Always search for sources of new knowledge to avoid being obsolete | 29 | 44.6 |
| Always pay attention to minute details to ensure quality products | 18 | 27.7 |

Note: Percentage is more than 100 because respondents can choose more than one answer.
 Source: Rahim M. Sail et. al, 2012.

Employers gave priority to work safety and health (78.5%) to ensure that production cost remained stable and competitive. Whatever increases in production cost must be reflected in terms of higher productivity and higher quality products. Work quality (72.3%), standard

operating procedures (67.7%) and implementing task according to work specifications (61.5%) were other important technical attributes required by employers (see Table 2 for details).

TABLE 3: EMPLOYERS' EXPECTATION ON SOCIAL SKILLS OF TVET GRADUATES (N=65)

| Social skills required by employers | Freq. | % |
|--|-------|------|
| Able to communicate clearly | 60 | 92.3 |
| Able to provide leadership in organization | 33 | 50.8 |
| Able to work in groups | 32 | 49.2 |
| Show high professional characteristics | 32 | 49.2 |
| Able to perform several jobs at one time | 31 | 47.7 |
| Possess high accountability traits | 29 | 44.6 |
| Possess high integrity characteristics | 25 | 38.5 |
| Respect differences of culture and belief | 18 | 27.7 |

Note: Percentage is more than 100 because respondents can choose more than one answer.
 Source: Rahim M. Sail et. al, 2012.

In terms of employers' expectation on social skills of TVET graduates, Table 3 illustrates that almost all the employers (92.3%) rated communication skills as the most important social skill required by them. This is understandable because the ability to communicate effectively will ensure the success of business deals,

besides being able to disseminate information accurately to co-workers and subordinates. Other social skills required by employers were leadership skill (50.8%), able to work in groups (49.2%), high level of professionalism (49.2%) and able to perform several jobs at one time (47.7%). See Table 3 for details.

TABLE 4: EMPLOYER'S EXPECTATION ON WORK VALUES OF TVET GRADUATES (N=65)

| Work Values Required | Freq. | % |
|---|-------|------|
| Able to work with others | 49 | 75.4 |
| Have high work creativity | 43 | 66.2 |
| Able to face work challenges | 37 | 56.9 |
| Able to decide on own work schedule to achieve company's target | 33 | 50.8 |
| Able to make critical decision related to work | 33 | 50.8 |
| Able to work under pressure | 25 | 38.5 |
| Able to work in situation that needs high precision | 21 | 32.3 |
| Have a wide networking with others | 19 | 29.2 |

Note: Percentage is more than 100 because respondents can choose more than one answer.
 Source: Rahim M. Sail et. al, 2012.

Positive work values are as important as social skills as they complement each other to develop k-workers who have positive employability traits to manage and operate modern day industries. Table 4 illustrates the results of the analysis on work values required by employers on TVET graduates. The ability to work with others (75.4%), high work creativity (66.2%) and able to face work

challenges (56.9%) were three top work values emphasized by employers (see Table 4 for details).

As a concluding remark, it is heartening to note that trainers and coaches of industries are beginning to appreciate and realize the importance of social skills and social values in the training of apprentices after undergoing the TOT-cum-workshop program. It is more

interesting to note that even employers are now looking for an all-round workforce, competent not only in technical matters but also in human and social competence to sustain growth and become more competitive. A follow-up study of trainers and coaches of industries who had attended the TOT-cum-workshop program at their place of work after six months indicated that they had acquired useful and practical knowledge on social skills and social values. However, they still required additional training on appropriate teaching/learning methods to effectively disseminate social skills and social values to their apprentices (70.4%). Another area that trainers and coaches needed further training was in evaluating the effectiveness of dissemination of social skills and social values (see Table 5 for details) to apprentices. The fact that they wish to acquire additional knowledge to implement social skills and social values in

their training programs indicates that they are ready to develop k-workers who are professionals with high integrity and accountability.

This paper has argued a case that TVET can become a premier choice among parents, teachers and students if TVET can become a viable alternative to academic disciplines in terms of image and pride at work, employability, career prospects and job security. This viable alternative can be strengthened and become parallel to academic disciplines if social skills and social values are integrated in the teaching and learning of technical subjects in pre-service and in-service training programs. A competent workforce is usually equipped with both technical and social and human competence to become holistic k-workers, able to solve problems and think critically and creatively besides able to cooperate and work in a team.

TABLE 5: ADDITIONAL KNOWLEDGE AND SKILLS REQUIRED BY TRAINERS AND COACHES OF INDUSTRIES TO INTEGRATE SOCIAL SKILLS AND SOCIAL VALUES (N=179)

| Knowledge/ skills | Freq. | % |
|---|-------|------|
| Acquisition of appropriate teaching/ learning methods for dissemination | 126 | 70.4 |
| Ability to evaluate social skills and social values in TVET | 122 | 68.2 |
| Ability to integrate social skills and social values in learn and work assignments (LWAs) | 103 | 57.5 |
| No response | 7 | 3.9 |

Note: Percentage is more than 100 because respondents can choose more than one answer
 Source: Rahim M. Sail and Khadijah Alavi, 2010.

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The Strategies of Tofu and Fermented Soybean Cake Cooperation in Facing China-Asean Free Trade

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Abstract — This research was aimed to identify the internal and external factor for encountering free trade China-Asean and to find some strategic model alternative that can be applied by *Primkopti* Semarang to develop their business. The analysis methods used were descriptive analysis method and SWOT analysis. The result of this research showed that internal factors for cooperation's strength for encountering free trade including soybean distributor in form of cooperation in Semarang and experienced manager to carry out the business. The weakness one was the research and development of cooperation hasn't been optimal and the management of information system hasn't worked well. External factors for opportunity one including the soybean buyer or main customer was cooperation members having dual identity, as for the threat including no resistance for new competitor, increasing soybean import, soybean importer has strong bargain position. Compatible strategy for cooperation implementation in encountering free trade China-Asean was market penetration strategy and product development. It was advised that there is a high and consistent commitment from all member of *Primkopti* Semarang. There is necessary need for evaluation on its way to the accomplishment with measurable performance indicator.

Keywords— Free Trade, Cooperation of Tofu and Fermented Soybean Cake

INTRODUCTION

Free trade is now threatening many industries in Indonesia. Various international agreements, relating to free trades, have been agreed upon by Indonesian Government without deeply considering the effects that might be elicited. Some of these agreements are AFTA (Asean Free Trading Agreement), CEP (Indonesia-Japan FTA), CAFTA (China-Asean FTA) and Asean-Korea FTA, Meanwhile, Asean-India FTA, Asean-European Union FTA and Asean-Australia & New Zealand FTA are still in negotiating processes. Indonesia-USA and Indonesia-Switzerland, Norwegia, Ireland FTAs are still in pre-negotiating processes supported by joint study groups. The one which takes so much attention presently is CAFTA (the agreement on free trading areas between Asean Countries and China).

In relation to CAFTA, Indonesian Government had individually built an international agreement with China. The agreement had been agreed upon in Bandar Seri Begawan, Brunei, on November, 16, 2001. The logic of such an agreement was none other than the attempts of industrialized countries to expand their market shares

with the domestic the developing countries became the main victims.

Cooperative for tofu and fermented soybean cake producers in Semarang City (*Primkopti*) constitutes a community-level economic foundation for Semarang City. It has been able to provide economic added values and significant contribution for expanding job opportunities in Semarang City that it becomes an entity having an ability to increase economic welfare of the community. *Primkopti* supplied kedelai (raw materials for producing tofu and fermented soybean cake) to its members. Before being delivered to consumers, kedelai was processed in two types of treatments: (1) fermentation processes producing kecap, tauco, oncom and tempe and (2) non-fermentation processes producing kedelai milk, sere, rauga, tahu and kedelai flours. Most Indonesian love eating tofu and fermented soybean cake.

On the average, tahu and tempe producers, particularly in Semarang City, were small-scale entrepreneurs. They did not have adequate bargaining powers particularly in facing kedelai suppliers. Therefore, they really needed a cooperative that would fulfill their needs for raw materials. The cooperative was *Primkopti*, which was founded on December, 14, 1979. *Primkopti* competes with private suppliers for kedelai. With the agreement on free trading areas between Indonesia and China, *Primkopti* should certainly take new strategic measures in order to survive and to have strong competitive power within the very heavy competition. The strategic measures should began with comprehensively identifying both internal and external environments. It is only when these comprehensive measures had been completed that *Primkopti* would be able to build adequate strategies for overcoming its own weaknesses, increasing its own strengths, seizing opportunities and dealing with various potential threats. Strong strategies for anticipating and facing the CAFTA are really necessary since *Primkopti* has not had a solid concept for developing appropriate measures that could appropriately respond the increasingly heavy competition. *Primkopti* is presently faced with both internal and external obstacles. Therefore, the problems in this research could be formulated as follow: (1) What internal factors constituted strengths and also weaknesses in *Primkopti* of Semarang City? (2) What external factors constituted opportunities and also threats for *Primkopti*?

(3) What alternative strategies could be developed by Primkopti for developing its business?

LITERATURE REVIEWS

Cooperatives are frequently characterized by a special characteristic not possessed by other business entities. This characteristic is called *dual identity* where the members of a cooperative are the owners who at the same time also customers to the cooperative. The dual function becomes the identity of the cooperative for its main objective is to increase the welfare of its members. Owners and at the same time also customers to the cooperative could very probably generate the following efficiencies: (1) Harmony between customers' preferences and the services provided by the cooperative. (2) Close relationship between a cooperative and its customers (who themselves are also the owners of the cooperative) would certainly result in relatively low transactional costs. Efficiencies are also related to togetherness within the cooperative, which is based on solidarity and cooperation. Such togetherness could also produce synergism accompanied by low costs for transactional deals.

The Law No. 25, 1992, on cooperatives states that a cooperative is founded based on similar economic interests among the founders who are then able to do certain lawful conducts and willing to use the services provided by the cooperative and to fulfill the obligations as stated in Basic Codes of Conducts of the cooperative (Articles 19 and 20, the Law No. 25, 1002). Togetherness among cooperative members is actually related to rationally economic reasons. Members hope to get higher economic incentives and benefits that could not be obtained from individual endeavors in small scales (Wirasasmita, 1994). Through economical endeavors, the cooperative could provide its members with economic incentives. In turn, the members might then be willing to increase their participation on the forms of transactional deals with the cooperative. Such business characteristic indicates that a cooperative is based on integration between two substantial elements, namely member participation and business efficiencies.

With CAFTA had been agreed upon in 2010, the smuggling practices of Chinese consumer products to Indonesia have disappeared. The free trading agreement has shown very clearly what a great deal of quantities of smuggled consumer products had previously entered Indonesia from China. The present question is: what about Chinese agricultural products? In the context of this research, what are the effects of Chinese soybean on *Primkopti*?

During the last ten years, Indonesian demands on soybean kept increasing in quantities but domestic production for soybean could not meet them. Soybean should be imported in big quantities. Low prices of soybean, particularly from USA, caused the domestic trading activities for kedelai to be non-conductive. However, the prospects of development programs for

soybean cultivation for minimizing imports are relatively good since there are large areas for soybean cultivation in Indonesia supported by suitable climates and considerable human resources.

In the present time, *Primkopti* of Semarang City faces several problems which began to arise when the trading practices for soybean changed from monopoly by *Bulog* to free markets. When soybean market was monopolized by *Bulog*, cooperatives (including *Primkopti*) got economic advantages because they could buy soybean from *Bulog* in lower prices than the prices prevailing in open markets. In the present time, the trading practice for soybean depends heavily on imports that the price fluctuates very heavily. As a result, other problems also arise such as the lowering of members' loyalty to *Primkopti* because of economic reasons and the increasingly heavy competition among soybean distributors.

According to Chandler, strategy is a long term goal of a company and empowerment and allocation of all important resources of the company for reaching the goal (Rangkuti, 2007). Basically, a strategy is then related to policies, goals and methods in using the existing means for reaching the goals. Therefore, a strategy should be supported by necessary capabilities for anticipating every opportunities (Suryono, 2004)

A study by Yusriansah M from the State University of Malang showed that due to increases in soybean prices, the revenues of local a chip industry in Malang, East Java, decreased significantly since this industry uses soybean as the main raw material. In 2007, there were 80 - 90 keripik producers but in 2010 the numbers decreased to only 65 (Disperindag, 2010). According National Cooperative for tofu and farmented soybean cake of Malang Region, however, there were several other obstacles for a chip industry in Malang. Not all a chip producers could launch promotion programs through printed media or electronic media or Internet. Long distance locations for marketing the products needed adequate transportation means, which meant higher operational costs. In addition, most of the local a chip producers lacked innovation and creativity in both producing and packaging their products.

On the average, a chip producer had 4 to 19 workers, total asset of not more than 200 million rupiah and annual revenue of not more than 1 billion rupiah. The keripik were produced in various flavors and marketed locally, regionally and also globally. Productivity was relatively high with total operational cost amounting to 500 thousands rupiah per month and revenue of 1 to 2 million rupiah

Research by Devin Setiawati on tempe producers in Sukorejo District, Kendal, Central Java, showed that on the average, productivity was relatively stagnant. Because of the fluctuating nature of kedelai prices, the tempe producers could not increase their productivity. Working capitals and workers did not affect the products, but raw

materials significantly affected them. The effect of the independent variables in the research amounted to 88.7%

Research by Oktaviana on PRIMKOPTI Bangkit Usaha Malang showed that the best strategy approach to develop cooperative institution according to SWOT matrix analysis there is develop product promotion to increase sales, improving member ability, improving store system management, applying information technology, PRIMKOPTI is on right track in implementing cooperative principle based on Undang-Undang Nomor 25 tahun 1992 such as member recruitment is voluntarily, democratic management, SHU distribution is fair according merit system, autonomous, cooperative education and partnership with other cooperative institution (Oktaviana, R.Vita, Agus S., Imam H., 2013)

Further, research by Hermawati, A.(2012), showed that the socioeconomic factors that influence revenue are education, the supply of soybeans and soybean Primkopti, supply from outside the family, the amount of labor and income outside the business can not be a good estimator. Simultaneously affect the socioeconomic aspects of operating revenues. Between the revenue with the participation of artisans cooperative members have close enough ties. Significantly affect the level of income artisans and craftsmen as a positive effect on participation of cooperative members

METHODS

This research used a quantitative approach. The researchers studied both internal and external variables which were defined as below.

1. Internal variables, related to measurements on managerial, development and information systems applied by *Primkopti* of Semarang City.
2. External variables, related to measurements on technological, political and social systems as well as on competition
3. Strategies, related to *Primkopti's* policies which were based on its own weaknesses as well as on outside opportunities and threats

This research was conducted in Semarang City. The research object was *Primkopti*, which supplied soybean to tofu and fermented soybean cake producers. This research used primary and secondary data. The primary data were collected by means of interviews and questionnaires. The secondary data were collected from written reports to Member Annual Meeting and from some other relevant documents.

The data were then analyzed using SWOT in the following steps :

1. Construct an Internal Factor Evaluation Matrix (IFE Matrix) for presenting and then evaluating *Primkopti's* internal strengths and weaknesses. This IFE matrix was developed in 4 phases: (a) presenting the relevant internal factors, (b) presenting the weights based on the effects of the factors on the business, (c) presenting the ratings

and (d) multiplying the weights to the relevant rating in order to produce weighed values.

2. Construct External Factor Evaluation Matrix (EFE Matrix) for evaluating external opportunities and threats. This EFE matrix was developed in a similar manner as that for developing the IFE matrix.
3. Construct Internal-External Matrix (IE Matrix) based on the model previously applied by General Electric. This IE matrix was based on two key dimensions; weighed average totals of IFE as shown in X axis and weighed average totals of EFE as shown in Y axis in Figure 2. In the X axis of the I E matrix, weighed average totals of 1.0 to 1.99, 2.0 to 2.99 and 3.0 to 4.0 were considered as low, medium and high respectively.

RESULTS AND DISCUSSION

Primkopti of Semarang City was established on May, 18, 1979. Based on the President Decree No. 19, 1988, *Bulog* (Indonesian National Logistics Body) could not any longer handle the imports on soybean. From then on, *Bulog* deals with free markets. Soybean began to be imported by importer association consisting of big corporations. USA supplied the largest quantities for these imports. The prices of soybean became very fluctuating and *Primkopti* should face heavy competition.

Analyses on internal weaknesses of *Primkopti*

1. Management

The organization was handled by a management team whereas the business affairs were managed by a manager who was appointed by the management and supervised by the board of directors. In order to fulfill the needs of its members for kedelai, *Primkopti* should buy from importers between 200 to 250 tons per month. There were always some members who bought soybean in open markets because the price of soybean from *Primkopti* was 150 rupiah higher than the market price. However, 100 out of the 150 rupiah price difference was actually returned back, at the end of the year, to the loyal members who kept buying kedelai only from *Primkopti*

2. Marketing

With its special characteristic, *Primkopti* had its own strength for it had a clear market consisting of its own members

3. Finance

In operating the business, *Primkopti* relied on active participation of its members. Every member should pay a fixed saving and then continuing (monthly) savings. As "customers to their own company", the members determined the business scale of their own cooperative and the scale of business would in turn determine the profits. Operational cost for managing a cooperative was higher than that prevailing in other establishments for a cooperative always has more complex management consisting member and business managements. The largest amount of cost in *Primkopti* was consumed by

organizational costs consisting of costs for paying the salaries of the management team and the board of directors, costs for annual meetings and costs for some other operations.

4. Operation

The allocation of soybean was based on a first in-first out procedure. The inventory of kedelai depended on members' needs, on the ability of *Primkopti* to stock in and on the ability of the management to manage

5. Research & Development

Due to limited funds and human resources, *Primkopti* had not had research & development team that it did not have a data base on markets, prices, qualities, quantities and continuities of supplies. *Primkopti* got information and technological aids only from the government and Universities or Colleges

6. Managerial Systems

The managerial systems in *Primkopti* was still so conventional in nature, concerning only with such matters as agenda recordings, filings, communication among employees, communication between employees and the management team, information for decision making and some others.

Analyses on *Primkopti's* strengths showed the following results.

1. The operational plans were drafted by the management and then submitted to the annual meeting where the drafts were discussed. These drafts concerned with projected revenues and expenses, working programs, general policies and other endeavors that should be attempted by the cooperative
2. The buyers were also the members of the cooperative that the market was already very certain. In this context, services to the members became the first priority
3. Supplies of soybean by the cooperative were more efficient, due to economics of scale, than

when each member had to buy kedelai from other sellers

4. The office and warehouse of *Primkopti* were in strategic points of locations easily accessible for its members to participate actively and to make use of the services

Analyses on external environments showed the following results:

1. Economic condition.

The fact showed that soybean imported by *Primkopti* is now increasing in their quantities because of the increases in tahu and tempe consumption, particularly in Semarang. On the one hand, such a condition constituted a good opportunity for *Primkopti* to develop its business. On the other hand, however, with the exchanging value of rupiah to USA dollar kept weakening, the prices of kedelai also kept fluctuating that *Primkopti* could not fully fulfill the needs of its members for soybean

2. Social, cultural and environmental factors

With global trading liberalization on its way, it was quite an irony when most of Indonesian still lacked of attention yo efficiency factors, of priority to work outcomes and of discipline and had not been accustomed to competition

3. Politics and Law

Cooperatives (including *Primkopti*) could become a pillar for Indonesian economy and for empowering micro and medium scale businesses. Related to legal aspect, *Primkopti* should also pay taxes to the government.

4. Technology

Advanced technologies for cultivating soybean have been introduced but they were applied in inappropriate ways that the productivity and the quality of local kedelai were still so low. Low quantity, quality and continuity of supplies caused heavy dependence on imports.

The IFE matrix showed 10 internal strengths and 6 internal weaknesses of *Primkopti*, as shown in Table 1

TABLE 1: IFE MATRIX

| No | Internal Factors | Weights | Ratings | Weighed Values |
|------------------|--|---------|---------|----------------|
| Strengths | | | | |
| 1 | The management operated professionally | 0.055 | 4 | 0.230 |
| 2 | The managerial function was operated by the management team | 0.066 | 4 | 0.246 |
| 3 | The management team had been experienced in operating the business | 0.064 | 4 | 0.256 |
| 4 | As a kedelai distributor, <i>Primkopti</i> operated in the form of a cooperative | 0.076 | 4 | 0.304 |
| 5 | The office and warehouse were located in strategic points easily accessible by the members | 0.053 | 4 | 0.212 |
| 6 | Services to the members became the first priority | 0.056 | 4 | 0.224 |
| 7 | Inadequate working capital | 0.046 | 2 | 0.092 |
| 8 | The saving and lending unit developed in a speedy fashion | 0.069 | 3 | 0.207 |
| 9 | Adequate supporting facilities for the business were | 0.042 | 3 | 0.126 |

| | | | | |
|----|--|-------------|---|--------------|
| 10 | <i>Primkopti</i> cooperated with other related institutions | 0.042 | 3 | 0.126 |
| | Total | 0.569 | | 2.031 |
| | Weaknesses | | | |
| 11 | Business costs were relatively high | 0.070 | 2 | 0.140 |
| 12 | Low participation from the members | 0.068 | 1 | 0.068 |
| 13 | Survey programs by <i>Primkopti</i> had not been optimum | 0.062 | 3 | 0.186 |
| 14 | <i>Primkopti</i> had not had Research & Development team and program | 0.086 | 2 | 0.172 |
| 15 | Management Information system had not worked well | 0.079 | 2 | 0.158 |
| 16 | Limited human resources for managing information technology | 0.066 | 2 | 0.132 |
| | Total | 0.431 | | 0.856 |
| | Total IFE | 1.00 | | 2.887 |

Table 1 showed that the three biggest strengths of *Primkopti* were distributor in the form of a cooperative (0.304), managerial function was operated by the management team (0.264) and management team had been experienced in operating the business (0.256). The lowest strength of *Primkopti* was inadequate working capital (0.092).

The three main internal weakness were sub optimum survey programs (0.186), non existence of Research & Development program (0.172) and bad Information system for the management(0.158). In addition, *Primkopti* also had very limited human resources for managing information technology

TABLE 2: EFE MATRIX

| No | External Factors | Weights | Ratings | Weighed Values |
|----|--|-------------|---------|----------------|
| | Opportunities | | | |
| 1 | Economic growth went up steadily | 0.066 | 3 | 0.198 |
| 2 | National consumption on soybean products kept increasing in volumes | 0.090 | 3 | 0.270 |
| 3 | Tofu and farmented soybean cake consumption have become a habit of many individuals in Indonesia | 0.058 | 2.8 | 0.162 |
| 4 | Population growth | 0.048 | 3 | 0.144 |
| 5 | Governmental subsidies for kedelai | 0.086 | 2.6 | 0.224 |
| 6 | Guidance by the government for cooperatives and UMKMs | 0.064 | 3 | 0.192 |
| 7 | The main buyers of kedelai were members having dual identity | 0.090 | 4 | 0.360 |
| | Total | 0.502 | | 1.550 |
| | Threats | | | |
| 8 | Imports on soybean kept increasing in quantities | 0.056 | 3 | 0.168 |
| 9 | soybean prices fluctuated in an upward direction | 0.058 | 2 | 0.116 |
| 10 | Valuation by community on cooperative was not so satisfactory | 0.046 | 1 | 0.046 |
| 11 | Information and communication technologies developed so fast | 0.044 | 2 | 0.088 |
| 12 | Technology of information affected kedelai prices | 0.054 | 1 | 0.054 |
| 13 | Heavy competition among kedelai distributors | 0.046 | 2 | 0.092 |
| 14 | Price competition in the markets | 0.085 | 1.2 | 0.102 |
| 15 | Non existence of any barrier for the entrance of new competitors | 0.063 | 3 | 0.189 |
| 16 | soybean importers had very strong bargaining powers | 0.046 | 3 | 0.138 |
| | Total | 0.498 | | 8.993 |
| | Total IFE | 1.00 | | 2.543 |

Based on Table 2, it can be shown that the best opportunities for *Primkopti* was that the main buyers of kedelai were members having dual identity (0.360), while

the main weakness was the fact that there was no barrier at all for new competitors to enter the market (0.189)

Analyses on IE matrix were intended to describe what had really been done by *Primkopti* in the face of both internal and external conditions as shown in IFE and EFE matrixes. The total average weighed value for internal factors was located in the X axis, while that for external factor was in the Y axis (see Figure 2).

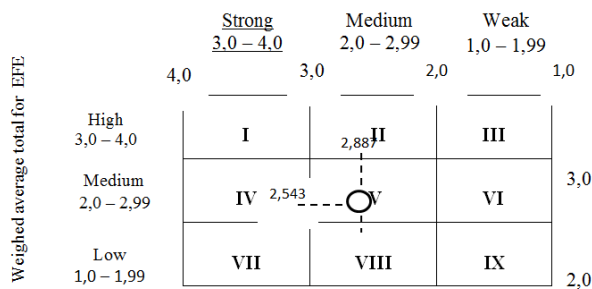


Figure 2. Internal dan Eksternal Factor *Primkopti*

Figure 2 shows that the weighed average total of 2.887 for IFE of *Primkopti* was located in the range of 2.0 - 2.99 in quadrant II and the weighed average total of 2.543 for EFE was located in the same range in quadrant IV. When the two weighed average totals are combined, it will be positioned in quadrant V, which means that *Primkopti* was in strong and stable position concentrating itself through horizontal integration. In such a strategy, the most common practice of many companies is to increase market shares through more active marketing programs. In this context, *Primkopti* should be more active in penetrating the markets and should also try to have its loyal members to keep buying soybean only from *Primkopti* itself. Developing and at the same improving the quality of its products and services would be a very good measure.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

1. In facing the CAFTA, *Primkopti* of Semarang City had several internal strengths; as soybean distributor in the form of a cooperative, the management team having had long experience in operating the business, prioritizing on services to its own members, professional management, strategic location easily accessible, speedy developing saving unit, the existence of facilities supporting the business, cooperation among members and strong capitalization. On the other hand, *Primkopti* also had several weaknesses such as sub optimum research & development program, inadequate information system, high operational costs, limited human resources for handling technologies of information and low participation from its members
2. *Primkopti* also had several opportunities such as the main buyers of kedelai were members having dual identity, increases in national consumption on kedelai products, governmental subsidies for

kedelai, steady economic growth in Central Java, guidance by the government for cooperatives and UMKMs, the habit in consuming tahu and tempe and population growth. However, *Primkopti* also faced several threats such as non existence of any barrier for the entrance of new competitors, increase in imports on kedelai, very strong bargaining powers by importers, kedelai prices fluctuating in an upward direction, price competition in the markets, the fact that *Primkopti* could not keep abreast with the very fast development in information and communication technologies which affected kedelai prices and unsatisfactory valuation by community on cooperatives.

3. In facing the CAFTA, *Primkopti* of Semarang City should be more active in penetrating the markets and improve the quality of its services. *Primkopti* should also use SWOT matrix, improve the capabilities of its human resources, appropriately control the inventory of soybean and build integrative the system of management information

Recommendations

1. *Primkopti* of Semarang City should sell the kedelai to its members in competitive prices and also should improve its performances in facing the CAFTA
2. In order to reach the needed synergy, the stakeholders of *Primkopti* (the management, the board of directors and the members) should deeply understand the CAFTA
3. All of the stakeholders of *Primkopti* should be consistent and have high commitment in order to survive in the face of CAFTA
4. The strategies should periodically be evaluated for their achievements and performances

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Community-based Ecotourism Model to Improve Welfare Study: Rural Blumah Sub District Plantungan District Kendal

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Abstract — Tourism in all its aspects actually has a great potential, especially in the field of economy, because tourism can be one buffer to reduce unemployment, poverty, increase economic growth and prosperity masyarakat. dilain hand, today's tourism growth has experienced a shift from nature tourism entertainment towards tourism is ecotourism. Studies in this study is the tourism potential Semawur waterfall in the village Blumah Plantungan District of Kendal. The geographical position of the southern tip of Kendal makes this object has not been explored optimally, but if viewed from the aspect tourist attraction where Curug Semawur and social conditions are not eligible to be a tourist attraction, which hopes to foster the local economy.

Keywords— *Tourism, Ecotourism*

INTRODUCTION

Tourism has become one of the largest industries in the world, and is a mainstay in generating foreign exchange in many countries (band, 2005). as well as very influential in many sectors, foreign exchange earnings from tourism in 2011 through 8.5 billion dollars, or 11.8 percent more than in 2010. The growth of Indonesian tourism is quite fantastic because it exceeds the rate of growth of the world economy and Indonesia, which is projected to reach 6 , 5%. (Kompas on Tuesday 17 January, 2012). Tourism as an industry do not stand alone, but is a series of activities that produce products or services that are different from one another. The difference is not only in the products or services produced, but also in the size of the company, the location of the seat, geography, function, form of organization and manage marketing method (Yoeti, 2008). Products of the tourism industry is all services and products provided by companies on tourists since the tourists leave their homes until the destination and back home again. Companies that provide products or services to tourism is very varied, ranging from information, travel / Travel Bureau (BPW), tickets, transportation, accommodation, food, clothing, tour operators organize trips and services as well as other services Attractions (DTW).

Tourism in all its aspects actually has great potential, especially in the fields of economy, because tourism can become one of the guards to reduce unemployment, poverty, increase economic growth and prosperity masyarakat. dilain side, the growth of tourism today has shifted, from tourism is entertainment towards tourism is ecotourism.

Kendal, with varied topography and the potential of mountain areas have great potential to be developed into a

center of eco-tourism, the potential of which is the existence of waterfalls in the village of semawur Blumah District Kendal Plantungan conditions unspoiled forest, tea plantation area is a great potential to be developed into eco-tourism attraction. The hope with the ecotourism can improve the welfare of the people living around the site. Unfortunately, until now there is no exact model to explore the potential. What else can model combines ecotourism with local communities.

Ecotourism rests on three legs at the same time, the rural tourism, eco-tourism and cultural tourism. According to the declaration of Quebec (the meeting of members of TIES in Quebec, Canada in 2002), Ecotourism is a sustainable tour? Ism which contains specific measures: (1) an active contribution to the conservation of nature and culture (2) The participation of local residents in the planning, construction and operation of tourist activities as well as enjoy. (3) Transfer of knowledge about the cultural and natural heritage to visitors, and (4) an independent tourist or group tours berukuran small.

According to (Santoso, 2011), the development of ecotourism services are required to have professional management, include:

1. Marketing to a specific destination. Marketing strategy occupies an important position to reach out and attract visitors worldwide. They are expected to be a source of information for visitors in order to help conserve the environment and local community development.
2. Skills and services to the visitors intensively. Service is ecotourism experience and education to the environment or the new territory. Visitor satisfaction will be achieved through a variety of services and effective patient.
3. The involvement of local residents in the drive to translate and attractions. Local residents will have an incentive cone? Servasi environment when it is involved in ecotourism services, the provision of information, and obtain the benefits they deserve.
4. Government policy within the framework of protecting the assets ling? Environment and culture. Policy planning, empowerment of civil society or in

combination with economic instruments, will prevent the market mechanism to operate in the area of ecotourism destination.

5. Capacity building of local residents. The local population and the environment is largely intact area of ecotourism. They need to be developed and the potential benefits of participation to obtain in order to create an incentive and motivation to participate in the conservation of the environment.

The purpose of this study was to find a model of community-based ecotourism development in the village district Blumah sticks Kendal. The study is expected to be the answer to the problems of the welfare and development of tourism in the village.

METHODOLOGY

This research can dogolongkan as research and development (to create a model of community-based ecotourism development locally). Qualitative methods were used to collect data as much as possible about the profile of the community, the development of eco-tourism issues, and policies related to ecotourism. The study was conducted in the village of Blumah district. Kendal sticks. The choice of location is based on the location that has a tourist attraction (semawur waterfalls, landscapes, and cultural) that are still not well explored.

This source of research data obtained by The profile of the people in areas of potential data in local communities and activities that have been implemented, and policies, related to the policies and regulations set by the local government with regard to the management and development of tourism.

The primary data collection, conducted by research, observation and interviews directly to the public and relevant agencies to obtain information on the profile of the community, in local communities and activities, policy management and development of tourism.

RESULTS AND DISCUSSION

Geographically diverse Kendal from the coast to the mountains to have a positive impact on regional development primarily related to tourism. In coastal areas Kendal has the potential to be developed into a marine tourism, and in mountainous areas is feasible to develop a tourism nature. In addition to the potential of nature tourism Kendal also has a lot of art and tradition can be developed into a tourist attraction of objects, both in level and hamlets in the district level.

Kendal also has tourism potential that has not been worked out. But judging from the proximity of the district to Semarang and Kendal routes through the line, this is worth the potential to be developed into a tourist area in accordance with characteristic areas.

This study is the potential for tourism Semawur waterfall located in the Village District Blumah Plantungan Kendal. Geographical location south tip of Kendal makes this object has not been explored optimally, but when viewed from the aspect of tourist attraction where Waterfall Semawur and social conditions are not eligible to be a tourist attraction, which hopes to foster economic community.

Village Blumah, Plantungan District, Kendal is pegunungan area has an area of 312,250 hectares, with an altitude of between 900 m location - 1200 m above sea level. The village is a village located in the southwestern region of the district. Kendal, directly adjacent to the Batang. Located between 07^o7'39 " LS - 07^o11'45 " LS and 109^o55'08 " BT - 109^o56'45 " BT ', is 7 km from the capital district and 52 km from the capital district of Kendal.

Administratively, the village Blumah directly adjacent to the village Tlogopayung in the North and East. Southern border with Mount boat; and west borders with the river attached. The total area of the village Blumah district. Feral is 312,250 hectares, with the composition of land area 37,830 hectares of rice fields, garden soil / building 9,950 hectares, the farm / garden area of 107,250 hectares, the forest area of 139,000 hectares of State, rivers, roads, and farms 18,220 hectares. Blumah village is divided into 2 (two) Hamlet is Hamlet and Hamlet Jiwan Blumah.

Given the location is in the mountains with terrain that is quite far from the urban, rural conditions Blumah still very natural and not widely known, but the village Blumah have a very valuable asset that Waterfall Semawur or as some call it curuh 7 nymphs because the waterfall composed of 7 waterfalls standing at the foot of the mountain boat. Conditions waterfalls is not inferior to the conditions in the area of a thousand waterfalls Sukorejo famous, even look more natural and beautiful waterfalls where unfortunately this is not widely known by the public at large. Because the condition of the people around the waterfalls (village Blumah) that still have not been able to simply develop and sell waterfalls semawur as an interesting tourist attraction.

Waterfall Semawur existence is already known by the local government, and has been scheduled to be developed as a leading tourist attraction district. Kendal, this is manifested by the completion of infrastructure facilities such as road improvements to the village Blumah, procurement and public facilities such as public toilets have been made by the local government. Unfortunately with the changing leadership of the program is the development of waterfalls semawur less attention, so impressed the way pengembanganya place.

In addition to Waterfall Semawur, sebernarnya nature Village Blumah quite exotic could be a tourist attraction, with a charming view of the mountains, the lush gardens, garden cloves standing upright, and rivers will be able to clear to lure tourists. For it is only fitting Blumah village can be developed to become a comprehensive tourist village, so to be able to move the local economy. The establishment of

ecotourism blumah can develop potential tourist attraction as follows:

1. Waterfall (there are seven levels of waterfalls)
2. Agro Tourism / Agribusiness
3. Tourism Sports Trecking
4. Area Camping Ground Bond and Out
5. Tourism fireflies
6. Tourism education / school environment / Grand House
7. Air Travel & Tourism Games

Profile of Community Blumah

In the village of Demographic Blumah is one of 14 villages in the administrative district Plantungan Kendal and is located outside the village in the west end of Kendal directly adjacent to the Batang, while the south is Mount boat sits partially in Wonosobo regency.

In the hamlet village Blumah Jiwan, Kendal district Plantungan waterfall "Cream SEMAWUR" that never dry throughout the year. The existence of Waterfall Semawur located inland forest and there is no access road to the area, causing the waterfall Semawur not widely known in the public, unless the surrounding community.

Waterfall Semawur consists of 7 (seven) the extent to which the top level is the twin waterfalls and an average height of 10 m waterfall - 50 m with a flow rate of acceleration waterfall reaches ± 29.4 m / s, the pH of soil and water pH \pm : 7.

Although tourism Waterfall Semawur this not widely known to the general public, but some of the tourists who come from the surrounding area have started to take advantage of these attractions as a place of recreation. Although there are no statistics on the number of visitors, but the activities of tourists in sight that tourists who come to these places all the time to grow, especially on holidays. Villagers Blumah tourism activities have been anticipating this by forming community tourism awareness with the aim of keeping tourism is not polluted by tourists who do less responsible.

The total area of the village Blumah district. Feral is 312,250 hectares, with the composition of land area 37,830 hectares of rice fields, garden soil / building 9,950 hectares, the farm / garden area of 107,250 hectares, the forest area of 139,000 hectares of State, rivers, roads, and farms 18,220 hectares. Blumah village is divided into 2 (two) Hamlet, namely:

TABLE 1. DISTRIBUTION OF RT / RW IN THE VILLAGE BLUMAH

| No | Hamlet | Ammount | | |
|----|--------|---------|----|------------|
| | | RT | RW | Keterangan |
| 1 | Blumah | 6 | 2 | |
| 2 | Jiwan | 2 | 1 | |

Source: Monograph Village Blumah

Policy Issues and Ecotourism Development

Long Term Development Plan Area (RPJPD) Kendal 2005-2025 serve as a guideline and reference for preparation of local development plans. To maintain sustainable development in areas, long term development plan area is necessary, as mandated in Article 13 paragraph 2 of Law No. 25 Year 2004 on National Development Planning System (NDPS) ordered Formulation RPJP area embracing paradigm visionary planning, RPJP the area only contains instructions outline.

Based on the condition of the district Kendal today, the challenges faced in the next 20 years, taking into account the resource endowment, the vision of the district is Kendal "Kendal independent, advanced and prosperous". In order to realize the vision of regional development is pursued through 8 missions of regional development. As follows:

1. Creating public morality, moral, ethical, cultural, and based on the philosophy of Pancasila.

2. Creating a competitive society
3. Creating a democratic society based on law
4. Creating Kendal peaceful
5. Creating fair and equitable development
6. Creating Kendal beautiful and sustainable
7. Creating Kendal as coastal and mountain ahead
8. Creating Kendal active role in the association between regional and national

Medium term development plan area (five) is the regional development planning documents for the period of 5 years from 2010-2015, established with the purpose of giving direction and purpose as well as a reference for all components of local development actors (government, the business world society) in achieving the -cita and regional development objectives that are integral to the national objectives in accordance with the vision, mission and direction of development of the area that has been agreed, so that all the efforts made by all components of development

actors will be more effective, efficient, integrated, sustainable, and complementary with each other in a pattern of behavior patterns.

Problems encountered in the development of ecotourism is the lack of public interest to contribute in developing ecotourism, detailed problems are as follows. Yet developed specific / particular objects of nature and cultural tourism, it has not seen the development of tourism activities differentiate between traditional tourism (mass tourism) and ecotourism. Of course, this phenomenon will have an impact on the environment. It is caused by a different orientation with emphasis on eco-tourism balance of nature is not purely economic pursuit with the flow of tourists is huge; Optimal development of ecotourism in Kendal caused by technical factors and non-technical. Non-technical factors visible physical geography of nature is hilly, the forest is still widespread, ecotourism potential spread in some areas that were located far away objects with each other and the number of attractions that is difficult to achieve because of the condition of the terrain. Technical factors are more visible on the understanding that ecotourism is not widely known by the public, so that the utilization of the forest only to the extent considered as fulfilling the household economy through logging, hunting, and other wild animals;

Lack of skilled workers and educated about ecotourism management is able to manage in a professional manner that could bring financial benefits do not have to sacrifice environmental damage such as natural forest .;

Not yet felt the impact of ecotourism can contribute to the economy both locally and regionally it is more due to as yet unidentified and development strategy;

The absence of coherence function and the role of stakeholders in creating policy in the form of eco-tourism development plan permanently, which has a positive effect on the natural environment, the economy and society, especially around an object ecotourism.

Model-based Ecotourism Local Communities

In order to solve the existing problems, the development model based ecotourism local communities need to be developed, in which the model can be applied in the community to answer the question of the welfare of the community and the development of community participation. As for the picture of the model, which is described as in figure 1.



FIGURE 1. MODEL-BASED ECOTOURISM LOCAL COMMUNITIES

CONCLUSION

Kendal with all its potential has great potential to be used as a tourist attraction or a nature-based ecotourism. The existence of the waterfall in the village semawur Blumah with various elements pendungnya are appropriately utilized as ecotourism. Within this context, the role of the community and government must be combined to achieve a common goal. In the development of ecological tourism in a particular area is needed to support the cooperation of various parties such as local governments and pemertintah central and local communities living in the area.

The role of government is needed to be able to support the infrastructure and facilities required in development and to support adequate transport facilities to reach areas of tourism development. In order to develop eco-tourism in a region for example in Waterfall Semawur as has been described above takes several stages of development stage area attractions, marketing, development of the tourism industry, and also the development of social institutions.

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Spatial overview of bush and swamp contribution to filariasis evidence in filariasis endemic area

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Abstract — Pekalongan City is a filariasis endemic area with Mf-rate >1%. Filariasis transmission can be eliminated with both mass treatment and environmental quality improvement. Mass treatment has been done for 5 years in Pekalongan City but filariasis is still to be its health problem. Therefore it is necessary to study the environmental contribution to filariasis evidence. Bushes and swamps are appraised to be important environmental aspects with high contribution to filariasis evidence. This was a descriptive study with spatial analysis approach to analyze bushes and swamps contributions to filariasis evidence. It was done in 6 filariasis endemic villages in Pekalongan City, both coastal and non-coastal areas. They were Banyurip Ageng, Jenggot, Bandengan, Pabean, Kuripan Lor and Kertoharjo. The spatial analysis showed that bushes were importantly contributed to filariasis evidence in Bandengan Village and Banyurip Ageng Village. Swamps were not spatially important aspect for filariasis evidence. It is recommended to reduce and control the lush bushes. It would prevent from being a resting place for mosquitoes spreading filariasis.

Keywords— *bush, swamp, filariasis, filariasis endemic area, spatial analysis*

INTRODUCTION

Filariasis (elephantiasis) is an infectious disease caused by filaria worms which attacked channels and lymph nodes. They enter human body through the biting of various mosquitoes. In 2004, filariasis has infected 120 million people in 83 countries around the world, especially the tropical and subtropical regions [1].

Filariasis cases in Indonesia from 2000 to 2009 has increased; spread from Sumatra, Java, Kalimantan, Sulawesi, Nusa Tenggara to Papua. It was reported 11,914 clinical cases which spread in 401 regencies / cities [2]. In 2010, in Central Java, there were 451 cases spread across 25 regencies / cities and there are 2 endemic regencies / cities, i.e. Pekalongan Regency and Pekalongan City [3]. A filariasis case in 2011 was 537. The 141 of it were new cases, of which 125 cases were found in Pekalongan City, the rest was spread over 8 regencies / cities [4].

Filariasis cases in Pekalongan City were found in 2002. Finger Blood Survey (FBS) was hold in 2004 which showed that Pekalongan City was filariasis endemic area because it had Mf-rate (microfilaria-rate) > 1% [5]. Finger Blood Survey (FBS) in 2012 in four villages in Pekalongan City (Kertoharjo, Jenggot, Pabean, and Banyurip) showed that there were 66 cases consisting 59 chronic cases and 7 clinical cases [6].

Although filariasis elimination through mass drug administration (MDA) in Pekalongan City has started in

2011 and will be ended in 2015, but it has not really able to reduce the number of filariasis cases. From finger blood survey (FBS) in 2013, Mf rate > 1% was found in Tegalrejo Village (2.39%), Pabean Village (3.39%), Bandengan Village (2.39%) and Kertoharjo Village (4.18%) [7]. It was also found some people in society who did not participate in the mass drug administration (MDA) for some reasons [5].

It is necessary to know that in order to achieve a minimum rate of filariasis transmission, mass drug administration should be strengthened by controlling the environmental factors, mosquitoes and community participation [8, 9, 10]. Preliminary study was conducted in February 2015 and it was noted that paddy fields, swamps and bushes were easily found in the 6 endemic villages namely Banyurip Ageng, Jenggot, Bandengan, Pabean, Kuripan Lor and Kertoharjo. WHO (2010) stated that poor environmental sanitation affecting the availability of filariasis vectors (mosquitoes) [11]. The study of Syuhada (2012) showed that the presence of sewerages, puddles, and bush can be a risk factor for the incidence of filariasis [12]. Result study of Siwiendrayanti, Pawenang, and Indarjo (2015) showed that in Pekalongan City there are some fundamental differences in environmental conditions. Northern Pekalongan City is a part of coastal areas that often experience tidal flood; whereas southern Pekalongan City is a part of areas that are found many rice fields and cattles. In general, the primary breeding place and resting place in Pekalongan City are bushes and swamps. Swamp may include natural swamps, tidal flood, and rice fields [13].

From that background, it is necessary to study the contribution of environmental factors, especially bush and swamp, to filariasis incidence in filariasis endemic areas in Pekalongan City.

METHOD

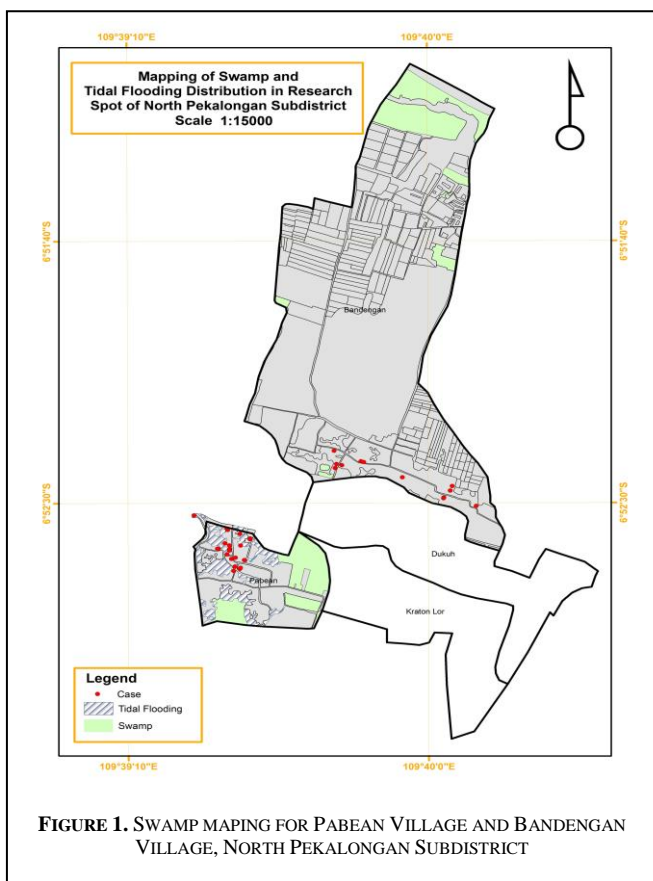
This was a descriptive study by observing natural phenomena of the presence of environmental health component like swamps and bushes, linked with filariasis incidence in the 6 filariasis endemic areas i.e. Banyurip Ageng Village, Jenggot Village, Bandengan Village, Pabean Village, Kuripan Lor Village and Kertoharjo Village. The study was conducted in 2015. The primary data were environmental components; obtained by observation. Secondary data were filariasis cases and its location; obtained from documentation of the local public health department. They were mapped by using GPS,

maps, photography tools and GIS tools. Data were analyzed to describe the spatial macro distribution of the contribution of environmental health aspects of swamp and bush on the incidence of filariasis in Pekalongan City.

RESULT AND DISCUSSION

Swamp Contribution

Fig. 1 shows a swamp distribution mapping (pale green area in Fig.1) in Pabean Village and Bandengan Village in North Pekalongan Sub district which are coastal areas. The result showed Bandengan Village has more swamps than Pabean Village, but Pabean Village has both natural swamp and tidal flood areas (shading area in Fig.1). Pabean Village has more filaria cases (21 cases, red dots in Fig.1) than Bandengan Village (10 cases, red dots in Fig.1). The filariasis cases in Bandengan Village are located away from the tidal flood areas,



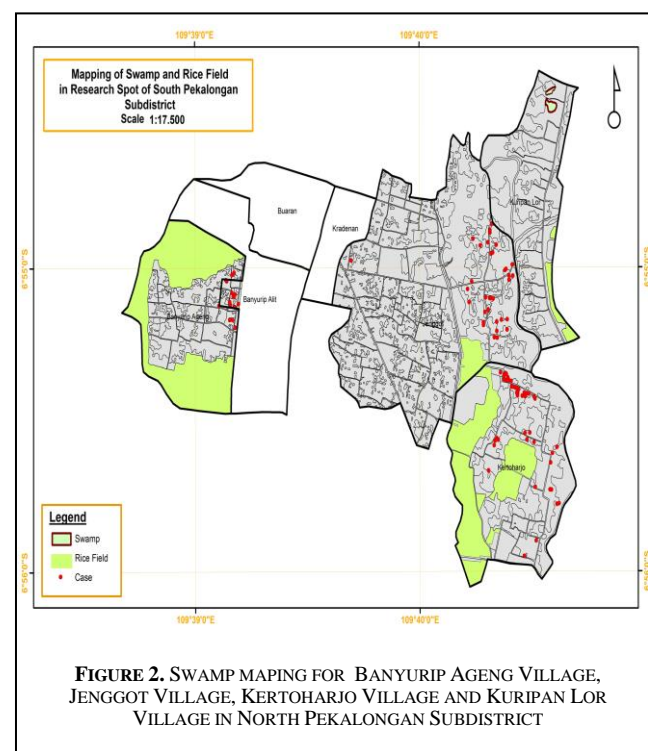
whereas the filariasis cases in Pabean Village are located close to the tidal flood areas. But, based on observation, there were no mosquito larvae both in natural swamp or tidal flood areas. This was presumably because the water of the natural swamp or tidal flood areas is brackish so that not suitable for mosquito breeding place [14, 15]. Therefore tidal flood in those villages is not potential to contribute to the incidence of filariasis.

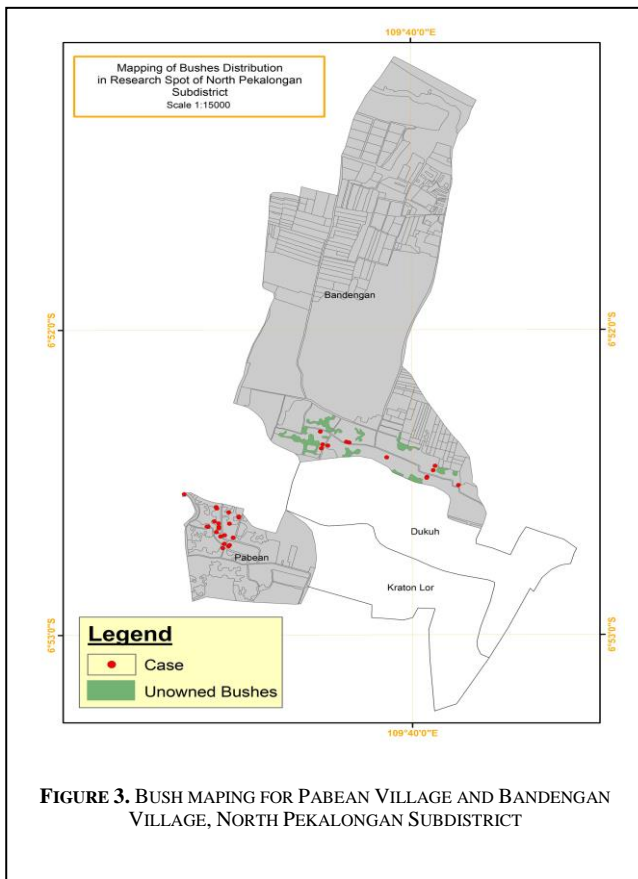
Fig.2 shows less tidal flood. It is only located in the Kuripan Lor Village, while in the other endemic villages;

namely Kertoharjo Village, Banyurip Ageng Village, and Jenggot Village; the exist swamps is rice field swamp. Banyurip Ageng Village and Kertoharjo Village have more and larger rice field swamp. Banyurip Ageng Village has 15 filariasis cases, Jenggot Village has 31 cases and Kertoharjo Village has 45 cases. The cases are located close to the rice field swamp areas. Although mosquito larvae were not found both in natural swamp and rice field swamp, but people living close to those swamps should be aware because according to a research conducted by Ginandjar and Majawati (2005), rice field swamp within less than 100 meters from dwelling was a significant risk factor of filariasis cases in Maro Sebo Sub district, Muaro Jambi Regency, Indonesia [16].

Bush Contribution

Organized bushes are represented by areas with green patches. Red dots represent the location of the filariasis cases. Unowned bushes are represented by areas with denser green patches. Fig.3 shows that in Bandengan Village, the filariasis cases are located close to the bushes areas. In Pabean Village there were not found any bushes. It is concluded that the bush can contribute to the incidence of filariasis in Bandengan Village.





and control the unowned bush areas. It would prevent from being a resting place for mosquitoes spreading filariasis.

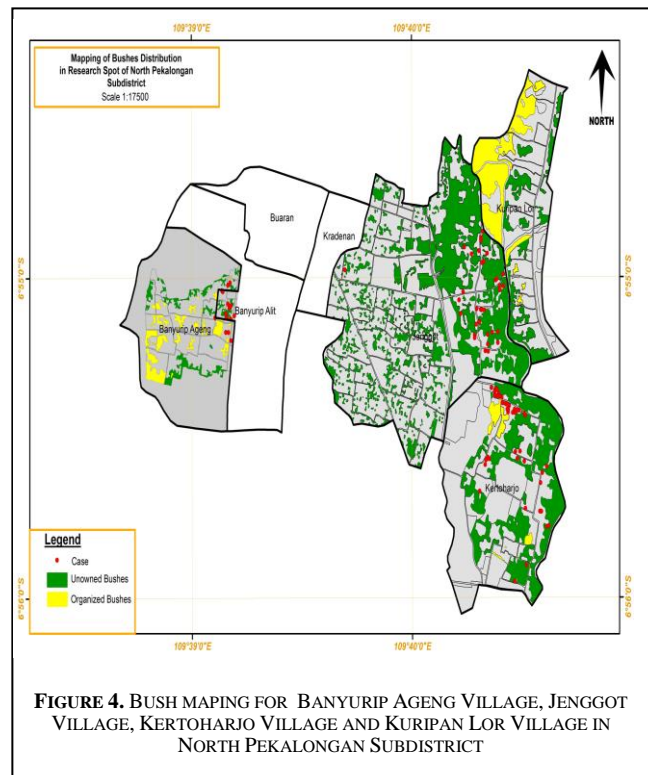


Fig.4 shows that both organized bush and Unowned bush were the same in proportion in Banyurip Ageng Village, whereas the filariasis cases were located close to unowned bush areas. It was found more unowned bushes than organized one in Kertoharjo Village. The filariasis cases in Kertoharjo Village were located close to unowned bushes area. We only found unowned bush areas in Jenggot Village, and the filariasis cases were located close to both unowned and organized bush areas. Unowned bush areas were not found in Kuripan Lor Village, we only found organized bush areas. Kuripan Lor Village did not have any filariasis cases.

Fig.3 and Fig.4 had illustrated that the unowned bush area was a risk factor contributing to the incidence of filariasis in Pekalongan. This result was consistent with Sarungu (2012) research in Windesi District of Kepulauan Yapen Regency that forest or bush area around the house has a significant correlation with the incidence of filariasis ($p = 0.027$) [17]. So that people should control the bush area because in filariasis cases were not found in Kuripan Lor Village which did not have any unowned bush areas.

CONCLUSION

Bushes were spatially important contributed to filariasis evidence in Bandengan Village and Banyurip Ageng Village. Swamps were not spatially important aspect for filariasis evidence. It is recommended to reduce

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Rising Farm Labour Wages in India: Trends, Causes and Impact

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Abstract — Background: Agriculture is a biological industry and in India even after six decades of planned economic development, it is by and large still a way of life of the people of the country. In India still 52 percent of workforce depends on agriculture. Agricultural employment and wages are the important factors which influence the livelihood status of rural households in structural transformation of economy. **Objectives:** To examine the trends in farm wages in India, to assess the wage pattern across the activities and crops and to find out factors influencing the rising of wages. **Methods:** The study is based on primary and secondary data. Primary data were collected from 200 sample households. Various reports pertaining to agriculture and National Sample Survey rounds were taken for consideration for secondary data. The 2011-2012 was taken as the base year for interpretation of data. The percentage, chi-square and correlation techniques were used for data analysis. **Hypotheses:** 1. Increased productivity influenced rise in farm wages in study area and India, 2. Demand for labour supply influenced increase in farm wages. **Results and Findings:** The paper examined following main three issues: i. Wage trends in India, ii. Factors that influenced rising wages, iii. Impact of rising wages on demand and supply of labour force. 93% of samples opined that there is rise in farm wages. There was 200% wage increase for skilled activities like ploughing, plantation from 2005 to 2015 i.e., from Rs. 200 to Rs. 600 for ploughing and Rs. 100 to Rs. 300 for plantation. Wages increased from Rs.50-60 to Rs.100-120 for harvesting and Rs. 60-70 to Rs.120-150 for weeding and other unskilled activities in the same period. 200% wage rise is found in cotton crop. 90% ploughing and 95% harvesting activities are carried out by machines and employing labour is confined only to plantation and weeding activities in rice crop. 80% farmers are using hired machines for ploughing in rice production. 72% cotton farmers are depending on out labour and 92% farmers are marginal and small. Still poverty among farm labour is wide spread.

Keywords— farm wages, agriculture labour, mechanization and migration

INTRODUCTION

Agriculture is a biological industry and in India even after six decades of planned economic development, it is by and large still a way of life of the people of the country. In India still 52 percent of workforce depends on agriculture. Agricultural sector is the main source of man-power supply to the industrial sector, and also to service sector in India. Agricultural labourers have to live with casual employment, frequent changes of employers as well as places and wide fluctuations in the pay. Agricultural employment and wages are the important

factors which influence the livelihood status of rural households in structural transformation of economy (Lal B Suresh, 2011)

The Liberalisation-Privatisation-Globalisation (LPG) policies initiated in 1990s in India have influenced much the labour market. It is expected that investment, trade and output increase leading to more and better employment opportunities. It was also assumed that labour mobility would increase, leading to narrowing down horizontal wage differences among workers with similar skills and in same type of jobs. As demand for new skills and occupations increase, vertical wage differences are too expected to rise. The overall impact would depend on how broad-based the labour market in the economy is, whether movement across skill-barriers is relatively easy, and whether institutions for re-training and re-deployment are in place. It has, however, been generally argued that LPG in India has led to deterioration of the position of the workers in the labour market both in terms of job-availability and wages offered (Deepa Mukharjee, 2007).

Inequality in wages and earnings are caused disparities in assets, consumption, healthcare, educational attainment and other indicators of living standard, in developing countries. So the reduction in wage differences becomes a major goal for policy makers in developing countries like India. It must be carefully look at the levels, trends, and causes of wage and earnings differentials in the country. The wage differential would exist in different occupations or activities because of the differing levels of skills required for such jobs.

REVIEW OF LITERATURE:

A number of studies available on wages in India suggest that rural and, in particular, agricultural wages have received the utmost consideration. During the 1970s and 1980s, the most notable of these studies were done by Krishnaji (1971), Jose (1974 and 1988), Lal (1976), and Laxminarayan and Tyagi (1977). These studies analysed rural and agricultural wages, which reported a significant rise in the real agricultural wages in India, particularly during the post green revolution period. Rural wages have accelerated quite sharply in a number of the poorer states during the 1980s (Jose, 1988). But, studies conducted during the 1990s shown a reversal in the

wage rise tendency, whereas the growth of wages registered a deceleration (Bhalla, 1998; Sen, 1998). According to Deaton and Dreze (2002) the estimates based on 'Agricultural Wages in India (AWI)', real agricultural wages were growing at about 5 per cent per year in the 1980s and 2.5 per cent per year in the 1990s. But other studies differed the trend of deceleration in real agricultural wages. Sharma (2001) studied using RLE (Rural Labour Enquiry, conducted by the NSSO) data and opined that agricultural wages were not decreased during the 1990s differing to the findings of studies based on the AWI data. Sundaram (2001) also throw-outs the view that there was a slowdown in the growth rate of mean daily wage of adult labourers during the 1990s. However, there have been wide variations in the rate of growth of real wages across different segments of the labour market, while the studies reported a mixed trend of wage increase during the 1990s and later (Sen, 1994; Parthasarthy, 1996; Bhalla, 1997; Unni, 1997; Sharma, 2001; Sundaram, 2001; Himanshu, 2005; Sundaram and Tendulkar, 2006).

Some other studies show that there has been striking growth of wages during the 1990s. Bhalla and Das (2005) observe that there has been secular increase in wages all through the period of the 1980s and 1990s, and that the rate of increase has accelerated during the 1990s at the all-India and state levels. Sundaram and Tendulkar (2006) also discover increasing trend in the real wages of the Indian labour during the 1990s and specially point out that the "most vulnerable section of both rural and urban labour markets was characterized by a healthy growth in real daily earnings and reduction in male-female earnings differentials".

Further, Karan and Sarkar, (2003) stated that increased casualization of the workforce has reduced the bargaining power of labour in the post-liberalization era. As a result, increase in wages of workers has not been satisfactory and actual wages paid to workers have not only been very low, but also, in many regions, even lower than the official minimum wages in rural areas (Deshpande et al., 2004).

The average wages of the Indian workforce have increased in general during the 1990s, the growth in wages has not been proportionate with overall economic growth, and large variation in wage rates are observed at various segments of the labour markets. Low average wages and increasing wage differentials at various segments of the labour market have led the benefits of the recent economic growth to secured job holders only. A large section of the labour force, particularly daily wage earners and part of the self-employed, continue to face poverty. This section of the working population has been referred to as the 'labouring poor' or the 'working poor' (Sundaram and Tendulkar, 2002). They have been termed so mainly

because despite being employed, their wages are not sufficient to fight against their poverty.

The real wage rates (at 1986–87 prices) for agricultural labour have risen substantially since 2007–08. At the all-India level, the seven years between 1999–2000 and 2006–07 witnessed a slightly declining trend in real wage rates for major farm operations. The real wage rate for ploughing (male) was Rs 21–22; for weeding (female), Rs 13; for transplanting (male and female), Rs 17–18 and Rs 14–15 (respectively); and for harvesting (male and female), Rs 18 and Rs 15 (respectively). It is probable that a decline in agricultural production during these years, due to drought conditions, was partly responsible for decline in agricultural wages (Yoshifumi Usami, 2012). The agricultural sector provided employment to about 60 per cent of the male workers and about 80 per cent of the female workers in 2009-10. The trend in real wage rate has shown that agricultural wages have grown faster than the non-farm wages (P. Venkatesh, 2013). The agricultural productivity influences the agricultural wages, benefitting agricultural labours.

There is a clear rising trend in real wage rates since 1995, and then accelerated from 2007 onwards at least in developed states like Punjab, Haryana and Tamil Nadu which confirms that developed states in India crossed the Lewis Turning Point. The acceleration of real wages in slack season indicates that the era of labor shortage is started in rural areas especially in developed states like Tamil Nadu, Haryana, Punjab and Andhra Pradesh, which needs to be tackled through labor saving technology and wide scale farm mechanization (A. Amarendra Reddy, 2013). During the Eleventh Five year Plan (2007-12), nominal farm wages in India increased by 17.5 per cent per annum (p.a), and real farm wages by 6.8 per cent p.a., registering the fastest growth since economic reforms began in 1991. Farming being labour intensive, this rapid increase in farm wages has raised cost of production of agri-commodities across the board. Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) scheme, started in 2006, is responsible for this strong 'push' in farm wages and overall scarcity of farm labour. During the 2000s, there is a sort of v-shape behavior in real farm wages, declining by 1.8 percent p.a. during 2000-01 to 2006-07, and then rapidly rising by 6.8 percent p.a. during 2007-08 to 2011-12, and it is this later half that seems to be the result of MGNREGA 'push' as well as strong growth 'pull' (Ashok Gulati *et al.* 2013). In this context, an attempt is made to examine trends of wages in India.

Objectives: The present paper is intended

1. To examine the trends in farm wages in India,

2. To assess the wage pattern across the activities and crops and

3. To find out factors influencing the rising of wages.

METHODS

The study is based on primary and secondary data. Primary data were collected from 200 sample respondents (100 from farmers and 100 from labour) randomly selected in Warangal district of Telangana State in India. Various reports pertaining to agriculture and National Sample Survey rounds, Reports of Labour Bureau, Ministry of Labour & Employment were taken for consideration for secondary data. The 2011-2012 was taken as the base year for interpretation of data. The percentage, chi-square and correlation techniques were used for data analysis.

Hypotheses:

H₀₁: Increased productivity influenced rise in farm wages in study area and India and

H₀₂: Demand for labour supply influenced increase in farm wages.

Trends in Agricultural Wages:

Agriculture sector is a major source of livelihood for 50 percent of labour force in India. Though contribution of agriculture sector to GDP declined to 13 percent from 70 percent during 1951 and 2014, the economic development of country still influenced to large extent by development of agriculture sector. Trends of wage rates in agriculture sectors also influence wage rates in other sectors of the economy and development of other sectors. In this context an examination of wage trends of farm labourers along with those of Non- farm labourers help us to understand increase in the wage rates and factors influencing rising wages.

The wage rates of farm labourers for various activities separately for Men, Women and Children have been worked out for the period 2008-09 to 2012-13 from various reports of Govt of India, ministry of Labour & Employment, Labour Bureau, Shimla/ Chandigarh. Table-1 shows this. As per the data from this compilation wage rate of ploughing for men was Rs 102.90 in 2008-09 which rose to Rs 204.11 in the year 2012-2013- almost 100 percent increase in five years. Similarly wage rate of ploughing for women too raised 100 percent during the same period. The increase in wage rates of sowing is 97 percent, 117 percent, 105 percent for men, women and children respectively. The increase is higher for women and children than that of men. This shows the significance of women and children role in this activity. Increase in wage rates of weeding, transplanting for women and children are higher and same for winnowing. The

increase of wage for children for threshing is 79 percent only, 22 percent lesser than that for men and 24 percent lesser than that for women. But the increase of wage for picking for children is 65 and 59 percent higher than those of men and women respectively. This variation in the increase of wage rates shows that children are participating more in the picking than in other works this has explained in details in the graphs-1,2 and 3.

RESULTS AND DISCUSSION:

For the purpose of collecting primary information regarding farm wage rise, a sample of 200 respondents were randomly chosen, a 100 respondents from farmers and a 100 respondents from labourers. Opinions of the respondents were presented in the tables-2 to table-10.

Out of 100 farmer respondents, 98 farmers and 88 labour respondents (total 93%) opined that there is a wage rise (Table-2). Table-3 depicts the rate increase in wages for various skilled and unskilled farm activities in case of rice crop (paddy). Ploughing, sowing transplanting are the activities which require experienced and skilled labourers for whom demand is high seasonally. The rate of increase in the wages for these activities is 200 percent during 2005-15. For other activities - weeding, harvesting, etc., which do not require skilled labourers, the wage rise is 100 percent. A point to be noted here is 100 percent harvesting in rice crop is carried out by Machines. That is the reason why the wage rise for harvesting activity is half of the wage rise of the other activities.

Though 90 percent farmers employ machines for ploughing, the activity of levelling for transplanting which is part of ploughing, is still carried out by human and bullock labour. That is reason why the wage rise is 200 percent for ploughing activity in case of rice crop.

Table -4 presents wage trends in wage rise for various activities in case of cotton crop. Main activities in cotton crop for which labour is required are ploughing, (ploughing in the cotton crop is not tilling the soil, it is running or operating shovel cultivator for weeding purpose) sowing, spraying pesticides and picking. The activities ploughing and spraying require experience and skill as such more remuneration is to be paid. Wage rise is for all the activities 200 percent except spraying pesticides. Increase in the wage rise for spraying pests is 33 percent higher than those for other activities. The reason for higher increase may be attributed to the fact that it involves health risk and requires skills. Table-5 describes status of employing machines and manpower for various activities. Opinions of the farmers are collected in this regard. 90 percent farmers opined that they use machines and 10 percent farmers told that they use manpower for ploughing. In the harvesting too, 95 percent farmers are

employing machines. All other activities – sowing, weeding, and transplanting harvesting are carried out by employing manpower.

Table-6 demonstrates the pattern of use of own and hired machines for various activities. Only 20 farmers (20 percent) are using own machines and remaining 80 percent farmers are relying on hired machines. For harvesting all farmers are depending on hired machines. Table-7 presents the pattern of employing own and hired labourers. Out of 100 farmers, 20 farmers are depending on own family labour and 80 percent farmers are depending on outside labour for rice crop. For cotton crop 28 percent farmers are using own family labour and 72 percent hiring labour from outside for various farm activities. In case of other crops – maize, pulses and groundnut, only 48 percent of farmers are employing outside labourers. Table -8 explains opinions of the respondents on the reasons for wage rise. Fourteen farmers and eight labourers attributed wage rise to shortage of labour. Fifty eight percent of the total labour respondents cited intense demand for labour in

peak season as cause for rising farm wages. 17 percent farmers and 16 percent of labourers opined MGNREGS is responsible for farm wage rise. Increase in the productivity and general price levels were also considered to be responsible for wage rise. On the whole, shortage of labour in peak season was deemed as main reason for wage rise. Tables 9 & 10 explain about poverty status of sample respondents and category of farmer respondents by land holdings respectively. As per these tables, total respondents from the labourers are poor and only 30 percent farmers are on the Above Poverty Line. Out of 100 farmers, only 8 belong to big and medium category and 92 farmers are small and marginal farmers.

Null Hypothesis – I

There is significant relation between increased productivity influenced rise in farm wages in study area and India. Since the calculated Pearson Chi-square test value at five percent significant level. The Null Hypothesis is rejected. Therefore, the alternate hypothesis is accepted. As such it is concluded that there is significance influence.

| Sample Size | df | Chi-Square Value | Significance Level |
|-------------|----|------------------|--------------------|
| 200 | 27 | 54.823 | 0.05 |

Null Hypothesis – II

There is significant relation between demand for labour supply and increase in farm wages. Since the calculated Pearson Chi-square test value at five

percent significant level. The Null Hypothesis is rejected. Therefore, the alternate hypothesis is accepted. As such it is concluded that there is significance influence.

| Sample Size | df | Chi-Square Value | Significance Level |
|-------------|----|------------------|--------------------|
| 200 | 29 | 52.023 | 0.05 |

FINDINGS:

93% of samples opined that there is rise in farm wages. There was 200% wage increase for skilled activities like ploughing and plantation from 2005 to 2015 i.e., from rupees 200 to Rs. 600 for ploughing and Rs. 100 to Rs. 300 for transplantation. Wages increased from Rs.50-60 to 100-120 for harvesting and Rs. 60-70 to 120-150 for weeding and other unskilled activities in the same period. 200% wage rise is found in cotton crop. Though wage rise is phenomenal, for all activities and all crops, the longevity of employment is very short and it varies

between 10-15 days for ploughing and transplanting, 5-10 days for sowing and 15-20 days for weeding and picking activities. Laborers depend on other sources for getting employment. 90% ploughing and 95% harvesting activities are carried out by machines. 100 percent farmer opined that cheap machine power is making them depend on machines. Employing labor is confined only to transplantation and weeding activities in rice crop. 80% farmers are using hired machines for ploughing in rice crop. 72% cotton farmers are depending on out labour. Major crops grown in the study area are rice and cotton and other crops include maize, pulses and groundnut. 92 percent

farmers are marginal and small. Poverty among farm labourers is widespread and labourers seasonally migrate to Hyderabad for employment. Some labourers travel more than 50 kilometers daily to reach nearest city Warangal for job (labour). Though ninety two percent farmers belong to small and marginal category, dependence on machines is high in case of rice crop for ploughing and harvesting only because of the cheap availability of machine power than manpower but not because of the non-availability labour.

CONCLUSION:

Fifty one percent of labour force is still depending on agriculture sector for livelihood. Shifting of labour from agriculture sector to non agriculture sector has not yet taken place till now. Integration of labour market that allows labour move to the places where better employment opportunities are available is also not on desired path in India. There is unemployment and poverty and distressed migration and the government employment schemes still assume significance in providing livelihood to the rural people when agriculture activities are slow or complete absent. Though the farm wage rise is phenomenal during the last five years, the factors that contributed to wage rise in India are intense demand for labour in peak season, increased productivity and general price level. The mere farm wage rise does not indicate that Indian Economy reached Arthur Lewis Turning Point.

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Tables

TABLE-2. OPINIONS OF NO. OF RESPONDENTS ON WAGE RISE

| Opinion on | farmers | | labourers | | Total | |
|------------|-------------|-----------|-------------|-------------|--------------|------------|
| | yes | No | yes | No | yes | No |
| Wage rise | 98 (98%) | 2 (2%) | 88 (88%) | 12 (12%) | 186 (93%) | 14 (7%) |

Source: Field data

TABLE-3. INCREASE OF WAGE FOR SKILLED & UNSKILLED ACTIVITIES RICE CROP (PADDY) (in Rupees)

| Sl no | Activity | 2005 | 2015 | % increase |
|-------|----------|------|------|------------|
| | | | | |

| | | | | |
|---|---------------|-------|---------|---------|
| 1 | Ploughing | 200 | 600 | 200 |
| 2 | Sowing | 50 | 100 | 100 |
| 3 | Weeding | 60-70 | 120-150 | 100-114 |
| 4 | Transplanting | 100 | 300 | 200 |
| 5 | Harvesting | 50-60 | 100-120 | 100 |
| 6 | Unskilled | 60-70 | 120-150 | 100 |

Source: Field data

TABLE-4. INCREASE OF WAGE FOR VARIOUS ACTIVITIES COTTON CROP
(in Rupees)

| Sl no | Activity | 2005 | 2015 | % increase |
|-------|----------------|------|------|------------|
| 1 | Ploughing | 200 | 600 | 200 |
| 2 | Sowing | 40 | 120 | 200 |
| 3 | picking | 60 | 180 | 200 |
| 4 | spraying pests | 150 | 500 | 233.3 |

Source: Field data

TABLE-5. EMPLOYING OF MACHINES AND MANPOWER ON VARIOUS ACTIVITIES

| Activity | Machines | Manpower |
|---------------|----------|----------|
| Ploughing | 90% | 10% |
| Sowing | 0% | 100% |
| Weeding | 0% | 100% |
| Transplanting | 0% | 100% |
| Harvesting | 95% | 5% |

Source: Field data

TABLE-6. STATUS OF USING OWN AND HIRED MACHINES BY FARMERS IN VARIOUS ACTIVITIES

| Activity | own | hired |
|---------------|----------|------------|
| Ploughing | 20 (20%) | 80 (80%) |
| Sowing | - | - |
| Weeding | - | - |
| Transplanting | - | - |
| Harvesting | 0 (0%) | 100 (100%) |

Source: Field data

TABLE-7. STATUS OF FARMERS' DEPENDENCE ON FAMILY AND OUTSIDE LABOUR FOR VARIOUS CROPS

| Crop | Family labour | Outside labour |
|--------|---------------|----------------|
| Rice | 20 (20%) | 80 (80%) |
| Cotton | 28 (28%) | 72 (72%) |
| Others | 52 (52%) | 48 (48%) |

Source: Field data

TABLE-8. OPINIONS OF RESPONDENTS ON THE REASONS FOR WAGE RISE

| Reasons | No of Farmers responded yes | No of labourers responded yes |
|--|-----------------------------|-------------------------------|
| Shortage of labour | 14 (14%) | 8 (8%) |
| Intense demand for labour in peak season | 43 (43%) | 58 (58%) |
| MGNREGS | 27 (27%) | 16 (16%) |
| Rise in general price level | 8 (8%) | 3 (3%) |
| Increase in productivity | 6 (6%) | 14 (14%) |
| others | 2 (2%) | 1 (1%) |
| total | 100 (100%) | 100 (100%) |

Source: Field data

TABLE-9. POVERTY STATUS OF RESPONDENTS

| status | No of Farmers | No of labourers | Total |
|--------------------|---------------|-----------------|------------|
| Below poverty line | 70 | 100 | 170 (85%) |
| Above poverty line | 30 | 0 | 30 (15%) |
| Total | 100 | 100 | 200 (100%) |

Source: Field data

TABLE-10. CATEGORY OF FARMERS BY LAND POSSESSION

| Category | No of farmers |
|-----------------|---------------|
| Big | 3 |
| Medium | 5 |
| Small& marginal | 92 |
| Total | 100 |

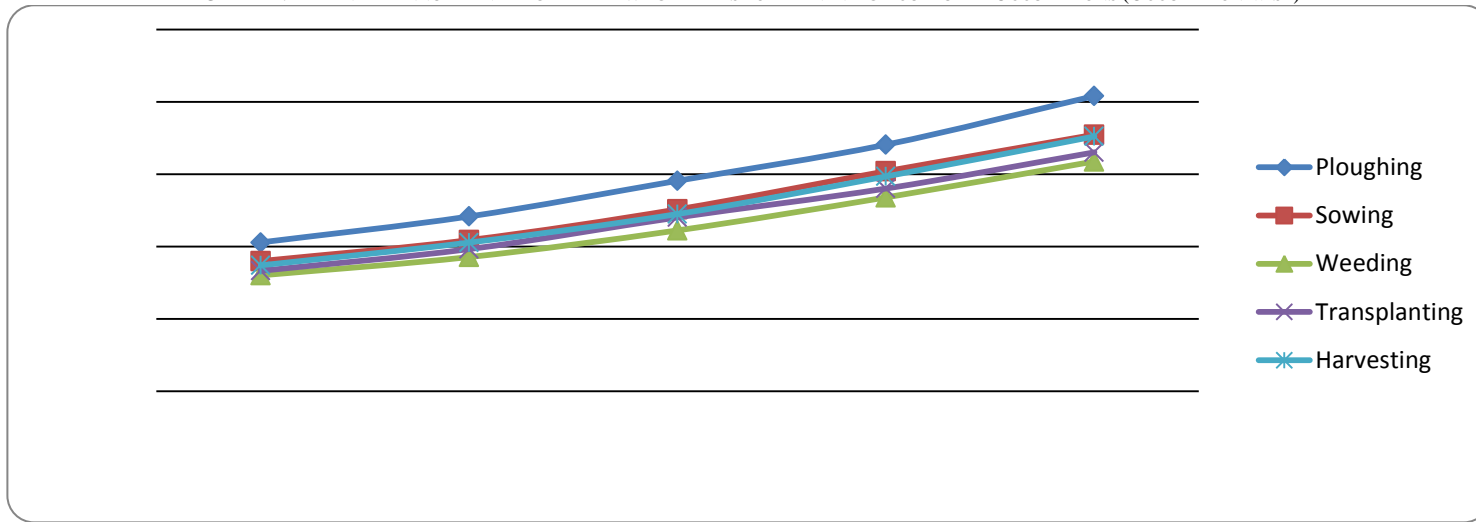
Source: Field data

**TABLE – 1. ALL-INDIA ANNUAL AVERAGE DAILY WAGE RATES IN AGRICULTURAL OCCUPATIONS (OCCUPATION-WISE)
 (In Rupees)**

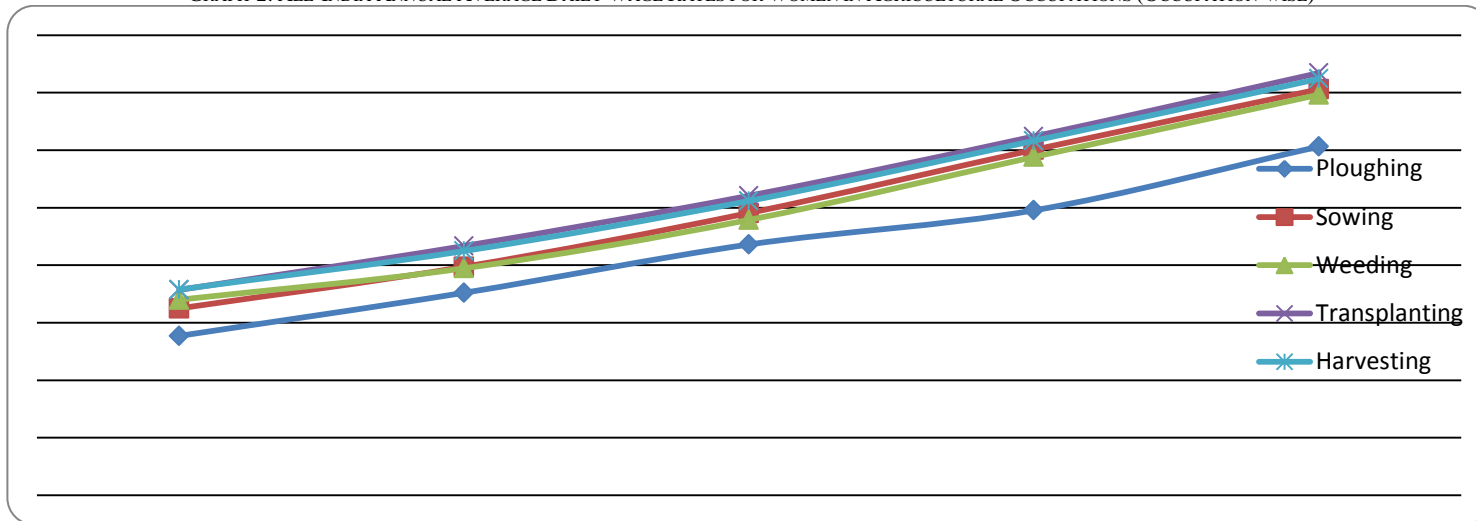
| | 2008-09 | | | 2009-10 | | | 2010-11 | | | 2011-12 | | | 2012-2013 | | |
|---------------|---------|-------|----------|---------|-------|----------|---------|--------|----------|---------|--------|----------|-----------|--------|----------|
| | Men | Women | Children | Men | Women | Children | Men | Women | Children | Men | Women | Children | Men | Women | Children |
| Ploughing | 102.90 | 55.43 | - | 120.85 | 70.43 | - | 145.51 | 87.23 | - | 170.47 | 99.09 | - | 204.11 | 121.25 | - |
| Sowing | 90.00 | 65.00 | 48.91 | 104.52 | 79.47 | 58.41 | 125.75 | 98.17 | 70.64 | 152.07 | 120.14 | 84.87 | 177.36 | 141.17 | 100.70 |
| Weeding | 80.15 | 68.02 | 49.46 | 92.78 | 78.94 | 58.80 | 111.22 | 95.79 | 71.76 | 134.01 | 117.67 | 89.88 | 158.87 | 139.31 | 97.80 |
| Transplanting | 83.28 | 71.43 | 52.51 | 98.29 | 86.71 | 58.08 | 120.19 | 104.17 | 72.56 | 140.14 | 124.79 | 91.22 | 165.17 | 146.84 | 109.78 |
| Harvesting | 87.05 | 71.58 | 50.49 | 102.82 | 84.95 | 61.72 | 122.53 | 102.36 | 70.91 | 148.49 | 123.29 | 83.89 | 176.17 | 144.83 | 115.19 |
| Winnowing | 81.23 | 65.08 | 43.40 | 96.32 | 79.02 | 48.27 | 112.82 | 94.83 | 58.83 | 136.90 | 114.07 | 66.61 | 160.03 | 132.34 | 86.00 |
| Threshing | 85.06 | 67.66 | 46.06 | 100.23 | 82.12 | 53.32 | 117.78 | 97.08 | 66.41 | 141.46 | 115.75 | 70.76 | 171.00 | 137.86 | 82.50 |
| Picking | 81.10 | 66.37 | 45.78 | 96.98 | 78.94 | 51.41 | 121.10 | 101.19 | 78.31 | 145.00 | 116.80 | 93.04 | 154.89 | 130.25 | 116.76 |
| Herdsmen | 53.48 | 41.32 | 36.22 | 62.23 | 46.66 | 42.75 | 77.17 | 60.43 | 54.47 | 92.00 | 72.45 | 58.53 | 111.30 | 86.23 | 69.37 |
| Well-digging | 116.28 | 63.47 | - | 140.81 | 75.44 | - | 170.32 | 93.81 | - | 208.22 | 119.30 | - | 255.00 | 138.44 | - |
| Cane crushing | 87.27 | 61.23 | - | 98.43 | 75.49 | - | 120.33 | 89.09 | - | 147.79 | 119.21 | - | 175.19 | 135.78 | - |

Compiled by authors from various reports of Government of India, Ministry of Labour & Employment, Labour Bureau, Shimla/Chandigar

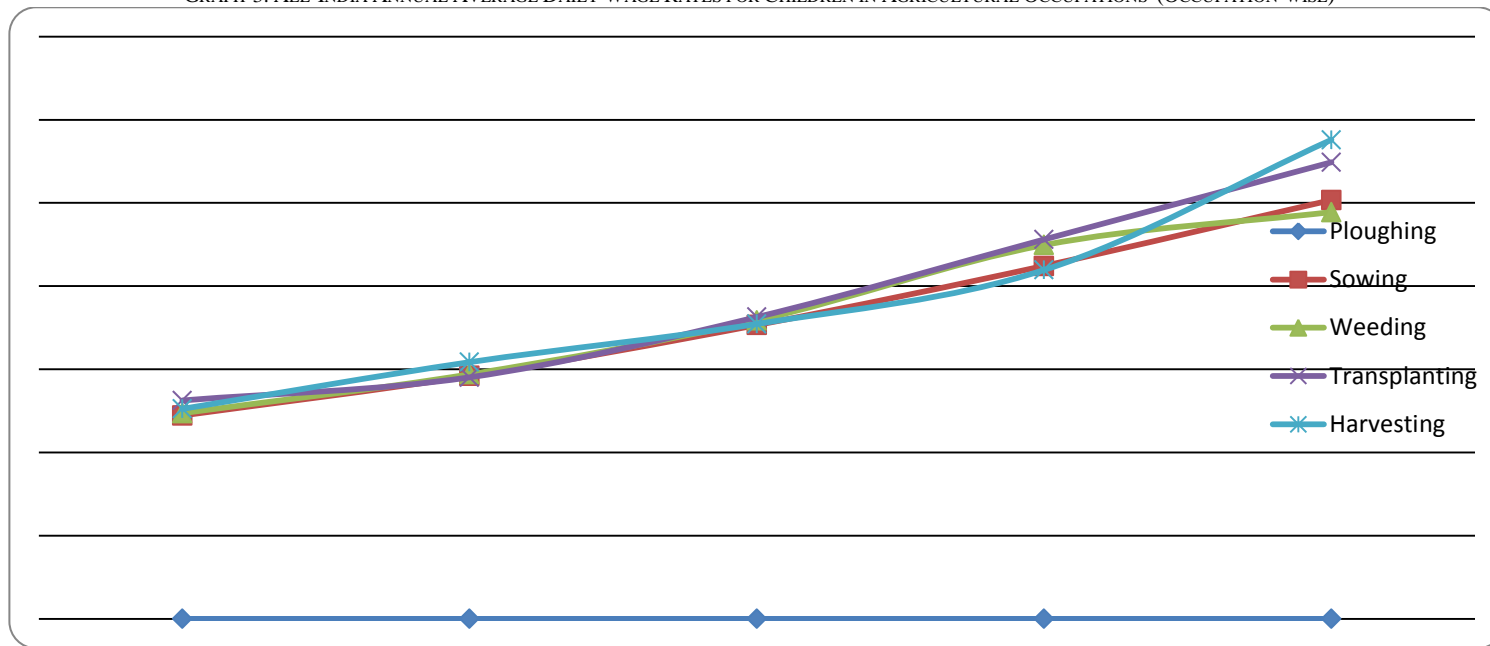
GRAPH-1: ALL-INDIA ANNUAL AVERAGE DAILY WAGE RATES FOR MEN IN AGRICULTURAL OCCUPATIONS (OCCUPATION-WISE)



GRAPH-2: ALL-INDIA ANNUAL AVERAGE DAILY WAGE RATES FOR WOMEN IN AGRICULTURAL OCCUPATIONS (OCCUPATION-WISE)



GRAPH-3: ALL-INDIA ANNUAL AVERAGE DAILY WAGE RATES FOR CHILDREN IN AGRICULTURAL OCCUPATIONS (OCCUPATION-WISE)



The Needs Analysis of Vocational High School (VHS) In Banjarmasin Based on Local Resources Potential

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Abstract — This study aimed to analyze: 1) the needs of VHS based on interest and employment opportunities 2) the provision of VHS associated with local resources potential in Banjarmasin. The research sample includes 476 persons of 9th grade students and 340 person of 10th grade VHS' students. Data collected includes: 1) students interest to enter VHS; 2) Local potential for employment; 3) Availability of VHS in Banjarmasin; and 4) Local potential in the Development of VHS. Data were analyzed by using mix methods. The results showed: 1) the majority of 9th grade students interested in continuing their education at VHS. Potential sectors for employment are trade, industry, and processing of natural resources. 2) Refers to the provision of VHS associated with local resources potential, the development of existing programs are appropriately directed at the development of local resources potential include natural resources and the potential for goods, services, and craft.

Keywords— *Needs Analysis, Vocational High School (VHS), Local Resources Potential*

INTRODUCTION

The lack of educational systems equality that exist in each region and the provision of skills are less supportive of the current technological developments led to the Indonesian human resources are less able to compete with human resources from other countries. One of the government's efforts in realizing the function and purpose of education as a vehicle for the development of human cracked one of them through secondary school that promotes the development of students' ability to be able to work within a specific field, namely Vocational High Schools (VHS).

Based on Government Regulation No. 17th year 2010 Article 76 about the provision of education, Vocational High Schools (VHS) function equip learners with the ability of science and technology and vocational skills of the profession in accordance with the needs of the community and to improve physical and mental readiness to continue their education to higher education and or to live independently in the community. Vocational education is an education that connects, match, train humans to have a habit of working to be able to enter and thrive in the world of work (industrial), so it can be used to improve their lives. Educational institutions that help realize the goal of vocational education is Vocational High Schools (VHS).

Government efforts to attract students to continue their education at VHS has been carried out but is constrained by lack of students' knowledge about it, what they get after they complete education in VHS, and what kind of skills that they can get, and the lack of knowledge about existing majors in

Vocational High School are appropriate and can support their future going forward. That is what will make students confused for continuing education to VHS and determine what department will be selected.

Based on data from the VHS Developing Directorate 2015 showed that every year the interest of junior high school graduates who want to enter into vocational increased by 11% with total registrants 1,921,919 in 2013. The average increase VHS Capacity is 5% and in the year 2013 can only accept 1,527,778 students. VHS capacity has not increased significantly because of the lack of support and the limited access local government to provide land for the construction of VHS.

The development of education sector including through vocational pathways, contributing directly to the increase of Human Development Index (HDI). According to data from the Central Statistics Agency in 2012 HDI of Banjarmasin reached 74.83%. However, the open unemployment rate of Banjarmasin at 2013 still reached 5.24% with a labor force participation rate of 62.75% , This is due to the low quality standards of work skills and competencies, so that job seekers have difficulties when going into the company because of the skills they have not been in accordance with the standards of work competence in the company.

South Kalimantan is one of the provinces in Indonesia which has natural resources, which is abundant with a high population or human resources. In other ways the skills possessed by the human resources in Banjarmasin is still very limited, especially for example in government-owned companies and individuals who are in Banjarmasin like PUSKOPERA Shipyard, CV. Perkapalan Bintang Teknik, PT. Maritim Barito Perkasa and PT. Balimas. Workers at the company coming from closer are where the company is located. At these companies are still many workers who have low educational background, only educated in elementary and junior high school. In fact, the skills required are in the areas of administration, shipping, welding, machining, lathe and electricity. Such skills can be obtained from Vocational High Schools (VHS).

Associated with the inhibition of the development of VHS in Banjarmasin, one suspected cause is the limited capacity provided by the Vocational High School (VHS). The Lack of capacity and the amount of Vocational High Schools (VHS) in Banjarmasin cause more students choose to continue their education to regular high school. The

interests of students to VHS is not supported by the presence of the number of schools that still considered smaller compared to the number of high school. In addition, the lack of knowledge about the program offered at Vocational High Schools (VHS), being another common reason.

The results of preliminary observations show some phenomena associated with vocational education, such as: 1) many children can't continue school to higher education level (high school or vocational school) because of their parents' economic ability; 2) The high rate of unemployment in the working age population, especially high school graduates because it can't continue to pursue higher education, to enter the workforce while they do not have the expertise and skills; 3) Many of the potential of the area in Banjarmasin which has not been used optimally because the lack of human resources, including skilled labor; 4) It takes the kind of education that can provide an alternative society to acquire the skills provision in order to improve their welfare.

The purpose of this study was to: 1) analyze the needs of VHS which include: junior high school students interest to continue their education into Vocational High Schools (VHS) and labor market opportunities that can absorb vocational school graduates, and 2) to analyze the provision of Vocational High Schools (VHS) that associated with the local resources potential of Banjarmasin.

In Act No. 2nd Year 2003 about National Education System (Education Law), Vocational Secondary Education is an education that prepares students to be able to work in a particular field. While in Government Regulation No. 32nd Year 2013 about National Education Standards, Vocational Secondary Education is education in secondary education that promotes the development of students' abilities to certain types of work.

Nowadays, type of expertise (skills program) that has been developed for Vocational High Schools (VHS) in Indonesia according to the Director General of Secondary Education No. 7013 / D / KP / 2013 Date: December 4, 2013 consists of nine areas of expertise, 46 courses and 128 packets of expertise / specialization. Opening kind of expertise on vocational programs is determined by: public interest in the program the expertise, labor market, graduates of the program is how big these skills can be absorbed by the business / industrial world, and the potential of the region, it is tailored to the demands of regional autonomy in order developing the potential that exists in the area.

Another thing to note is the determination of the location of the school. In principle, determine the location of the school by using the Location Theory of Von Thunen which concluded that the durability of a product produced and low transportation costs, further away from the market, the cost of transport will be considered (Djojodipuro, 1992). It is important in determining the distance. Range of good service is the distance of the consumer to a place to get service, while the threshold value or the population threshold is the minimum number of people needed a service unit before it

can operate profitably (Daldjoeni: 1992). The location of a school is expected in a good location or optimal. According Daldjoeni (1992), the optimal location is the best location economically. A simple model of the theory is the location of economic gains by minimizing transportation costs. Economists have a match with the model of transportation costs, products that have high shipping costs, tend to be sensitive to the cost of transportation (Blair, 1995). If people would put a number of facilities to serve the population of the target, a time will put the facility to serve the entire population on the condition that no individuals served by the facility exceeds the specified distance or cost (Bourne, 1982). Layout or the spatial distribution of schools in urban area can be approximated by performing spatial analysis.

METHODS

This research uses mixed method approach. Samples were taken with accidental purposive sampling technique. The research sample includes 476 persons of 9th grade students and 340 person of 10th grade VHS' students. Data collected includes: 1) students interest to enter VHS; 2) Local potential for employment; 3) Availability of VHS in Banjarmasin; and 4) Local potential in the Development of VHS. Data were analyzed by using mix methods. Data were collected through questionnaires and studies document. Data were analyzed with mix methods technique.

RESULTS AND DISCUSSION

The Needs Analysis of Vocational High School

Continuing Interest In Junior High School Students To The Vocational School in Banjarmasin

The desire (interest) junior high school students in Banjarmasin to continue their education to high school and vocational) is influenced by several factors, including: gender, family (parents' ability, the number of families), the ability of individuals, educational pathways (high school or vocational school), majors or programming skills, and school choice. Ohiwerei and Nwosu (2009) explain factors that Affecting Vocational Decision Making include: 1) Individual differences, 2) External Factors, 3) Religious affiliation, 4) Sex stereotype of careers, 5) Job prospect, 6) Finance, 7) Prestigeattached to the job by society or society's rating of vocation, 8) Educational level of individual

From the results of the survey to 476 students obtained 49.36% of students interested in continuing to VHS, 45.64% interest in continuing to high school and 5% do not attend school or work because their parents can't afford the cost. The students who want to go on to vocational school students consisting of 73% male and 27% female. It shows that vocational schools are still dominated by male students. It is associated with cultural issues (image) community that Vocational High Schools (VHS) rely solely on muscle so only to men.

Students who are interested in continuing to VHS have characteristic with the job of parents civil servants (13.3%), entrepreneurs (62.3%), and army / police (1.9%) were others

who did not mentioned. The reason for students who wish to continue to VHS is because they want to quickly work (50.01%), aspiration (20.31%) and because of the talent (15.63%). From Vocational High School (VHS) in Banjarmasin, most students choose the destination school (VHS) in its own area that already have a good quality (70.31%), due to follow the advice of parents (9.38%), due to the availability of program selection skills (7.81%), want a close proximity to the residence (6.02%) and the rest due to follow in the footsteps siblings / relatives (4.69%).

Labor Market Opportunities in Banjarmasin

Based on the existing data from BP2TPM Banjarmasin (<http://bp2tpmbanjarmasinkota.com>), the potential of Banjarmasin include:

Trade and Services

As the center of government and business, the growth of car trading centers and services is starting in many areas. Various types of hotels ranging from budget to five-star hotels of international standards are available in this city. For sea transport terminal facilities nationally and internationally, there is the Trisakti Port as the critical infrastructure in supporting the smooth transportation of passengers and goods, especially as export and import gate. For banking services in this town almost all banking institutions both public and private prominent national has opened a branch office along with a wide range of other banking products.

As a trading center, Banjarmasin has few modern shopping centers. Nevertheless, the largest traditional market in each district also still exists to serve the various needs of the community. In this city there is also a wholesale center and the largest showroom in various strategic locations. While trade transactions to serve fresh fish catches of local fishermen and regional, there are fish auction place (TPI) is centered on the dock Banjar Raya.

Manufacturing and Warehousing

Economic conditions are likely to continue to improve and the concrete support of local government by opening up investment opportunities widest and create a situation conducive for business activities, has made Banjarmasin city as a center of industry and warehousing. Several types of processing industries which are included in the commodity area, including the processing of rubber (crumb rubber), and the industry of the rattan. There is also a small industry Sasirangan and wooden furniture as a commodity to meet local and regional needs. Furniture from rattan industry are also based in the region Basirih, the resulting products are Carpets and various household furniture. The production of cane is generally exported to Taiwan, Singapore, and Japan.

Sasirangan fabric is a typical product of Banjarmasin city area which has long been known, both within and outside the region. This effort began to grow since the 1980s, and until now there have been 25 business units with the amount of workforce of 322 people. Sentra efforts are most numerous in the District Central Banjarmasin. Some motifs Sasirangan

has been patented in the Indonesian Directorate General of Intellectual Property Law and Human Rights. Other featured products that have been developed over time is wooden furniture. Other industries have also been developed and can be increased again namely metal materials processing industry, shipbuilding, pastries and others.

Agriculture and Fisheries

For urban areas, Banjarmasin has agricultural land that is not too broad. However, some agricultural commodities still have a chance to develop. In the sub sectors of food crops and horticulture, some leading commodity is cultivated are rice, vegetables, fruits. For commodity vegetables, production amounted to 700 tons recorded.

In the livestock subsector, the largest livestock population growth occurred in the type of goat livestock which reached 243.02%. As for livestock production is the largest broiler that reaches 21,100,905 kg. Facilities already available and so support the development of livestock business is Slaughter House, especially as a means of slaughterhouse cattle whose meat supply to markets in Banjarmasin. In addition, the RPH plan will also be developed into a place of slaughter poultry / chicken. While the fisheries sub-sector, the production of the majority of fish produced from marine fisheries. In 2012, marine fish production reached 952.4 ton, while inland fish production amounted to 380.2 tons.

Tourism

In Banjarmasin, there are many interesting places that should be visited by tourists. Natural and cultural richness of life on the river which is typical of the main attraction for domestic and foreign tourists like the floating market and Kambang island. The existence of the objects of nature tourism, cultural tourism, religious tourism, shopping tourism and recreation, as well as culinary tourism, has also been equipped with a variety of adequate facilities such as hotels and inns, as well as transport and communications.

Economics

Based on the contribution of each sector of economic activity, it appears that the sector is another sector that contributes significant for the formation of Banjarmasin city, is the transport and communications sector (22.94) as well as trade, hotels and restaurants (20.92%), with the largest contribution given by sub-sector trade (22.94%). Services sector in GDP formation Banjarmasin city, contributed only (14.07%) with the largest contribution given by sub-sector General Government (12.78%). Banjarmasin sectors of economic activity that contributes the smallest in the formation of GDP in 2012, is the largest agriculture sector contribution (0.77%). From this sector, sub-sector Crops Foodstuffs contributed most (0.14%) and fisheries sub-sector was ranked second (0.11%). From the analysis above in the last three years shows that the sectors which are featured in Banjarmasin is a sector of transport and communications sector (22.94)

Natural Resources Potential

Banjarmasin city area that partly consists of the waters has a lot of potential to optimize. If the water source can be optimally utilized, it will contribute in particular to the increase in per capita income communities. In addition, most of Banjarmasin also bordered by the sea with huge potential with the result that a very large sea, it is characterized by the total length of the coastal city of Banjarmasin along ± 98.46 Km that many contained a variety of potential outcomes with abundant marine fish species are dominant Kite, bloating, trevally, tuna, squid, layur, snapper and crab. Besides it is also supported by the presence of some residents who live along the coast fishermen. The exploitation of marine potentials, especially fishing show improvement. It is shown from the number of fish catches increasing from year to year.

From the above analysis it can be concluded that the leading sectors in the economy in Banjarmasin is the transport and communication, trade, hotels and restaurants, services, finance and leasing. While the potential of the water area is rich in natural resources in Banjarmasin not provide significant economic contribution because it has not managed professionally and optimally is the agricultural sector because of the limited agricultural land.

The Provision Analysis of Vocational High School Associated with Potential Areas in Banjarmasin

Public Preferences Selecting VHS in Banjarmasin

Results of the analysis of the factors that influence students' desires in mind that VHS election by school groups, school condition factor has four sub-factors that influence the selection of the school that is sub factors of school facilities, the achievements that have been attained by the school, the flexibility choice of majors and a better future well. Of the four sub-factors mentioned above, a better future have the greatest influence in affecting students in choosing a school that is equal to 59.79%. This is because the students take the view that by attending a vocational school then they will gain more expertise and skill, and of course with the provision that they can immediately plunge into the world of work, and of course the hope is what affects the students in choosing a school at VHS in Banjarmasin.

Sub flexibility in choosing majors factors have an influence for 25.41% of the students in choosing a school. It showed a positive association with school elections because the presence of several options majoring in education at VHS will be easier for the students to determine the education, expertise and skills in accordance with the desire of each student. Thus, in the future students will have the knowledge and expertise appropriate to the needs of work and their personal characteristics. While the sub-factors that have influence are the smallest sub-factors that have an influence school facilities amounted to 4.72%.

From the analysis above, it can be seen that a better future and the expertise and personal skills that suit the students have a great influence on the selection of students in the school at VHS in Banjarmasin. This is good because the students have a very mature consideration regarding their

readiness in the future, because with the provision of expertise knowledge and skills appropriate to themselves it will prepare the students themselves to enter into the world of work in order to achieve future better. This could be due to the students that the school has discretion in vocational schools then they will have the expertise and skills more than if they go to school in another school, with the expertise and the skills they are ready to enter the world of work.

The second factor to be considered for students in school is a factor determining the choice of location (23.78%), and the sub-most influential factor is the ease of public transport modes. This is because students have the view that by being educated in a school are easy to reach by means of public transport will increase the effectiveness and efficiency in both time and costs, and simplify and facilitate the learning process.

The smallest factor that influence among the three is the economic factor (18.95%). It shows the student has discretion to schools in vocational schools will prepare them for the world of work so that they can immediately help parents to improve economic conditions of their families. Based on the results of the analysis of the data description questionnaire about factors that affect the student wishes to choose VHS committed to VHS students in Banjarmasin, can be grouped into three major groups, namely Technology, Business and Tourism Group. ,

In the analysis of the economic characteristics will discuss the economic factors with sub-factor ratings were low school fees, family economic condition and low transport costs. Of the three sub-factors mentioned above, the economic condition of the family has the greatest influence on students in choosing a school that is equal to 63.64%. This is because students have the consideration that the majority of the income of the parents is <IDR. 1.000.000, - per month so that they go to school in a vocational school it is expected to immediately work to help their parents. As we all know that school at VHS students will be equipped with the expertise and skill when compared to other schools, so that with the provision of expertise and skills those students are expected to be ready to enter the world of work.

The low transport costs factor has the effect of 22.99% of the students in choosing a school. It is obviously still associated with family economic conditions due to the lack of cost of transportation increasingly more it will ease the burden on their parents financially. While the factors that have the smallest influence is a factor that's school fees with the effect of 13.37%.

From the analysis above, it can be seen that the economic condition of the family Being a sub dominant factors that affect the students in choosing a VHS in Banjarmasin in terms of economy. This shows that the public in general and students in particular have the consideration that the school in vocational schools then they are really prepared to enter the workforce with the expertise and skills equipped so that hope can improve the financial condition of the family.

Analysis of Distribution Area of Vocational High School

Based on the characteristic location analysis, distribution of VHS locations in Banjarmasin can be seen in the following figure:



FIGURE 1. LOCATION DEPLOYMENT OF VOCATIONAL HIGH SCHOOL (VHS) IN BANJARMASIN

From Figure 1 above can be explained as follows: In the locations included in the districts of North Banjarmasin there are two (2) VHS namely SMKN 2 and 4 are located at Brigjend Hasan Basry Street, Banjarmasin. In Central Banjarmasin district there is SMKN 1. In West Banjarmasin, there is SMKN 5. The last, in the East Banjarmasin District there is SMKN 3

In the terms of the residence of the students, can be known about the origin of area students who attend school in VHS with the following details:

- a. Most of the students in SMKN 1 is derived from the Central Banjarmasin, Banjarmasin West, partly of South and North Banjarmasin District.
- b. Most of the students in SMKN 2 comes from North Banjarmasin, Banjarmasin West, and Central Banjarmasin.
- c. Most of the students at SMKN 3 derived from East Banjarmasin, West Banjarmasin, and South Banjarmasin..

- d. Most of the students at SMKN 4 comes from North Banjarmasin, West Banjarmasin, and Central Banjarmasin.
- e. Most of the students at SMKN 5 comes from the Central Banjarmasin, West Banjarmasin, South Banjarmasin, and few from North Banjarmasin.

Based on the characteristics of the school location factor, ease of schools to reach by public transport has the greatest influence on students in choosing a school that is equal to 48.44%. This is due to the consideration that the students have attended the school with an easily accessible it will enhance the effectiveness and efficiency of both time and costs, and simplify and facilitate the learning process. It followed by sub strategic location factor that has the effect of 31.82% of the students in choosing a school. Sub-factors that have the smallest influence is sub factor location close to residence which has the effect of 19.74%.

From the analysis it can be seen that the ease of schools to reach by public transportation and proximity to the residence are all factors that affect the students in choosing a school at VHS in Banjarmasin. This shows that the public in general and students in particular has discretion regarding the ease of accessibility effect on the selection of schools to school at VHS because it would simplify and expedite the learning process.

The Provision of Relevant Skills Program for Vocational High School (VHS) in Banjarmasin

The development of High School Skills Program aims to: 1) Match the type of field and expertise in vocational programs in accordance with the needs of the world of work (business / industry), and the direction of development policy area / region; and 2) Improving the efficiency and effectiveness of the implementation of vocational education. Picture of VHS conditions in Banjarmasin today can be seen in Table 1 below:

TABLE 1. THE LIST OF VHS PROGRAM IN BANJARMASIN

| No | District | VHS Name | Multi Media | Administration/Documentation | Accounting | Marketing | Social Welfare | TKR | Information Technology | Business Administration | Hotel Administration | Harap's Beauty | Coaching | Management | Electricity Installation | Medicine | Motors and Services | High Equipment Tools | Arabic Yaku | Concrete Construction | Architectures (Building/Structure) | Wood Construction | Shafika | Primary | Health Analysis | Trade Buyer/ Seller |
|----|---------------------|----------|-------------|------------------------------|------------|-----------|----------------|-----|------------------------|-------------------------|----------------------|----------------|----------|------------|--------------------------|----------|---------------------|----------------------|-------------|-----------------------|------------------------------------|-------------------|---------|---------|-----------------|---------------------|
| 1 | North Banjarmasin | SMKN 2 | | | | | | | | | | | | | | | | | | | | | | | | |
| | | SMKN 4 | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | Central Banjarmasin | SMKN 1 | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | East Banjarmasin | SMKN 3 | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | West Banjarmasin | SMKN 5 | | | | | | | | | | | | | | | | | | | | | | | | |

Source : Dapo-dik Data (2013) (<http://datapokik.ditjamk.net/detail.php?id=1211050001>)

The overview of the potential of Banjarmasin by the District that can be developed for VHS in the future can be seen in table 2:

TABLE.2. THE POTENTIAL OF EACH DISTRICT IN BANJARMASIN 2014

| No | District | Potential Subject |
|----|---------------------|---|
| 1 | North Banjarmasin | 1. Shipyard 2. Cultural Potential 3. Services and trade 4. Culinary 5. Tourism and culture 6. Fishing |
| 2 | South Banjarmasin | 1. Shipyard 2. Cultural Potential 3. Services and trade 4. Tourism 5. Transport and communications 6. Agriculture 7. Textile |
| 3 | Central Banjarmasin | 1. Cultural Potential 2. Services and trade 3. Culinary 4. Tourism |
| 4 | East Banjarmasin | 1. Cultural Potential 2. Services and trade 3. Culinary 4. Tourism 5. Hotel and restaurant 6. Textiles |
| 5 | West Banjarmasin | 1. Shipyard 2. Cultural Potential 3. Services and trade 4. Culinary 5. Tourism 6. Transportation Communications 7. Hotels and restaurants |

Sources: based on observation data

From the GDP data of Banjarmasin, many potential existing resources yet provide significant economic contribution. There is also the potential that has absorbed a

lot of manpower, but also not comparable with its economic value. This is because these potentials have not been managed well, given the lack of human resources.

Tukundane, et. Al (2015) find that Vocational Educational Training (VET) can improve access to labor market and livelihood opportunities, but a number of areas require improvement. The existence of vocational schools (VHS) is expected to overcome these problems. The construction of secondary vocational schools by opening the corresponding program expertise with surrounding potential is expected to have contributed to the improvement of public welfare around the school, especially the industrial activity (business unit) in the supply of labor.

Perkins III (Stasz and Bodilly, 2004) offered specific guidance on the kinds of improvements that a program should incorporate to enhance its quality. These improvements included: 1) integrating academics into vocational and technical studies; 2) adopting challenging academic, vocational and technical standards; 3) promoting understanding of "all aspects" of an industry; 4) encouraging parent and employer involvement; 5) building linkages to postsecondary education; 6) expanding use of technology; and 7) providing for professional development of teachers, counselors and administrator.

Therefore, the opening of the field / new skills program should be implemented with due regard to the following matters:

- a. Their labor needs vocational graduates per economic sector (the study of potential areas),
- b. The support of the business industry and other communities,
- c. There is support for human resources and educational facilities;

Although many vocational schools (VHS) in Banjarmasin built (established) by opening the membership program which is in conformity with the existing potential in the region, but has not been fully able to cover all of the potential that exists in the city of Banjarmasin, such expertise can prepare the program for processing of fishery products are abundant river or program expertise to prepare skilled manpower in the field of tourism and creative economy concerning arts and culture Banjar. Across a wide spectrum of industries, implementing a local content strategy – which can involve a large number of measures to maximize local contracting for goods and services in new or existing national and global supply chains – is one of the most effective and sustainable development strategies that company can use (Levett and Chandler, 2012)

On the other hand, the development of vocational schools (VHS) concentrated in the city center. Even some districts do not have a Vocational High School (VHS) so many children who are interested but can't be fulfilled because the desire away the location of the school. From the analysis above shows that some vocational skills program that has been opened in accordance with the potential of the surrounding regions (districts). One District of South Banjarmasin has only one managed by the Private school namely SMK NU.

Skill program that developed in vocational schools is geared to meet the needs of the labor market with the priorities of local, regional and then a new national / international, in order to spur industrial growth in the area. Support business / industrial world in Banjarmasin provide a great opportunity for the development of vocational schools (VHS) in Banjarmasin as users' vocational graduates, especially in the provision of skilled labor given much potential that exists in Banjarmasin has not fully managed properly. Although the absorption of graduates of vocational schools (VHS) in the industry in Banjarmasin still small (range 5-15%), this is because the industry in Banjarmasin still done traditionally and little use of technology in the production process.

Skills program that develop by vocational schools in Banjarmasin has not fully lead to the development potential of the region. A lot of untapped potential for the region because it is not prepared human resources (workforce), of which there is no vocational skills program developed in order to prepare human resources to explore and manage the creative economy based on local potential in Banjarmasin. On the other hand, people are not responding to the government's policy on regional development. This proved by the least junior high school students who want vocational skills program that does not leads to the development potential of the region, but rather choose the skill programs that are marketable. The amount of student interest gap is give opportunities to private sector opportunities to develop skills Education Institutions (LPK) as an alternative society to obtain education skills in a relatively short time and at a reasonable cost (cheap).

Tien (2009) suggested to link vocational training with enterprises, some steps need to do such as: 1) Reviewing and upgrading the vocational training network to meet businesses' needs for skilled workers, 2) Specifying law provisions on vocational training to encourage businesses' establishment of vocational training centers, especially those enterprises with a large scale of labor use, 3) Upgrading current vocational training centers or building new schools so as to have 40-50 large-scale vocational schools at the college level (vocational colleges), 10 of which are at the international level, located in focal economic zones or localities with more FDI enterprises and industrial zones. These schools not only provide laborers for FDI enterprises and industrial zones, but also train workers for local and national economic development, and 4) Improving the content of the vocational training program and syllabus in the forms of modules to create access to advanced technology; ensure flexible, quick adaptation to changes in business technology and the labour market. The result showed the lack of vocational graduates who can be absorbed by the industry in city of Banjarmasin, more because most industries still use traditional ways, both in management and production processes. Vocational High School (VHS) as provider of labor on industrial / business unit is not only the responsibility of government, but must also involve the private sector (industry) as potential users of graduates

Vocational High School (VHS), so that its existence really able to contribute to government in order to accelerate the process of industrialization in Indonesia. The development of potential sectors in Banjarmasin (trade, services and industry) will provide a strong foundation for the development of highly competitive industry with the support of adequate resources.

Other finding of this research is skill programs that developed by Vocational High Schools in Banjarmasin more concern to follows the market trends. Skill programs that prepared to develop the local resources potential of Banjarmasin is less attractive and not so interesting for local students.. In fact, the development of local potential will also eventually encourage the growth of other sectors (transport, transport, communications and information, and services) that will absorb more labor in the future (multiplier effect).

Related to these problems, the development of skill programs for Vocational High School (VHS) in Banjarmasin are appropriately directed to the development of local potential, such as natural resources potential and the potential of goods, services, crafts craft as part of the creative economy, so it really is able to increase local income and welfare of the community in the city of Banjarmasin.

Boateng (2012) explained that the availability of leadership development programs and the possibility of being able to acquire certain leadership behaviours and enhance and use certain leadership attributes holds great promise for those participating in and leading vocational educational programs, reform efforts, and the change process. The policies options that recommended based on the findings of the research include:

- a. The local government need to build additional capacity for VHS in the form of the new school unit or the additional classroom as a form of expansion of access to vocational education, but should still put forward the standards required in the establishment of new schools
 1. To increase additional classroom especially in districts that have been built VHS, including: North Banjarmasin, East Banjarmasin, Central Banjarmasin, and West Banjarmasin District. The additions given to schools that opened the skill programs that very demanding by the community with such as inadequacy and remote area.
 2. New school unit needs to be built in the district that have no vocational school unit yet, and not be served (outreach) by an existing VHS, particularly South Banjarmasin Districts with Skills Programs: shipbuilding engineering, welding engineering, biomass energy engineering, textile craft design, dance music.
 3. Local government needs to increase promotion to socialize the vocational skills program that can support the development of local region potential.

- b. The need for additional and rejuvenation equipment that will be used as the working practices of industrial activity in vocational schools in order to avoid a knowledge gap.
- c. The need for further study on the development of vocational high schools are not only oriented to the needs of the present or follow the trend of the market, more to local resources potential.
- d. There are several vocational schools (SMK) built in the center of town, hence the government needs to regulate the establishment of vocational schools that can reach all the people in Banjarmasin to see the potential that exists.

CONCLUSION

Some conclusions from this study include:

- a. According to the needs of VHS based on interest and employment opportunities the majority of 9th grade students interested in continuing their education at VHS. Potential sectors for employment are trade, industry, and processing of natural resources.
- b. According to the provision of VHS associated with local resources potential, the development of existing programs are appropriately directed at the development of local resources potential include natural resources and the potential for goods, services, and craft.

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Empowerment Street Children Through Atenho in Semarang City

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Abstract — Picture ATENHO partner in the implementation of this is the head of the village have now, Gunung Pati, street children and also from the Community of Hope Semarang. ATENHO orientation of this is to prevent and anticipate children aged 12-15 years plunging into the streets and eventually will become street children, because children there once prone to become street children. Creativity Student Program (CSP) through ATENHO empowering street children in Semarang City has a way of progress in terms of implementation, because the team CSP is not directly street children, but we are working with the Community of Hope around the area Pasar Johar. In addition we ask the members of the Community of Hope and also a member of Compost House is to become the presenter to discuss the utilization of used goods into goods that have a sale value. Reasons team CSP empowering street children through ATENHO in Semarang change a little technical implementation of the program is to reduce the risk of uncertainty of children street, time can be efficient and also the implementation of these activities can run. Having carried out these activities, the children were very enthusiastic with the focus on listening to and implementing the provision of material from a speaker who has been invited to ATENHO. They did what was ordered by the speaker well, for example the first training the manufacture of commercial value from waste paper, the second training which makes vespa of former prime card

Keywords— *Atenho, Entrepreneur, Street Children*

INTRODUCTION

Street children some of the children that live and grow in Indonesia and become the hope of the nation in the future. As the next generation, the condition of street children in Indonesia is very worrying, loss of protection of the family, persecution at home. The loss of a protection and violence experienced by street children members impact on their personality. In Indonesia the number of street children at 60,000 people, while in Semarang reached 7000 people and 300 of them are female. In particular economic conditions in Semarang experiencing a crisis with the number inflasi 75%, it can be precipitated the economic difficulties in the lower classes in particular. (Shalahuddin, O. 2000)

The development of street children every year not only have an impact on the growth of quantity (amount) of street children alone, but also have an impact on the development of economic activities of street children. At the initial appearance, the street children can be said to be actually doing the work that deserved categorized as a normal job to become a musician, shoeshine, peddlers, and pelayang. Although, in the next stage due to the increasing

number of street children, the work activity is also increasingly diverse and no longer guided by the principle of "work" like begging to prostitution, and for that Attractive Entrepreneur required as a halfway house in the city of Semarang. In this program, the intended target are street children aged 12-15 years. Picture ATENHO partner in the implementation of this is the head of the village have now, Gunungpati, street children and also from the Community of Hope Semarang. ATENHO orientation of this is to prevent and anticipate children aged 12-15 years and will eventually become street children, because children there once prone to become street children (Desi Uli Pasaribu, 2007).

Overview Community Targets

In particular economic conditions in Semarang experiencing a crisis with the number inflation 75%, it can be precipitated the economic difficulties in the lower classes in particular. In fact impacted by the rise of street children with their activities in the city, which according to data obtained from the results of recapitulation Department of Social Welfare in the Central Java Provincial Government in 2006 as many as 253 street children with the details of the female 183 and male gender were 70 street children with the number of elderly people and as many as 161 parents who have children who berusia 12-20 years as many as 83 people. (Central Bureau of Statistics and Regional Development Planning Agency of Central Java, 2006).

The development of street children every year not only have an impact on the growth of quantity (amount) of street children alone, but also have an impact on children's development of economic activities jalanan. Pada inception, the street children can be said to be truly do pekerjaan deserved categorized as a normal job to be singers, shoeshine, peddlers, and pelayang. However, in the next stage due to the increasing number of street children, the work activity is also increasingly diverse and no longer guided by the principle of "work" like begging to prostitution, and for that Attractive Entrepreneur required as a halfway house in the city of Semarang. In this program, the intended target are street children usia 12-15 year. Picture ATENHO targeted communities are vulnerable children become street children in Semarang Johar Market.

METHOD OF EXECUTION

In the implementation of this activity using the following method:

1. Establish cooperation with the village have now, Gunung Pati in hopes of getting a permit for activities .
2. Conduct a survey to children in Semarang (Johar area).
3. Survey Shelter wants to work with in this activity.
4. Carry out training on entrepreneurship to children aged 12-15 years. The first training that recycles waste paper into appropriate items, the second training which makes Vespa of waste prime card.



FIG 2. ATENHO PROGRAMME

RESULTS AND DISCUSSION

Work progress

Activities Student Creativity Programme through atenho empowering street children in the city of Semarang has a way of progress in terms of implementation, because the team PKM-M is not directly mencari street children, but we are working with the Community of Hope in the area around Market Johar. Selain we ask members of the Community of Hope and also a member of the Home Compost to be presenters to discuss the utilization of used goods into goods that have a sale value. Reason PKMM team empowerment through atenho street children in the city of Semarang change a little technical implementation of the program is to reduce the uncertainties of street children, time can be efficient and also the implementation of these activities can be accomplished.

Target achievement Outcomes

. After carrying out these activities, the children were very enthusiastic with the focus on listening to and implementing the provision of material from a speaker who has been invited to ATENHO. They did what was ordered by the speaker well, for example the first training the manufacture of commercial value from waste paper, the second training which makes Vespa of former prime card.



FIG 1. ATTRACTIVE ENTREPRENEUR HOUSE



FIG 3. ATENHO PROGRAMME

Potential Sustainability

The program has been completed but until now the children are still carrying out training guided by advanced kami. Rencana partners of this program, if already produced a good product will do the marketing through online and there is also a gallery of their work in sekaran

CONCLUSION

1. Atenho can take advantage of a home for street children
2. How to set up an independent business that is able to open up employment opportunities and economic uplift of street children is to continue and develop the potential entrepreneur who owned street children.
3. How to develop creativity and entrepreneurial spirit in ATENHO is to utilize waste paper into a keychain, utilizing the former prime card to make a Vespa and so forth.

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Strategic Policies for Increasing the Competitive Powers of Indonesian Horticultural Products in Asean Markets

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Abstract — This research was intended to : (1) analyze the competitive powers of Indonesian superior fruits in ASEAN markets, (2) analyze the marketing distributions of superior fruits from Indonesia, (3) analyze the policies of Indonesian Government relating to horticultural products and (4) produce policy drafts intended for increasing the competitive powers of Indonesian superior fruits. Calculations based on Revealed Comparative Advantages and Specialized Trade Indexes showed that there were 5 Indonesian superior fruits possessing good competitive powers. They were alpukat, mango, manggis, water melon and melon. Calculations based on Intra Industrial Trade indexes showed that banana, water melon, melon, durian and kelengkeng were good in *imperfect market competition* because of the existence of *increasing returns to scale*. The calculations also showed that alpukat, mango and manggis were more suitable in *perfect market competition* where product abundances constituted very important factors and the trades were mainly determined by comparative superiority. Further, this research found out three patterns of marketing distributions for these superior fruits: (1) farmer - consumer, (2) farmer - trader - outlet - consumer and (3) farmer - distributor - outlet - consumer. This research also found out that the quantities, qualities and continuous availabilities of Indonesian superior fruits were very uncertain since the productions of the fruits depended heavily on natural climates and the crops were mostly cultivated in small individual lots. Indonesian Government launched a policy that limited the import of fruits only through one channel accompanied by certain import quotas for certain commodities. Relating to the attempts to increase the competitive powers of Indonesian superior fruits, the researchers recommends that Indonesian Government should develop integrated and efficient production centers for

superior fruits. Such production centers might then reinforce farmer-level institutionalization

Keywords— *Policies, Competitive Powers, Horticulture*

INTRODUCTION

Horticultural products constitute potential commodities having very high economic values and demands by the consumers. Provided with high variety in agro climates, Indonesia has a very high potential to develop various types of tropical and sub tropical horticultural products. In Indonesia, there are 323 types of these products; 60 types of fruits, 80 types of vegetables, 66 types of bio farming and 117 types of decorative plants

Asean Economic Community, which is presently going on, might become an opportunity but at the same time also a catastrophe for our farming, particularly for horticultural sector. Presently, the competition between domestic and imported horticultural products in Indonesia is so intense. The Indonesian Government, through the Trading Ministry, intends to have a harder work on export potentials of horticultural products, particularly exotic fruits. It targets the sales to other countries to grow between 14.5% and 15.5%

Indonesian exports for fruits tend to grow, but imports also have the same trends, as can be seen in the following tables 1.

TABLE 1: EXPORTS OF INDOONESIAN SUPERIOR FRUITS IN 2014

| Months | Export | | Import | |
|----------|----------------|----------------|----------------|----------------|
| | Values in US\$ | Weights in Kg | Values in US\$ | Weights in Kg |
| January | 14,472,285,648 | 49,154,384,703 | 14,916,227,693 | 11,590,996,964 |
| February | 14,634,090,390 | 43,399,680,728 | 13,790,661,990 | 10,640,029,636 |
| March | 15,192,634,701 | 49,294,958,689 | 14,523,719,412 | 11,439,923,450 |
| April | 14,292,472,554 | 45,541,731,344 | 16,254,976,317 | 13,005,419,405 |
| May | 14,823,602,661 | 47,417,633,575 | 14,770,336,777 | 12,197,088,101 |
| June | 15,409,451,765 | 44,989,016,798 | 15,697,742,441 | 12,811,352,690 |
| July | 14,124,129,298 | 43,624,670,282 | 14,081,710,235 | 11,541,376,167 |

| | | | | |
|--------------|------------------------|------------------------|------------------------|------------------------|
| August | 14,481,642,319 | 43,484,947,226 | 14,793,236,965 | 11,676,185,855 |
| September | 15,275,846,089 | 46,043,270,707 | 15,546,096,309 | 13,158,825,424 |
| October | 15,348,970,137 | 43,705,129,574 | 15,327,994,527 | 13,184,342,274 |
| November | 13,616,232,861 | 46,182,202,132 | 14,041,607,926 | 12,258,277,328 |
| Total | 161,671,358,423 | 502,837,625,758 | 163,744,310,592 | 133,503,817,294 |

Source: BPS (Statistics Central Bureau, 2014)

There are several factors causing the above high intensity of competition: (1) Imported fruits are cheaper than domestic one; (2) Supplies of imported fruits are in continuous fashion or always stable; (3) The appearances of imported fruits are more attractive than the domestic ones; (4) The distribution networks for imported fruits are very well managed beginning from the distributors to the end users

The above problems for domestic fruits might be answered by the so called “six pillars for horticultural developments”, which are now being implemented simultaneously, and in an integrative fashion, among Indonesian Central, Provincial and Regencial governments. It means that the “six pillars” should be treated as inseparable between one and the others and implemented in integrated ways. The “six pillars” are as follow : (1) Developments of horticultural agro business centers; (2) Good arrangements for SCM (Supply Chain Management); (3) GAP (Good Agricultural Practices) and SOP (Standard Operating Procedures); (4) Integrated facilities for investments in horticultural businesses; (5) Developments of relevant business institutions; (6) Increases in consumptions and export acceleration

The goals of this research will be as follow : (1) Analyze the economic potentials of Indonesian horticulture product; (2) Analyze models of marketing distributions for Indonesian horticulture product ; (3) Conduct in deep analyses and then construct strategic policies that might help increasing the competitive powers of Indonesian horticulture product.

LITERATURE REVIEW

Horticulture comes from Latin words for *hortus* (garden plants) and *cultura/colere* (cultivation) that it can be understood as cultivations in garden plants. The word of horticulture is then used not only for cultivations in gardens but it has been used more broadly for other plants. Presently, horticulture can be understood as one of many methods for cultivating modern farming. It focuses on the cultivation of fruit (fruit culture), flower (floriculture), vegetable (olericulture), medicine (bio farming) and garden (landscape) plants. One main characteristic of horticultural products is perishable state or a state of being easily rotten

Located in tropical areas, Indonesian country has a great deal of bio varieties for horticultural commodities. The main horticultural commodities of Indonesia are vegetables, fruits and decorative flowers. The varieties and exoticism of Indonesian fruits can be levered in order to compete, with similar products from other countries, in global markets. Indonesian fruits can play important roles in global markets in the forms of both fresh and processed products. Presently, market shares of Indonesian processed products, from fruit materials (tinned and juiced), in global markets is approximately 4% (US\$ 138.03 millions), which is in the fifty first (51st) position out of the total demand on processed fruits having a total value of US\$ 3,450.75 millions

Research by Soesilowati (2009), on Cultivations of Exotic Fruits in Indonesia, showed a very profitable condition as measured by ROI (returns on investments), net revenues and payback periods (see Table 2)

Table 2: Analyses on Profitability of Cultivating Kelengkeng, Naga, Durian and Manggo Fruits

| Descriptions | Types of Commodities (in Rp) | | | |
|-----------------|------------------------------|--------------------|---------------------|---------------------|
| | Kelengkeng, 4,000 trees | Naga, 40,000 trees | Durian, 2,800 trees | Manggo, 4,000 trees |
| Profitability | 600,000,000 | 3,200,000,000 | 4,050,000,000 | 1,200,000,000 |
| Operating Costs | 1,752,205,000 | 1,824,623,000 | 1,116,968,700 | 1,421,800,000 |
| B/C | 0.34 | 1.75 | 3.62 | 0.337 |
| ROI | 34% | 175% | 362% | 33.7% |
| Payback Periods | 2.9 years | 0.5 years | 0.3 years | 2.9 years |

Source: Soesilowati (2009)

The policy, only recently in effect, of Indonesian Government that limits the imports of horticultural products

has produced positive effects on NTP (Farmers' Exchanging Values), which is the result from increases in the selling

prices of domestic fruits. NTP is one indicator for understanding farmers' purchasing power and *term of trade*. Here, *term of trade* constitutes the exchanging power of farmers' products to other goods and services. NTP in the sub sector of farming has increased as a result from an increase in farmers' receivable index (0.72%), which is higher than their payable index (0.12%). The increase of the receivable index is the result from an increase in the price index for fruits (0.96%)

Decision making is related closely to policy making and implementations. A decision will always put some effects on implementation of a policy, and the implementation of the policy will, in turn, always affect the next decision. Every policy always has a risk to fail. Parson (1995) divided policies into implemented but unsuccessful and non implemented ones. Non implemented means that a policy is implemented but in a way that is not in accord with the plan, probably because the parties involved in the implementation cannot work together or because they are not efficient, or because the existing tasks are beyond the reach of these parties that however hard these parties have worked the obstacles remain irresolvable. Unsuccessful implementation of a policy usually occurs when the policy is implemented as planned but external conditions are not supportive

Analyses on value chains put market mechanism into a position to become the main determinant for economic life. But at the same time, market mechanism also provides marginalized chain actors with opportunities to build good business cooperation for reinforcing their own collective competitive power (Sulandjari, 2011). Upgrading the value chain orient itself to market fairness which is characterized by redistribution of added values to marginalized chain actors. When this objective is successfully achieved, poverty might then be eliminated or at least minimized. The reinforcement of collective competitive power among the marginalized groups can be facilitated by such supporting institutions as governments, business development centers and universities or colleges

Value chain constitutes channels for the management of commodities. Value chain consists of series of production processes as well as marketing & distribution processes directed to the final users. Value chain analyses enable one to analyze chains between different regions and even different countries, to calculate buyers' needs and international standards and to work out international benchmarking. By means of comprehensive descriptions on value chains, the managements of commodities can be defined and monitored in order to be directed to enforce the values of market fairness (Springer & Heinze, 2008)

The superiority of value chain analyses lies on its ability to create institutional relationships and good coordination among suppliers, producers, distributors and retailers. Relating to local and regional economic developments, value chain analyses can be used as models for creating active relationships between a value chain actor and relevant

institutions and other stakeholders, in which the goal is to reinforce the competitive power of the actor itself

Fruits are very perishable that correct SCM (supply chain management) is very necessary. SCM as a comprehensive system beginning from managing related processes at every chain to those in the users' premises. Analyses on SCM focus on: (1) cultivating processes producing the products, (2) transforming processes on raw materials (harvest and post harvest managements), (3) processing industries and (4) delivery processes of the products to end users through distribution channels. Therefore, SCM requires not only GAP but also GHP (good handling practices), GMP (good manufacturing practices) and GTP (good trading practices)

In order to guarantee the success of SCM, the following factors should deeply be considered: policies, human resources, means & infrastructures, technologies, institutions, working capitals, information systems, socio-cultural aspects and some others. The application of SCM consists of 5 main flows of processes, information, funding, services and activities

Institutionalizing the businesses is very necessary for increasing the competitive powers of supply chains. Strong institutions should be developed not only for reinforcing horizontal cohesion among the business actors within one internal supply chain but also for reinforcing vertical integration between business actors within one internal supply chain and other business actors in other supply chains. Horizontal cohesion means, for example, good cooperation among farmer groups or among trading groups. Vertical cohesion means good cooperation between farmer groups and trading groups or among different groups of professions

Located in tropical areas, Indonesian country has a great deal of bio varieties for horticultural commodities. The main horticultural commodities of Indonesia are vegetables, fruits and decorative flowers. The varieties and exoticism of Indonesian fruits can be levered in order to compete, with similar products from other countries, in global markets. Indonesian fruits can play important roles in global markets in the forms of both fresh and processed products. Presently, market shares of Indonesian processed products, from fruit materials (tinned and juiced), in global markets is approximately 4% (US\$ 138.03 millions), which is in the fifty first (51st) position out of the total demand on processed fruits having a total value of US\$ 3,450.75 millions

The varieties and exoticism of Indonesian horticulture should be levered in order to be highly competitive in global markets. Active shares of Indonesian horticulture in global markets can actually be in the forms of both fresh and processed products. Several industries in processed products from raw horticulture have been proved as providing contributions to the economic growth of Indonesian country. Ironically, however, imported fruits by this country are always in higher quantities than the exports. It constitutes a challenge that should be accepted as a result from the trade globalization for foods. By these reasons, therefore,

improvement in the competitive powers of Indonesian superior fruits is an urgent necessity

METHODOLOGY

This research, entitled “Strategic Policies for Increasing Competitive Powers of Indonesian Horticultural Products in ASEAN Markets”, will constitute a specific but at the same time also holistic study. Specific means that the research subjects will be the players in the sub sector of horticulture. Holistic means that the research will analyze not only economic politics but also economic managements where the researchers and the research subjects will actively interact one another within certain times and contexts. This research will employ qualitative (Bogdan & Biklen, 1998) or naturalistic (Lincoln & Guba, 1985) approach for goals 3 and 4 and quantitative one for goals 1 and 2.

Specifically, the qualitative approach will be intended to analyze relevant but independent entities or phenomena. In describing a phenomenon, the researchers will use inductive procedures in which human being will be the main instruments. Meanwhile, the quantitative approach will be used for mapping out potential as well as real competitive powers of both Indonesian and Malaysian superior fruits. The quantitative approach will also be used for calculating the contributing values of the existing distribution chains. This is very necessary not only for the sake of short-run objective (profit maximization) but also for long-run objective (wealth maximization).

In line with the research objectives, economic politics and economic managements will be the focuses of the research. The two aspects are put into operational as follow: (1) Economic managements necessitate the measurements of productivities, market coverage, competitive powers and distribution chains beginning from the farmers to the end users; (2) Economic politics necessitate the analyses on relevant policies, instruments and Indonesian actors each with their own working approaches intended to increase also each of their own competitive powers

This research will be conducted in Indonesia. The points of locations will be fruit production centers in the 12 locations, this research should be multi-site in nature, as pointed out by Bogdan & Biklen, 1998. The multi-site studies will take several formats, begun with a single case study as a pilot for studying other similar cases. Two or three studies will be conducted, after which they are compared one to the others in order to produce generalizations.

This research will use two types of data; primary and secondary data. The primary data will be collected in the forms of verbal and behavior products from the informants, for which the informants will be selected using the technique of purposive sampling. The secondary data will be collected from relevant documents, photographs, audio-visual records and other relevant objects. In order to obtain holistic and integrated data relevant to the research focuses, the needed

data will be collected by means of (1) deep interviews, (2) observations, (3) FGD, (4) questionnaires and (5) document readings

As for the qualitative approach, the data were analyzed using interactive methods. As for the quantitative approach, the data were analyzed using percentage descriptions (for calculating the potential maps and values of distribution chains), RCA (Index Revealed Comparative Advantage), ST (Index Specialist Trade) and ITT (Index Intra Industry Trade)

Indexes Revealed Comparative Advantage (RCA)

The RCA indexes were based on a consideration that export performances of a country is determined by the competitive powers of a product from country, as compared to the same product from some other country (or countries), assuming (*ceteris paribus*) that all other factors influencing exports remain unchanged. Tulus Tambunan (2004; 110) defined RCA in the following manner : When the export of a commodity by a country (country I for instance) has a higher percentage as compared to export of the same commodity by all countries around the world, then the country (country I) has a comparative superiority in both the production and the exports of the commodity. RCA is then formulated as follow:

$$RCA = \left(\frac{X_{IK}}{X_M} \right) / \left(\frac{X_{WK}}{X_{WM}} \right)$$

X_{IK} = export value of commodity I by country K

X_M = total exsport of country K

X_{WK} = the world export value for commudity I

X_{WM} = total export value of the world

When an RCA index for a commodity is higher than 1, then the commodity has a relatively good competitive power . Conversely, when an RCA index for a commodity is less than 1, then the commodity has no competitive power.

Indexes Specialized Trades (IST)

ST indexes could be used for finding out whether or not a commodity has a potential either to be exported or imported. Therefore, ST indexes could be used for determining the phasing out of both the industrialization processes and the trading practices of any country. By using ST indexes, it can be found that a product either has become saturated (there is no room for growing further) or is still in its growing phases. An ST index has a value ranging from -1 to +1. When a product has a positive value (0 to 1), then the product has a strong competitive power and might become a commodity for exports, where domestic supply is higher than domestic demand). Conversely, when a product has a negative value (0 to -1), then the product has low competitive power and might have to be imported (domestic supply is lower than domestic demand).

The variations of comparative powers of a product relative to either its export or import potentials can be formulated as follow:

$$STI = \frac{X_{ij} - M_{ij}}{X_{ij} + M_{ij}}$$

$$IIT I = 1 - \frac{X_{ij} - M_{ij}}{X_{ij} + M_{ij}}$$

IST = Index for Specialized Trades,

X_{ij} = export value of commodity i by country j,

M_{ij} = import value of commodity i by country j

IIT = Index for Intra Industrial Trades,

X_{ij} = export industry i to country j,

M_{ij} = import industry i to country j

RESULT AND DISCUSSION

Intra Industry Trade (IIT)

An IIT constitutes a trade where an export value by a country for an industry is exactly equalized by by another country for the same industry. An IIT index nearing to zero would mean that the trade is suitable to be practiced in a *perfect market competition* where product abundances are very important factors and the trade is based on a comparative superiority. An IIT index of exactly zero would mean that the trade should be practiced in an imperfect market competition due to increasing returns to scale. For calculating IIT indexes for a country, Grubel - Lloyd (1975) index is used in the following manner:

The Potentials of Indonesian Superior Fruits

Indonesian Government, through the Ministry for Trades, keeps working out on the potentials of domestic horticultural products for exports, particularly fruits. It projects an export growth ranging from 14.5% to 15.5% supported by several supporting policies. Out of 60 fruit species growing in Indonesia, several exotic ones have been selected. They are alpukat, durian, mango, manggis, melon, banana and water melon. The cropping areas, the production and the productivity of these seven species of fruits are shown in the following tables.

TABLE 3 . CROPPING AREAS (IN HECTARES) FOR INDONESIAN SUPERIOR FRUITS

| No | Commodity | 2009 | 2010 | 2011 | 2012 | 2013 |
|----|---------------------|---------|---------|---------|---------|---------|
| 1 | Alpukat | 19,979 | 20,507 | 21,653 | 20,989 | 22,214 |
| 2 | Durian | 61,849 | 46,290 | 69,045 | 63,189 | 61,246 |
| 3 | Mango | 215,387 | 131,674 | 208,280 | 219,667 | 247,239 |
| 4 | Manggis | 11,990 | 10,231 | 16,180 | 17,850 | 18,200 |
| 5 | Banana | 119,018 | 101,276 | 104,156 | 103,158 | 103,449 |
| 6 | Water melon / melon | 37,719 | 32,865 | 39,788 | 40,122 | 39,278 |

TABLE 4. PRODUCTION (IN TONS) OF INDONESIAN SUPERIOR FRUITS

| No | Commodity | 2009 | 2010 | 2011 | 2012 | 2013 |
|----|-------------------|-----------|-----------|-----------|-----------|-----------|
| 1 | Alpukat | 257,642 | 224,278 | 275,953 | 294,200 | 289,893 |
| 2 | Durian | 797,798 | 492,139 | 883,969 | 888,127 | 759,055 |
| 3 | Mango | 2,243,440 | 1,287,287 | 2,131,139 | 2,376,333 | 2,192,928 |
| 4 | Manggis | 105,558 | 84,538 | 117,595 | 190,287 | 139,602 |
| 5 | Banana | 6,373,533 | 5,755,073 | 6,132,695 | 6,189,043 | 6,279,279 |
| 6 | Water melon/melon | 560,188 | 433,792 | 601,490 | 640,952 | 585,835 |

TABLE 5. PRODUCTIVITY OF INDONESIAN SUPERIOR FRUITS (KU/HECTARE)

| No | Commodity | 2009 | 2010 | 2011 | 2012 | 2013 |
|----|-----------|--------|--------|--------|--------|--------|
| 1 | Alpukat | 129,00 | 109,40 | 127,44 | 140,14 | 130,50 |
| 2 | Durian | 129,00 | 106,30 | 128,02 | 140,55 | 123,94 |

| | | | | | | |
|---|-------------------|--------|--------|--------|--------|--------|
| 3 | Mango | 104,20 | 97,80 | 102,32 | 108,17 | 88,70 |
| 4 | Manggis | 88,00 | 82,60 | 72,67 | 106,60 | 76,70 |
| 5 | Banana | 535,50 | 568,30 | 588,79 | 599,95 | 606,99 |
| 6 | Water melon/melon | 148,50 | 132,00 | 151,80 | 159,70 | 149,15 |

Based on the data above, it can be seen that the productivity of alpukat, durian, mango, manggis and banana increased 10.2%, 9.3%, 5.8%, 47.2% and 1.8% respectively.

Analyses on Competitive Powers

Based on indexes for Specialized Trades, analyses on competitive powers of the seven exotic fruits from 2009 to 2013 showed the following results (see Table 6)

TABLE 6. COMPETITIVE POWERS OF INDONESIAN EXOTIC FRUITS BASED ON STI

| Year | Banana | Alpukat | Mango | Manggis | Water melon | Melon | Durian |
|------|--------|---------|--------|---------|-------------|--------|--------|
| 2009 | 0,101 | 0,814 | 0,265 | 0,998 | -0,304 | -0,618 | -1,000 |
| 2010 | -0,990 | 0,739 | -0,061 | 0,998 | -0,923 | -0,533 | -0,998 |
| 2011 | -0,977 | 0,767 | 0,201 | 0,997 | -0,663 | -0,152 | -1,000 |
| 2012 | -0,928 | 0,251 | 0,180 | 1,000 | -0,242 | -0,152 | -1,000 |
| 2013 | -0,541 | 0,997 | 0,803 | 1,000 | 0,995 | 0,976 | -1,000 |

As can be seen in the table, the products having positive indexes for Specialized Trades are alpukat, mango, manggis, water melon and melon. It means that the exports for these five fruits were higher in quantities than the imports. Banana, durian and kelengkeng had negative ST indexes, which meant that the exports for these three fruits were lower than the imports. It was suspected that the qualities of these fruits were lower than those of imported ones. Therefore, it would

be the duty of Indonesian Government to help increasing the qualities, the quantities and the continuous availabilities of Indonesian fruits in order that they would be able to compete well in international and particularly ASEAN markets.

Calculations also showed that banana had a positive index for ST only in 2009 when the quantity of export was than that of import. From 2010 to 2013, the ST indexes for banana decreased drastically to almost minus 1.

TABLE 7. ANALYSES ON INDEXES FOR INTRA INDUSTRIAL TRADES FOR INDONESIAN FRUITS

| Year | Banana | Alpukat | Mango | Manggis | Water Melon | Melon | Durian |
|------|--------|---------|-------|---------|-------------|-------|--------|
| 2009 | 0,899 | 0,186 | 0,735 | 0,002 | 1,304 | 1,618 | 2,000 |
| 2010 | 1,990 | 0,261 | 1,061 | 0,002 | 1,923 | 1,533 | 1,998 |
| 2011 | 1,977 | 0,233 | 0,799 | 0,003 | 1,663 | 1,152 | 2,000 |
| 2012 | 1,928 | 0,749 | 0,820 | 0,000 | 1,242 | 1,152 | 2,000 |
| 2013 | 1,541 | 0,003 | 0,197 | 0,000 | 0,005 | 0,024 | 2,000 |

Banana, water melon, melon and durian had IIT (Intra Industry Trade) indexes higher than 1 that these four commodities were suitable in imperfect market competition due to increasing returns to scale. Alpukat, mango and manggis had IIT indexes of zero or nearing to zero that they were included into inter industrial trades and more suitable in

perfect market competition where product abundances are very important factors and the trade is based on a comparative superiority.

Calculations based on RCA indexes showed that alpukat, banana, mango, manggis, pineapple and durian from Indonesia had competitive powers as shown in Tables 8 to 13

TABLE 8. RCA INDEXES FOR ALPUKAT

| Year | Commodity INA | Indonesia-ASEAN | Commodity ASEAN | ASEAN | Xij/Xtj | Wiw/Xtw | RCA |
|------|---------------|-----------------|-----------------|-------|---------|---------|-----|
|------|---------------|-----------------|-----------------|-------|---------|---------|-----|

| | | | | | | | |
|------|-----|------------|-----|-------------|----------|-------------|----------|
| 2003 | 1 | 10,725,328 | 48 | 116,775,923 | 9.32E-08 | 4.11044E-07 | 0.226831 |
| 2004 | 1 | 12,995,365 | 86 | 142,080,557 | 7.7E-08 | 6.0529E-07 | 0.12713 |
| 2005 | 4 | 15,824,920 | 69 | 165,602,266 | 2.53E-07 | 4.16661E-07 | 0.606646 |
| 2006 | 4 | 18,483,087 | 122 | 191,541,610 | 2.16E-07 | 6.36937E-07 | 0.339773 |
| 2007 | 4 | 22,292,114 | 216 | 217,089,991 | 1.79E-07 | 9.94979E-07 | 0.180341 |
| 2008 | 52 | 27,170,819 | 150 | 251,557,935 | 1.91E-06 | 5.96284E-07 | 3.209574 |
| 2009 | 65 | 24,623,898 | 160 | 199,561,320 | 2.64E-06 | 8.01759E-07 | 3.292403 |
| 2010 | 68 | 33,347,509 | 247 | 263,328,091 | 2.04E-06 | 9.37993E-07 | 2.173931 |
| 2011 | 78 | 42,098,910 | 236 | 310,223,221 | 1.85E-06 | 7.60743E-07 | 2.435488 |
| 2012 | 72 | 41,831,096 | 291 | 325,327,521 | 1.72E-06 | 8.94483E-07 | 1.924248 |
| 2013 | 278 | 40,629,939 | 638 | 330,512,805 | 6.84E-06 | 1.93033E-06 | 3.544592 |

RCA indexes for alpukat in ASEAN markets from 2003 to 2007 were disappointingly low as shown by RCA indexes of less than 1. In 2008 to 2013, however, RCA indexes for alpukat increased to 3.54. These indexes showed that alpukat

from Indonesia initially had low competitive power when it was only for domestic consumption. Since 2008, however, the competitive power of alpukat increased in ASEAN markets.

TABLE 9. RCA INDEXES FOR BANANA

| Year | Commodity INA | Indonesia-ASEAN | Commodity ASEAN | ASEAN | Xij/Xtj | Wiw/Xtw | RCA |
|------|---------------|-----------------|-----------------|-------------|----------|-------------|----------|
| 2003 | 41 | 107,25,328 | 11,343 | 116,775,923 | 3.82E-06 | 9.71347E-05 | 0.039355 |
| 2004 | 38 | 12,995,365 | 8,519 | 142,080,557 | 2.92E-06 | 5.99589E-05 | 0.048769 |
| 2005 | 32 | 15,824,920 | 9,662 | 165,602,266 | 2.02E-06 | 5.83446E-05 | 0.034658 |
| 2006 | 4 | 18,483,087 | 18,576 | 191,541,610 | 2.16E-07 | 9.69815E-05 | 0.002231 |
| 2007 | 37 | 22,292,114 | 27,162 | 217,089,991 | 1.66E-06 | 0.000125119 | 0.013266 |
| 2008 | 147 | 27,170,819 | 26,811 | 251,557,935 | 5.41E-06 | 0.00010658 | 0.050762 |
| 2009 | 16 | 24,623,898 | 28,473 | 199,561,320 | 6.5E-07 | 0.000142678 | 0.004554 |
| 2010 | 13 | 33,347,509 | 31,046 | 263,328,091 | 3.9E-07 | 0.000117899 | 0.003307 |
| 2011 | 35 | 42,098,910 | 35,173 | 310,223,221 | 8.31E-07 | 0.00011338 | 0.007333 |
| 2012 | 37 | 41,831,096 | 46,327 | 325,327,521 | 8.85E-07 | 0.000142401 | 0.006211 |
| 2013 | 109 | 40,629,939 | 638 | 330,512,805 | 2.68E-06 | 1.93033E-06 | 1.389786 |

From 2003 to 2012, banana had an RCA index always less than 1. It meant that production of this commodity had not been able to fulfill the need for export. But in 2013,

banana from Indonesia began to have a competitive power in ASEAN markets.

TABLE 10. RCA INDEXES FOR MANGO AND MANGGIS

| Year | Commodity INA | Indonesia-ASEAN | Commodity ASEAN | ASEAN | Xij/Xtj | Wiw/Xtw | RCA |
|------|---------------|-----------------|-----------------|-------------|----------|-------------|---------|
| 2003 | 468 | 10,725,328 | 7,579 | 469,064,022 | 4.36E-05 | 1.61577E-05 | 2.70057 |

| | | | | | | | |
|------|------|------------|--------|---------------|----------|-------------|----------|
| 2004 | 490 | 12,995,365 | 6,581 | 56,757,047 | 3.77E-05 | 1.15949E-05 | 3.251925 |
| 2005 | 429 | 15,824,920 | 7,761 | 644,377,061 | 2.71E-05 | 1.20442E-05 | 2.250806 |
| 2006 | 466 | 18,483,087 | 7,516 | 763,381,603 | 2.52E-05 | 9.84567E-06 | 2.560745 |
| 2007 | 769 | 22,292,114 | 10,403 | 846,653,373 | 3.45E-05 | 1.22872E-05 | 2.807515 |
| 2008 | 1204 | 27,170,819 | 13,777 | 967,338,151 | 4.43E-05 | 1.42422E-05 | 3.11134 |
| 2009 | 938 | 24,623,898 | 19,348 | 805,241,419 | 3.81E-05 | 2.40276E-05 | 1.58539 |
| 2010 | 649 | 33,347,509 | 25,539 | 1,051,786,118 | 1.95E-05 | 2.42816E-05 | 0.801502 |
| 2011 | 1810 | 42,098,910 | 33,527 | 1,244,568,991 | 4.3E-05 | 2.69386E-05 | 1.595997 |
| 2012 | 1868 | 41,831,096 | 61,439 | 1,254,690,329 | 4.47E-05 | 4.89675E-05 | 0.911948 |
| 2013 | 3806 | 40,629,939 | 97,057 | 1,271,324,185 | 9.37E-05 | 7.63432E-05 | 1.227021 |

Calculations on RCA indexes showed that competitive powers of mango and manggis from Indonesia in ASEAN markets were very fluctuative. In 2003, these two commodities had good competitive powers and in 2004 they

reached the highest. From 2010 to 2013, however, the competitive powers of these two commodities were lowering again, with RCA indexes fluctuating from 0 to 1.5.

TABLE 11. RCA INDEXES FOR DURIAN

| Year | Commudity INA | Indonesia-ASEAN | Commudity ASEAN | ASEAN | Xij/Xtj | Wiw/Xtw | RCA |
|------|---------------|-----------------|-----------------|-------------|---------|-------------|----------|
| 2003 | 0 | 10,725,328 | 12,568 | 116,775,923 | 0 | 0.000107625 | 0 |
| 2004 | 0 | 12,995,365 | 13,760 | 142,080,557 | 0 | 9.68465E-05 | 0 |
| 2005 | 0 | 15,824,920 | 13,591 | 165,602,266 | 0 | 8.20701E-05 | 0 |
| 2006 | 0 | 18,483,087 | 12,714 | 191,541,610 | 0 | 6.63772E-05 | 0 |
| 2007 | 0 | 22,292,114 | 15,446 | 217,089,991 | 0 | 7.11502E-05 | 0 |
| 2008 | 0 | 27,170,819 | 20,517 | 251,557,935 | 0 | 8.15597E-05 | 0 |
| 2009 | 0 | 24,623,898 | 24,242 | 199,561,320 | 0 | 0.000121476 | 0 |
| 2010 | 13 | 33,347,509 | 21,296 | 263,328,091 | 3.9E-07 | 8.08725E-05 | 0.00482 |
| 2011 | 0 | 42,098,910 | 30,295 | 310,223,221 | 0 | 9.76555E-05 | 0 |
| 2012 | 5 | 41,831,096 | 23,557 | 325,327,521 | 1.2E-07 | 7.24101E-05 | 0.001651 |
| 2013 | 0 | 40,629,939 | 15,283 | 330,512,805 | 0 | 4.62403E-05 | 0 |

Durian from Indonesia had no competitive power as shown by RCA indexes of always less than 1. It meant that Indonesia has not been able to produce durian in sufficient

quantities. For fulfilling domestic consumption alone, Indonesia has to import durian from other countries

TABLE 12. RCA INDEXES FOR WATER MELON

| Year | Commodity INA | Indonesia-ASEAN | Commodity ASEAN | ASEAN | Xij/Xtj | Wiw/Xtw | RCA |
|------|---------------|-----------------|-----------------|-------------|----------|-------------|----------|
| 2003 | 3 | 10,725,328 | 8,491 | 116,775,923 | 2.8E-07 | 7.27119E-05 | 0.003847 |
| 2004 | 1 | 12,995,365 | 9,116 | 142,080,557 | 7.7E-08 | 6.41608E-05 | 0.001199 |
| 2005 | 2 | 15,824,920 | 9,700 | 165,602,266 | 1.26E-07 | 5.85741E-05 | 0.002158 |
| 2006 | 4 | 18,483,087 | 9,561 | 191,541,610 | 2.16E-07 | 4.9916E-05 | 0.004336 |
| 2007 | 64 | 22,292,114 | 8,354 | 217,089,991 | 2.87E-06 | 3.84817E-05 | 0.074606 |
| 2008 | 391 | 27,170,819 | 7,364 | 251,557,935 | 1.44E-05 | 2.92736E-05 | 0.491585 |
| 2009 | 224 | 24,623,898 | 7,467 | 199,561,320 | 9.1E-06 | 3.74171E-05 | 0.24312 |
| 2010 | 21 | 33,347,509 | 8,752 | 263,328,091 | 6.3E-07 | 3.32361E-05 | 0.018947 |
| 2011 | 39 | 42,098,910 | 8,920 | 310,223,221 | 9.26E-07 | 2.87535E-05 | 0.032218 |
| 2012 | 169 | 41,831,096 | 8,926 | 325,327,521 | 4.04E-06 | 2.7437E-05 | 0.147249 |
| 2013 | 409 | 40,629,939 | 9,722 | 330,512,805 | 1.01E-05 | 2.94149E-05 | 0.342223 |

Komoditas semangka Indonesia tidak memiliki daya saing karena menurut perhitungan $RCA < 1$. Jadi, Indonesia belum bisa memenuhi kebutuhan semangka secara efisien untuk dalam negeri maupun untuk kebutuhan ekspor.

TABLE 13. RCA INDEXES FOR MELON

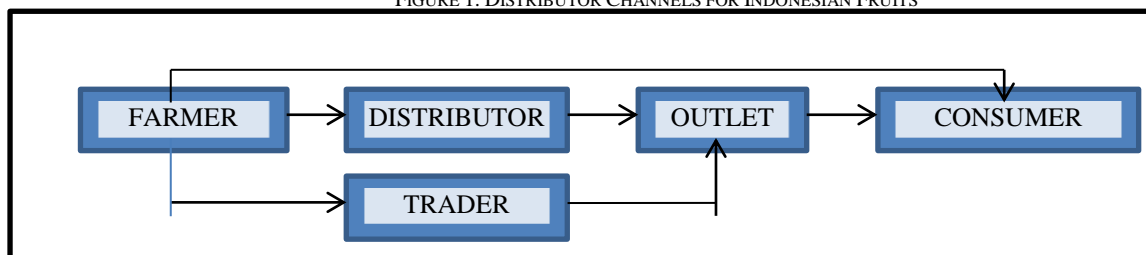
| Year | Commodity INA | Indonesia-ASEAN | Commodity ASEAN | ASEAN | Xij/Xtj | Wiw/Xtw | RCA |
|------|---------------|-----------------|-----------------|-------------|----------|-------------|----------|
| 2003 | 28 | 10,725,328 | 2,402 | 116,775,923 | 2.61E-06 | 2.05693E-05 | 0.126919 |
| 2004 | 18 | 12,995,365 | 2,338 | 142,080,557 | 1.39E-06 | 1.64555E-05 | 0.084173 |
| 2005 | 396 | 15,824,920 | 2,485 | 165,602,266 | 2.5E-05 | 1.50058E-05 | 1.667606 |
| 2006 | 16 | 18,483,087 | 2212 | 191,541,610 | 8.66E-07 | 1.15484E-05 | 0.074959 |
| 2007 | 24 | 22,292,114 | 2267 | 217,089,991 | 1.08E-06 | 1.04427E-05 | 0.103098 |
| 2008 | 25 | 27,170,819 | 2182 | 251,557,935 | 9.2E-07 | 8.67395E-06 | 0.106077 |
| 2009 | 102 | 24,623,898 | 1992 | 199,561,320 | 4.14E-06 | 9.98189E-06 | 0.414983 |
| 2010 | 280 | 33,347,509 | 2446 | 263,328,091 | 8.4E-06 | 9.28879E-06 | 0.903931 |
| 2011 | 318 | 42,098,910 | 2496 | 310,223,221 | 7.55E-06 | 8.04582E-06 | 0.938828 |
| 2012 | 568 | 41,831,096 | 2894 | 325,327,521 | 1.36E-05 | 8.89565E-06 | 1.526411 |
| 2013 | 180 | 40,629,939 | 3360 | 330,512,805 | 4.43E-06 | 1.0166E-05 | 0.435788 |

Keunggulan komparatif komoditas melon menurut indeks RCA daya saingnya berfluktuatif. Hanya pada tahun 2005 dan 2012 nilai Indeks $RCA > 1$, yang berarti pada tahun tersebut melon Indonesia lebih efisien dibanding negara lainnya di ASEAN.

Distribution Channels for Indonesian Fruits

Observation in several regions producing alpukat, mango, manggis, water melon, melon, banana and durian found out that there were two patterns of marketing distributions for these commodities. The first was farmer – trader – outlet – end consumer and the second was farmer – distributor – outlet – end consumer (see Figure 1)

FIGURE 1. DISTRIBUTOR CHANNELS FOR INDONESIAN FRUITS



Pemasok buah durian import terbanyak Thailand dan Malaysia. Berdasarkan data BPS, sepanjang bulan Januari hingga bulan Juni tahun 2012, Indonesia telah mengimpor durian sebanyak 1,6 ribu ton, senilai US\$ 1,7 juta, dari 2 (dua) negara yakni Thailand dan Malaysia. Buah durian dalam penelitian ini dikategorikan menjadi buah durian jenis durian montong lokal (terdiri dari durian lokal dan durian montong lokal – karena saat ini buah montong sudah banyak dibudidayakan oleh petani) dan durian montong import. Pemasok buah durian lokal ke outlet – outlet di Kota Semarang berasal dari petani, Pasar Johar, Sunpride, PT. Ibana, dan Pasar Johar sedangkan pemasok durian montong import berasal dari Pasar Johar dan Gudang Kaligawe.

Several factors inhibiting the distributions of local fruits in Indonesia were: (1) Productions depended heavily on natural climates that there was no guarantee for the quantities and continuous availabilities of the products; (2) Producers had not been oriented to quality. Local producers sell fruits without any selection as for the qualities of their products. In deliveries, high quality fruits were mixed with bad quality ones and even with leaves, small branches and rotten fruits. As a result, 40% to 60% of a delivery were broken and should be disposed of. Low quality of these local commodities was closely related to cropping technologies, harvesting methods and post-harvest management; (3) Most of fruit cultivation in Indonesia still used inefficient small individual planting lots and agro forestry; (4) Lack of appropriate R & D (Research & Development) programs by the government. Farmers conducted uninstitutionalized and unintegrated developments for their own, producing relatively low added values

Trading System for and their Effects on Horticultural Products

In 2012, Indonesian Government launched a policy limiting channel of imports for horticultural commodities. Based on the Indonesian Farming Ministry Regulation Numbers 15 and 16, 2012 (effective on June 19, 2012), imports for horticultural commodities were permitted only through 4 channels. They were Soekarno Hatta Airport in Jakarta, Tanjung Perak Sea Harbor in Surabaya, Belawan Sea Harbor in Medan and Makasar Sea Harbor in Sulawesi. The objective of the policy was that Indonesian Government should have more effective supervisions on imported commodities. Tanjung Priok Sea Harbor was not included in the four channels due to several reasons: (1) under capacity of the quarantining laboratory that might elicit a serious threat for our national food safety, (2) the quarantining

officers in Tanjung Priok were disproportionately outnumbered by the goods they should check out, (3) the existence of many negative cases, due to ineffective works by the quarantining officers, that might threaten the national food safety. Relating to the above policy, many WTO countries protested Indonesian Government as they should pay higher transportation costs when they took their commodities into Indonesia through Tanjung Perak Harbor instead of Tanjung Priok. Many small-scale importers had even claimed bankruptcies.

In 2013, Indonesian Government launched another new policy. Based on Regulation Number 60, 1912, by the Ministry for Farming, Indonesian Government in 2012 put a limitation on imports for horticultural commodities. Table 4.9 shows the limited import quotas for fruits, beginning from early to the end of 2013

Table 14. Regulation on Horticultural Commodities

| Limited Quotas for Imports | Banned Foreign Fruits |
|----------------------------|-----------------------|
| Oranges | Durian |
| Lemonades | Pineapples |
| Grapefruit/Pamelo | Melon |
| Anggur | Bananas |
| Apples | Mangos |
| Lengkeng | Papayas |

Source : Permentan No. 60 Tahun 2012

A policy of limiting import quotas should certainly be accompanied by increased domestic productions. The policy would not be good when domestic production could not fulfill the domestic demands. In order to prevent high inflation from happening, therefore, the government should first pay close attention to domestic supplies before launching the policy. It turned out that the Regulation Number 60, 2012 by the Farming Ministry had increased inflation rate. In several big cities in Indonesia, the prices of certain horticultural products had increased. In February 2013, the prices of tomatoes, anggur, apples, melons, papaya, pear and bananas increased quite significantly.

In response to the above policy, USA, as one of many countries ratifying the trading regulations of WTO, had sued Indonesian Government. In this context, USA assumed that

Indonesian Government had violated an international regulation for trades.

The controls on imports by Indonesian Government had put negative effects on USA export for horticultural products. Data from National Board of Indonesia for Horticulture showed that import for horticultural commodities from USA was never more than 10% of the total import.

Other factors that might also inflate the prices of Indonesian fruits were natural seasons, rainfall, broken infrastructures and sea harbors full with various problems. All of these problems should be taken care of in order to prevent inflation from increasing high further. One way to solve the problems is by guaranteeing sufficient supplies from domestic productions

The problems frequently arouse during the developments of farming or fruit plantations in Indonesia were non conducive climates for investments and very minimum R & D programs. The very minimum and incomprehensive R & D programs prevented Indonesian Government from being motivated to grant larger quantities of funds. Indonesia has a great many of brilliant experts, but they have not been working in R & D programs for the sake of fruit farming or plantation.

CONCLUSIONS AND RECOMENDATION

This research produces the following conclusions :

1. There were only 5 Indonesian fruit species having positive indexes for Specialized Trades. They were alpukat, mangos, manggis, water melons and melons. Bananas, durians and kelengkeng had negative indexes for ST which mean that imports for these three fruit species were in larger quantities than the exports.
2. There were two patterns of distribution chain for Indonesian fruits: (1) farmer – distributor – outlet – end consumers and (2) farmer – trader – outlet – end consumer.
3. The controls by our government on imports, particularly for horticultural products having great economic importance for our farmers, were really necessary for providing our farmers with the necessary protection and economic welfare

The researchers recommend that the government should launch policies that would help integrating farmer businesses through maximizations of lot productions, revitalizations of *pro job, pro poor, pro growth and pro environmental* systems of core plasma, revitalizations of means & infrastructures, reformations on both domestic and foreign markets for Indonesian fruits, harmonization on regulations and synchronization on both agri and agro businesses as shown in the following figures.

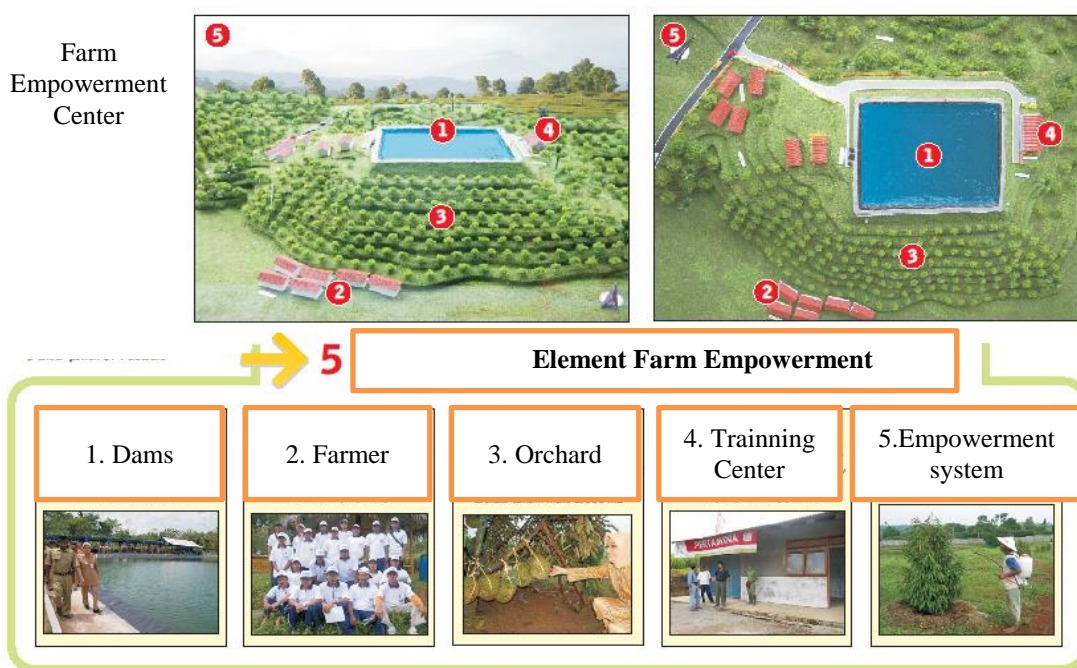


FIGURE 2. INTEGRATION OF FARM EMPOERNMENT MODEL

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Identification of Social Potential in Lok Baintan's Floating Market Area

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Abstract — The research aimed to: 1) Identify and create the mapping of socio-cultural potential in Lok Baintan's floating market area, 2) Identify and create the mapping of socio-arts potential in Lok Baintan's floating market area, 3) Identify participation of local communities over the existence of Floating Market. The research used a descriptive method. Population of this research is Lok Baintan's citizen that consists of 1,747 peoples. The research used accidental sampling technique. Variables of this research include the social potential and community participation in Lok Baintan's Floating Market tourism area. Techniques of data collection were interviews, observation, and documentation. Data analysis techniques include: 1) the spatial pattern analyzed using the GIS software ArcView 3.2, Microsoft Office and Auto Cad 2000, 2) the percentage technique to analyze the potential social and community participation, and 3) Method of Digitizing mapping of ecotourism potential and the role and communities in Lok Baintan's Floating Market. The results showed: 1) socio-cultural potential in Lok Baintan's floating market area consist of local cultures with Banjarnese influence, 2) socio-arts potential in Lok Baintan's floating market area include Japin Hadrah, Karawitan Art, Banjarnese Songs, Woven Art, Pencak Silat, Banjarnese Puppet, and Madihin, 3) participation of local communities over the existence of Floating Market include many activities that related to the of implementation of Sapta Pesona and micro scale of economic activities.

Keywords— *mapping, ecotourism, community based tourism, floating market*

INTRODUCTION

The development of alternative tourism that emphasizes respect for the environment and local culture is a potentiation that need to be considered in community empowerment. One form of tourism that has developed in the world is the concept of Community-Based Tourism (CBT). Implementation of CBT in Indonesia has been supported by the presence of The Act Number 10 Year 2009 about Tourism. It said the necessity to empower local communities as one of the Principles for the Implementation of Tourism. The empowerment is certainly must aligned with all potentions which are exclusively owned by local people, so that the continuity and participation of local community always exist in order to create sustainable livelihoods.

Hausler (2005) defines CBT as one of the tourism concept which facilitates the opportunity for the local community in an attempt to control and be involved in the management and development of tourism activities. According to Hausler (2005) CBT has three essential elements such as 1) the involvement of local communities in the management and development of tourism, 2) the equity of

economic access for all communities, and 3) political empowerment (capacity building) of local communities in the form of action putting local people as decision makers. Suansri (2003) suggested one of the principles of Community Based Tourism to do that is to recognize, support, and promote community ownership in tourism. The introduction of the potential that exists can be meticulous and thorough preliminary data that can be used to design the appropriate model of tourism development in the area of community groups. The specificity and uniqueness of a region that emphasizes the potential of local advantages when managed with the involvement of the local community, not only will add economic value but also strengthen the social and cultural construction.

One form of tourism potency that has the potential to be developed within the framework of CBT is Lok Baintan's Floating Market. Floating market is one of the leading tourist attractions of South Kalimantan province in Indonesia that has been well known even to foreign countries. This traditional market is a reflection of the Banjarnese river culture. In this unique market, traders and buyers doing transaction on the water by using large and small boats that coming from various corners. South Kalimantan has two floating market areas, namely: 1) Muara Kuin floating market, which is above the Barito river in South Alalak village, North Banjarmasin subdistrict, 2) Lok Baintan floating market located on the river in Lok Baintan village, Sungai Tabuk subdistrict.

Lok Baintan floating market has the potential to be developed in the concept of CBT that is applied in the form of ecotourism. Various potential need to be identified as the first step to making policies related to efforts to develop the region as an area of CBT-based ecotourism. Suriani and Razak (2011) said that ecotourism activities can be developed in the areas of unspoiled forested or waters that are in conservation areas such as national parks, theme parks (botanical gardens) and marine parks. Ecotourism can also be developed in areas such as non-conservation of indigenous forest. In addition, ecotourism can also be developed in the area managed by the rule of nature like Wanagama forest, production forest, or in the area of cultural heritage developed as ecotourism sites by agreement between the manager, the community and local government. Various potential needs to be identified as the first step to making policies related to efforts to develop the region as an area of CBT-based ecotourism.

The research aimed to: 1) Identify and create the mapping of socio-cultural potential in Lok Baintan's floating market area, 2) Identify and create the mapping of socio-arts potential in Lok Baintan's floating market area, 3) Identify participation of local communities over the existence of Floating Market.

METHODS

This study used a descriptive method. Population of this research is Lok Baintan's citizen that consists of 1,747 peoples. Samples were taken using accidental sampling technique as many as 255 respondents. Variables of this research include the social potential and community participation in Lok Baintan's Floating Market tourism area. Techniques of data collection were interviews, observation, and documentation. Data analysis techniques include: 1) the spatial pattern analyzed using the GIS software ArcView 3.2, Microsoft Office and AutoCad 2000, 2) the percentage technique to analyze the social potential and community participation, and 3) Method of Digitizing mapping of ecotourism potential and the role and communities in Lok Baintan's Floating Market.

RESULTS AND DISCUSSION

Socio-Cultural Potential In Lok Baintan's Floating Market Area

There are a variety of social and cultural potential that has been identified and is still a tradition in the community area of the Floating Market Lok Baintan. That various potential can be seen in the following table:

TABLE 1. SOCIO-CULTURAL POTENTIAL IN LOK BAINANTAN'S FLOATING MARKET AREA

| Num. | Types Socio-Cultural Potential | Influence | | Percentage | |
|------|--|-----------|----|------------|------|
| | | Yes | No | Yes | No |
| | Pregnancy and Birth Ceremonies | | | | |
| 1 | Mandi-Mandi Menujuh Bulan | 246 | 9 | 96.47 | 3.53 |
| 2 | Selamatan Kehamilan Sembilan Bulan | 253 | 2 | 99.22 | 0.78 |
| 3 | Upacara Kelahiran | 248 | 7 | 97.25 | 2.75 |
| 4 | Selamatan Penanaman Tali Pusat (Tembuni) | 255 | 0 | 100 | 0 |
| 5 | Proses Bayi Diazankan dan Diqomatkan | 255 | 0 | 100 | 0 |
| 6 | Bibir Bayi Diolesi Garam, Kurma, Gula | 248 | 7 | 97.25 | 2.75 |

| | | | | | |
|----|---------------------------------|-----|-----|-------|-------|
| 7 | Upacara Bepalas Bidan | 251 | 4 | 98.43 | 1.57 |
| 8 | Upacara Tasmiah | 255 | 0 | 100 | 0 |
| 9 | Baayun Mulud | 198 | 57 | 77.64 | 22.36 |
| | Marriage Ceremonies | | | | |
| 10 | Basasuluh | 198 | 57 | 77.65 | 22.35 |
| 11 | Batatakun atau Melamar | 255 | 0 | 100 | 0 |
| 12 | Balamaran | 255 | 0 | 100 | 0 |
| 13 | Bapapayuan atau Bapatut Jujuran | 255 | 0 | 100 | 0 |
| 14 | Baatar Jujuran | 255 | 0 | 100 | 0 |
| 15 | Bapingit dan Bakasai | 238 | 17 | 93.33 | 6.67 |
| 16 | Batimung | 255 | 0 | 100 | 0 |
| 17 | Pangantenan | 255 | 0 | 100 | 0 |
| 18 | Panganten Balanting | 17 | 238 | 6.67 | 93.33 |
| | Death Ceremonies | | | | |
| 19 | Memandikan Mayat | 255 | 0 | 100 | 0 |
| 20 | Menyembahyangkan Mayat | 255 | 0 | 100 | 0 |
| 21 | Penguburan | 255 | 0 | 100 | 0 |
| 22 | Beselamatan atau Maaruah | 255 | 0 | 100 | 0 |

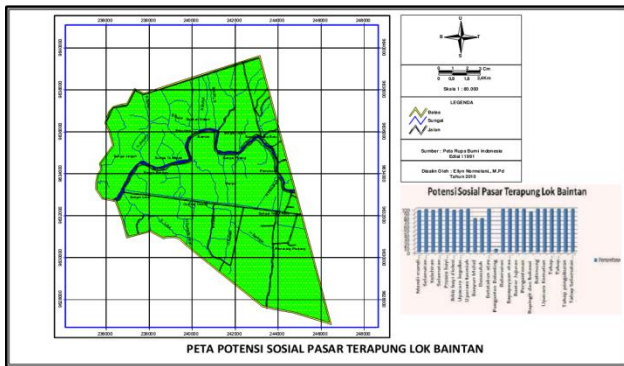
Source: compiled from the research (2014)

Based on Table 1, we can see some local socio-cultural potential that still exist and applied by local community in Lok Baintan's floating market area. There is ceremonial cycle life cycle that includes pregnancy and birth ceremonies, marriage ceremonies and death ceremonies. The Pregnancy and birth ceremonies that still exist such as Mandi-Mandi Menujuh Bulan, Selamatan Kehamilan Sembilan Bulan, Upacara Kelahiran, Selamatan Penanaman Tali Pusat (Tembuni), Proses Bayi Diazankan dan Diqomatkan, Bibir Bayi Diolesi Garam, Kurma, Gula, Upacara Bepalas Bidan, Upacara Tasmiah, and Baayun Mulud. The Marriage Ceremonies that still exist such as Basasuluh, Batatakun atau Melamar, Balamaran, Bapapayuan atau Bapatut Jujuran, Baatar Jujuran, Bapingit dan Bakasai, Batimung, Panganten Balanting, and Pangantenan. The death ceremonies that still exist such as Memandikan Mayat, Menyembahyangkan Mayat, Penguburan, dan Beselamatan atau Maaruah.

Based on Table 1, there are several socio-cultural potential began to decrease its presence such as Baayun

Mulud, Basasuluh, and Pangantin Balanting. Pangantin Balanting ceremony is among the most rarely performed by the community. This tradition has begun to disappear due to the times and the development of roads. Pangantin Balanting ceremony performed at the bride up the river which means Lanting (boat made of bamboo or the like). Pangantin Balanting procession carried the river is as a form of knowledge of the local community and community activities which basically makes the river as the pulse of society.

The digital mapping of that socio-cultural potential based on Table 1 can be seen from the following picture:



Source : Table 1

PICTURE 1. THE MAP OF SOCIO-CULTURAL POTENTIAL IN LOK BAINANTAN'S FLOATING MARKET AREA

Socio-Arts Potential In Lok Baintan's Floating Market Area

There are a variety of social-arts potential that has been identified and is still a tradition among society of Lok Baintan's Floating Market area. That various potential can be seen in the following table:

TABLE 2. SOCIO-ARTS POTENTIAL IN LOK BAINANTAN'S FLOATING MARKET AREA

| Number | Types Socio-Cultural Potential | Influence | | Percentage | |
|--------|--------------------------------|-----------|-----|------------|-------|
| | | Yes | No | Yes | No |
| 1 | Japin Hadrah | 219 | 36 | 85.88 | 14.12 |
| 2 | Karawitan | 237 | 18 | 92.94 | 7.05 |
| 3 | Banjarnese Songs | 255 | 0 | 100 | 0 |
| 4 | Woven Art | 224 | 31 | 87.84 | 12.16 |
| 5 | Pencak Silat | 183 | 72 | 71.76 | 28.24 |
| 6 | Banjarnese Puppet | 98 | 157 | 38.43 | 61.57 |
| 7 | Madihin | 242 | 13 | 94.90 | 5.10 |

Source: compiled from the research (2014)

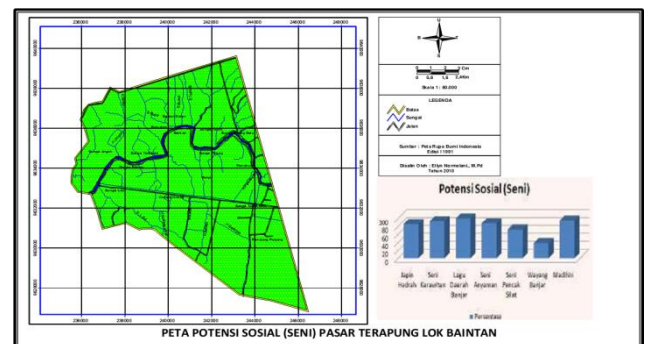
Based on Table 2, various potential of socio-arts that is still evolving and conserved are Japin Hadrah, Karawitan, Banjarnese Songs, Woven Art, Pencak Silat, Banjarnese Puppet, and Madihin. Japin Hadrah is a kind of traditional dance based on Zafin dance with the influence of Islam. While Karawitan is musical art consist of vocal and

instrument with Banjarnese influence that has clarification and development of the region itself. Musicians in Karawitan playing a musical instrument called the gamelan, In practice, musicians used to accompany dances and singing, but it is also possible to hold musical performances only. Furthermore, another kind of socio-art potency is Banjarnese Songs with Banjarnese language. The development in the local and national music scene is still running slowly. Inversely related to other folk songs, Banjarnese songs seem less appropriate. Even the songs tend to be less desirable by Banjarnese people.

Another kind of art that is still growing is the of weaving art. It is one of the industrial units that have important role to build local economic life. It also have potency that could be an attraction for tourists. Another kind of socio-art potency is Pencak Silat that known as martial art with Banjarnese Influence. Other type of art that have potency is Banjarnese Puppet that has become stand-alone performing arts. It has specific characteristics that distinguish it from other types of shadow play, both in terms of shape, music / gamelan accompaniment, color, or ordinances to play, although the puppet characters tend follow the puppet and also developed from the figure and symbol of Banjarnese society. Madihin is another kind of art that still exist and practice by local people in Lok Baintan's floating market area. Madihin is performing a monologue by one or two traditional artists who compose poems and rhymes accompanied by Banjarnese music. Generally, the material of Madihin is moral and social messages with intriguing and funny words.

From Table 2, it was identified that some kinds of art became obsolete by people such as Banjarnese Puppet and Pencak Silat. Both potential need to get attention because the Banjarnese nuance certainly be a differentiator and has it attraction if developed as part of the tourism potential.

The digital mapping of that socio-cultural potential based on Table 1 can be seen from the following picture:



Source : Table 2

PICTURE 2. THE MAP OF SOCIO-ART POTENTIAL IN LOK BAINANTAN'S FLOATING MARKET AREA

Participation of Local Communities over The Existence of Floating Market

Participation of local communities over the existence of Lok Baintan's floating market described in the following

TABLE 3. TYPE OF PARTICIPATION OF LOCAL COMMUNITY

| Number | Type of Participation | Participation | | Percentage | |
|--------|-----------------------------------|---------------|----|------------|------|
| | | Yes | No | Yes | No |
| 1 | Provide Small Shop | 244 | 11 | 95,69 | 4,31 |
| 2 | Provide Food Store | 247 | 8 | 96,86 | 3,13 |
| 3 | Provide Homestay | 242 | 13 | 94,90 | 5,10 |
| 4 | Provide Transportation | 246 | 9 | 96,47 | 3,53 |
| 5 | Provide Tour Guide | 235 | 20 | 92,16 | 7,84 |
| 6 | To Be a Good Owner | 255 | 0 | 100 | 0 |
| 7 | Maintain Security and Peace | 255 | 0 | 100 | 0 |
| 8 | Maintain Environmental Healthness | 255 | 0 | 100 | 0 |
| 9 | Give good impressions for Tourist | 255 | 0 | 100 | 0 |

Source: compiled from the research (2014)

Based on Table 3, Public participation over the existence of the Floating Market still not maximized. Their participation is confined to the activities support tourism in the form of implementation the Tourism Sapta Pesona and small-scale economic activities that provide extra income for their daily lives. These activities include the activities of providing small shop, food stalls, homestays, transportation, tour guides, be a good host, to maintain security, keeping the sustainable environment, and build some great memories and impressions both to tourists.

Subhadra and Nadra (2006) suggested the successful development of alternative tourism can be seen from several indicators such as: (1) The level of participation of local communities in the planning, implementation and monitoring of alternative tourism development; (2) Increased productivity of local community efforts to support and promote economic growth; (3) Repair and improvement of local people's capabilities and expertise in the field of tourism both in quantity and quality; (4) Reduction of exploitation and degradation of the environment and culture. Referring to this indicator, it can be said the development of tourism in Lok Baintan's the Floating Market have not managed optimally, especially in the aspect of the level of community participation. Their participation is still in the

table:

application level and not touching aspects of the planning and supervision of the development of tourism in their area. Although it has started to erode the increase in productivity, but also have not been able to increase capacity and engage local communities in managing the Floating Market tour to the fullest.

Nasikun (2006) describes ecotourism provide positive support for the sustainable economic development. Housler (2005) emphasize that conceptually community-based tourism (CBT) emphasis on participation or community involvement. Referring to the results of the research, it was indicated that participation of local communities still not maximized. This is certainly a need to be followed up more seriously. The local community should be more active in building the region into a Floating Market tourist area to be more economically viable and remain in the corridor preservation of the environment. Through this support, tourism potential in this area expected can be maximized in the goal to realize the creation of community-based ecotourism and able to support the sustainable economic development in the future.

CONCLUSIONS

The conclusions of this research are:

1. Socio-cultural potential in Lok Baintan's floating market area consist of local cultures with Banjarnese influence.
2. Socio-arts potential in Lok Baintan's floating market area include Japin Hadrah, Karawitan Art, Banjarnese Songs, Woven Art, Pencak Silat, Banjarnese Puppet, and Madihin.
3. Participation of local communities over the existence of Floating Market include many activities that related to the of implementation of Sapta Pesona and micro scale of economic activities.

Some recommendations based on this research are:

1. Local government should introduce and disseminate the ecotourism potential that can be developed in Lok Baintan's floating market area to local people by involving universities and local government. For example, this program can be made in the form of community service activities.
2. The local government should be immediately plan and developed ecotourism area around Lok Baintan's floating market. The planning must include local people with participatory approach, in order to realize the concept of community-based tourism (community based tourism / CBT), especially in Banjar District, South Kalimantan.

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Analysis of Distribution of Local Education and Government Policy Study of Regency Level in Central Java Province

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Abstract — The member of the United Nations through the Millennium Development Goals (MDGs), is committed to achieving significant progress in the fight against poverty and other development goals by 2015. These commitments are eight point agreements of the Millennium Development Goals (MDGs), and one of it is the universal achievement of primary education and gender equality and women's empowerment. In ratifying these commitments, the Government of Indonesia issues some policies related to education, both national and local level. However, in the implementation of educational policies in the local level, local governments are faced with the average achievement in school is likely to be low and resulting in inequality of education. This paper examines strategies and the role of central and local governments in reducing inequality of education, especially in the equity and access to education, improving the quality and relevance of education and governance and accountability of the budget allocation for education.

Keywords— *distribution of education, government spending for education, education policy, economic growth*

INTRODUCTION

The human resource is a very important factor in the process of economic developments of a country, so the investment to create good human qualities through education is a necessity for a country. Including Indonesia. The importance of education for the Indonesian citizens is mandated by the state constitution, the Constitution of 1945. To implements the mandate, it has been issued several regulations regarding the national, and the new one is the Constitution No 20/2003 concerning National Education System. In this constitution, the national education is held to develop skill and create character and civilization.

Government of Indonesia needs to prioritize education as an investment in human capital in long-term planning. Improving the quality of human resources is essential to be conducted, as it provides a multiplier effect on economic development, particularly the impact on a country's ability to absorb technological advances for the sustainable growth and development.

In connection with the provision of education, central and local governments must ensure the availability of funds for the implementation of quality education for every citizen aged from seven to fifteen years (nine years compulsory education program). This because of primary education is the foundation for further level of education, which plays most important role for the achievement of national education goals.

The issuance of Law No. 22 of 1999, which was later replaced by Law No.32 of 2004, brings a wind of change in governance, the provision of rights, authority, and obligations to local governments to regulate and manage their own affairs and interests of local communities accordance with the regulations (regional autonomy). It is also impact on education. In particular, Article 14 paragraph 1 Law No. 32/2004 states that the provision of education is one of the matters concerning the authority of the government (province and regency/city). Thus, the district/city government specially has the authority to manage primary and secondary education as well as educational unit based local excellence. However, the local government must be guided by the national education standards (minimum criteria of the education system in Indonesia). In accordance with Government Regulation No. 19/2005 concerning National Education Standards. The national education standards are used as a basis for planning, implementation and monitoring of education in order to ensure the quality of national education.

The Government of Indonesia through Presidential Instruction No. 5/2006 (concerning acceleration completing compulsory education of nine years of basic education and literacy completion) targets the achievement of the Net Participation Rate (Angka Partisipasi Murni/APM) and the Gross Participation Rate (Angka Partisipasi Kasar/APK) of age 7-12 and 13-15 years at least 95 per cent by the end of 2008, and decreases the percentage of illiterate population of age 15 years and over, at least 5 per cent by the end of 2009. The comparison of APK between Central Java and Indonesia in 2008 shows that APK of age 7-12 years (SD) in Central Java Province has exceeded target which was launched by the Government. But the achievement APK of age 13-15 years (SMP) is still below the target and below the national achievement of APK. The achievement level of age 13-15, the Central Java province's APK is 82.29 per cent. It is still below the target 95 per cent (Badan Pusat Sstatistik , 2009)

The objective of the study is to examine the inequity of education in regency/city level in Central Java Province. In detail, this study classifies regency/city in Central Java based on the degree of economic growth and inequality, and identifies the causes of inequality related to the government's policy role in budget allocation for education.

METHOD OF ANALYSIS

Estimation method of education inequality: Educational Gini index

The Gini coefficient can be estimated through two procedures, i.e. direct and indirect methods. The direct method is calculated with the formula as follows (Thomas, et. al.: 2000: 7-12):

$$Gini = \frac{1}{\mu N (N - 1)} \sum_{i > 1} \sum_j |Y_i - Y_j| \quad (1)$$

Note:

Gini : Gini index

μ : average of variable (e.g. Y)

N : total observation

Y_i and Y_j are total years of school achievements.

The indirect method of Gini coefficient is known as Lorentz curve, with the vertical axis is cumulative percentage of years of education, and the horizontal axis is the percentage of cumulative population. The Gini coefficient is defined as the ratio of the area formed by the Lorenz curve and the 45 degree line, the triangle below the 45 degree line. The Lorenz curve of education can be made by the cumulative population of the population on the horizontal axis, and the cumulative proportion of schools on the vertical axis. Cumulative proportion at each level follows the formulas:

No school : Q1 = P1 (3)

Not completed SD (primary school) : Q2 = P1 + P2 (4)

Completed SD (primary school) : Q3 = P1 + P2 + P3 (5)

Completed SMP (junior high school) : Q4 = P1 + P2 + P3 + P4 (6)

Completed SMA (senior high school) : Q5 = P1 + P2 + P3 + P4 + P5 (7)

Completed university degree (diploma) : Q6 = P1 + P2 + P3 + P4 + P5 = 100% (8)

Cumulative proportion of each level of school as follows:

No school : S1 = (p1/y1) / μ = 0 (9)

Not completed SD : S2 = (p1y1 + p2y2) / μ (10)

Completed SD : S3 = (p1y1 + p2y2 + p3y3) / μ (11)

Completed SMP : S4 = (p1y1 + p2y2 + p3y3 + p4y4) / μ (12)

Completed SMA : S5 = (p1y1 + p2y2 + p3y3 + p4y4 + p5y5) / μ (13)

Completed university degree:

S6 = (p1y1 + p2y2 + p3y3 + p4y4 + p5y5 + p6y6) / μ = μ / μ = 100% (14)

The formula of Gini index with the direct method, as follows:

$$E_L = \left(\frac{1}{\mu}\right) \sum_{i=2}^n \sum_{j=1}^{i-1} P_i |y_i - y_j| P_j \quad (15)$$

E : Gini index of education based on the distribution of school completion

μ : Average of population school

P_i and P_j : Proportion of the population with certain levels of school achievement

Y_i and Y_j : Total years of levels of different school achievement

n : Total of category of school achievement level.

As the availability of data, this study uses $n = 6$, with categories as: (1) No school; (2) Not completed SD (primary school); (3) Completed SD (primary school); (3) Completed SMP (junior high school); (4) Completed SMA (senior high school), and; (5) Completed university degree (diploma). With the category, the formula of Gini of education can be expanded as follows;

$$E = \left(\frac{1}{\mu}\right) [p_2(y_2 - y_1)]p_1 + p_3(y_2 - y_1)p_1 + p_3(y_3 - y_1)p_1 + p_3(y_3 - y_2)p_2 + \dots + p_6(y_6 - y_1)p_1 + p_5(y_5 - y_2)p_2 + p_4(y_4 - y_3)p_3 + p_5(y_5 - y_4)p_4 \quad (16)$$

Note:

P1 = proportion of no school population

P2 = proportion of population of not completed SD

P3 = proportion of population of completed SD

P4 = proportion of population of Completed SMP

P5 = proportion of population of Completed SMA

P6 = proportion of population of Completed university degree

School years at each six-school levels with the are estimated as formulas:

No school : $y1 = 0 = 0$ years

Not completed SD : $y2 = y1 + 0,5 SD = 3$ years

Completed SD : $y3 = y1 + SD = 6$ years

Completed SMP : $y4 = y3 + SMP = 9$ years

Completed SMA : $y5 = y3 + SMA = 12$ years

Completed university degree : $y4 = y3 + university = 15$ years

Years of schooling:

SD : 6 years

SMP : 3 years

SMA : 3 years

University (diploma) : 3 years

Total years of university degree are estimated with three formulations, i.e. mean, quadratic mean, and harmonic mean. All of the result gives similar number, around 3.01-3.2, then it is rounded into 3 years.

The Gini index of education can be used to estimate the level of inequality of aggregate education. Based on Todaro and Smith (2006), the gini index is between 0 (perfect equality) and 1 (perfect inequality). The local region is said to experience high inequality, has the Gini index number is around 0.5-0.7, and for moderate inequality, the Gini index is around 0.36-0.49, and for low inequality, the Gini index is around 0.2-0.35.

Klassen typology for classification of education distribution in Central Java province

The Klassen typology is used to describe of the pattern of growth and structure of each local area/region economic. The typology divides into two main indicators, namely regional economic growth and regional per capita income. By determines the average of economic growth as the vertical axis and the average income per capita as the horizontal axis, local region is divided into four classifications, i.e. a fast developed and fast growing region, developed but depressed region, fast-growing region, and relatively remote region.

Under the terms of the Klassen typology, this study uses the two typologies, i.e. typology A (for an average economic growth of the region) and the typology B (for the average local government spending on education), which each is faced on inequality of education variable or Gini index of education. The criteria used to divide the regencies/cities in are as follows:

1) Typology A

- a. Quadrant I: local economic growth is over the average and the Gini education coefficient is below the average
- b. Quadrant I: local economic growth is below the average and the Gini education coefficient is below the average
- c. Quadrant III: local economic growth is over the average and the Gini education coefficient is over the average
- d. Quadrant IV: local economic growth is below the average and the Gini education coefficient is over the average

2) Typology B

- a. Quadrant I : the average of government spending for education is over the average and the decrease of Gini coefficient of education is over the average.
- b. Quadrant II : the average of government spending for education is below the average and the decrease of Gini coefficient of education is over the average.
- c. Quadrant III : the average of government spending for education is over the average and the decrease of Gini coefficient of education is below the average.
- d. Quadrant IV : the average of government spending for education is below the average and the decrease of Gini coefficient of education is below the average..

ESTIMATION RESULTS AND ANALYSIS

Inequality of education

The estimation result indicates that the province of Central Java is included in the category of low levels of inequality of education (0.307). Table 1 shows how inequalities of each regencies/cities in Central Java province are very diverse. In 2010, the local region with the highest Gini index of education is Brebes, i.e. 0.371, followed by Blora and Wonogiri regency, respectively 0.366 and 0.365. The result shows that the distribution of education in the three regions more unequal compared to other regencies/cities in Central Java province, in 2010. Otherwise, City of Magelang is included to the region with the lowest Gini index of education, i.e. 0.229 in 2010.

The Gini index of education also find that 35 regencies/cities in Central Java province are fluctuated during 2008-2010. During the period, Wonogiri is the region with the highest inequality of education compared to other regencies/cities in Central Java province. Its Gini index of education is 0.378. City of Surakarta is the local region with the lowest inequality of education in Central Java province. Its index is 0.235. Regions that need more attention in improving equitable access to services such as education, i.e. Brebes, Wonogiri, Blora, Boyolali and Sragen. These regions are located at the moderate level of inequality of education.

This study also points that there is inequality of education between regencies and cities region. This is evidenced by the

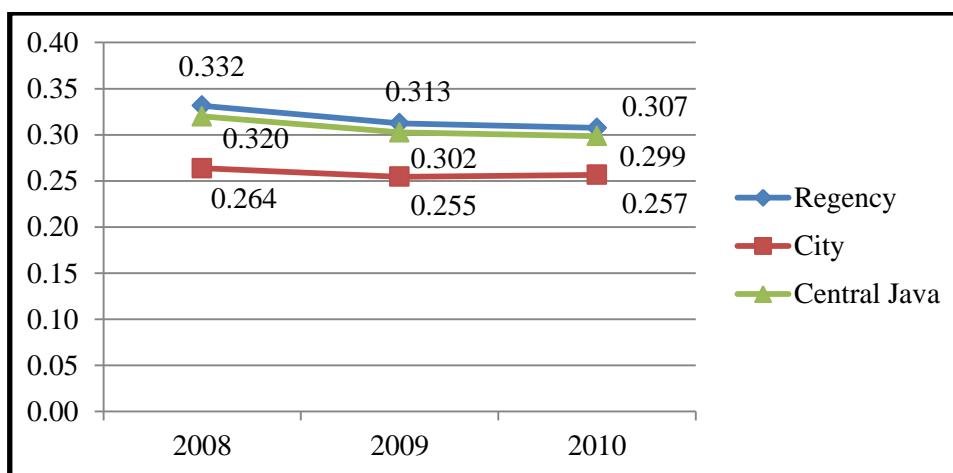
average regencies Gini index of education is higher than cities'. Figure 1 shows the graph comparing the development of Gini index of education between regency and the city in Central Java Province. During 2008-2010, the Gini index of education of regency is always higher than the city's. Neither in 2008 nor in 2010, the comparisons of Gini index of education are 0.332: 0.264 (2008) and 0.307: 0.257 (2010). The lower of Gini index means that the level of equity of education distribution of the city is better than regency's in Central Java Province. Furthermore, the average of the city Gini index of education is also better than average Gini index of Central Java province each year.

TABLE 1. GINI INDEX OF EDUCATION OF REGENCY/CITY IN CENTRAL JAVA PROVINCE

| Regency/City | Gini index | | | |
|--------------|------------|-------|-------|---------|
| | 2008 | 2009 | 2010 | Average |
| Wonogiri | 0.402 | 0.367 | 0.365 | 0.378 |
| Blora | 0.367 | 0.356 | 0.366 | 0.363 |
| Brebes | 0.360 | 0.358 | 0.371 | 0.363 |
| Sragen | 0.414 | 0.356 | 0.291 | 0.354 |
| Boyolali | 0.368 | 0.348 | 0.330 | 0.349 |
| Pati | 0.357 | 0.355 | 0.335 | 0.349 |
| Tegal | 0.344 | 0.344 | 0.337 | 0.342 |
| Karanganyar | 0.360 | 0.331 | 0.310 | 0.334 |
| Pemalang | 0.344 | 0.316 | 0.307 | 0.322 |
| Kendal | 0.336 | 0.311 | 0.316 | 0.321 |
| Cilacap | 0.325 | 0.326 | 0.310 | 0.320 |
| Klaten | 0.333 | 0.312 | 0.313 | 0.319 |
| Banjarnegara | 0.320 | 0.315 | 0.308 | 0.314 |
| Batang | 0.333 | 0.306 | 0.304 | 0.314 |
| Magelang | 0.313 | 0.309 | 0.307 | 0.310 |
| Sukoharjo | 0.316 | 0.296 | 0.311 | 0.308 |
| Pekalongan | 0.316 | 0.293 | 0.300 | 0.303 |
| Grobogan | 0.327 | 0.295 | 0.283 | 0.302 |
| Banyumas | 0.306 | 0.299 | 0.299 | 0.301 |
| Rembang | 0.321 | 0.290 | 0.289 | 0.300 |
| Jepara | 0.309 | 0.290 | 0.301 | 0.300 |
| Purworejo | 0.313 | 0.285 | 0.299 | 0.299 |
| Demak | 0.318 | 0.303 | 0.270 | 0.297 |
| Tegal (city) | 0.295 | 0.293 | 0.304 | 0.297 |
| Semarang | 0.305 | 0.300 | 0.284 | 0.296 |

| | | | | |
|---------------------|--------------|--------------|--------------|--------------|
| Kebumen | 0.313 | 0.289 | 0.281 | 0.294 |
| Purbalingga | 0.308 | 0.292 | 0.280 | 0.293 |
| Wonosobo | 0.307 | 0.270 | 0.280 | 0.286 |
| Kudus | 0.289 | 0.277 | 0.290 | 0.285 |
| Temanggung | 0.293 | 0.271 | 0.277 | 0.280 |
| Pekalongan (city) | 0.278 | 0.263 | 0.272 | 0.271 |
| Salatiga (city) | 0.275 | 0.251 | 0.248 | 0.258 |
| Semarang (city) | 0.258 | 0.249 | 0.252 | 0.253 |
| Magelang (city) | 0.245 | 0.233 | 0.229 | 0.236 |
| Surakarta (city) | 0.231 | 0.238 | 0.235 | 0.235 |
| Central Java | 0.320 | 0.303 | 0.299 | 0.307 |

Source: BPS-RI, SUSENAS (2010) (www.bps.go.id), diolah



Source: BPS-RI, SUSENAS (2010) (www.bps.go.id), diolah

FIGURE 1. THE AVERAGE OF GINI INDEX OF EDUCATION OF REGENCY/CITY IN CENTRAL JAVA PROVINCE 2008-2010

Typology of education inequality

The Klassen typology is used in this study are divided into type A and type B, in order to classify the most ideal in Quadrant I, or the most not ideal (Quadrant IV). The results of Klassen's typology estimate are shown as follow:

Typology A

- Quadrant I: In 2008-2010, regencies/cities that have the growth of Gross Domestic Regional Product (GDRP) over the average, and the Gini index of education below the average are: Banyumas, Purbalingga, Purworejo, Grobogan, City of Magelang, City of Surakarta, City of Salatiga, City of Semarang, City of Tegal.
- Quadrant II: In 2008-2010, regencies/cities that have the growth of Gross Domestic Regional Product (GDRP) below the average, and the Gini index of education below the average are: Kebumen, Wonosobo, Rembang, Kudus, Jepara, Demak, Semarang, Temanggung, Pekalongan, City of Pekalongan.
- Quadrant III: In 2008-2010, regencies/cities that have the growth of Gross Domestic Regional Product (GDRP) over the average, and the Gini index of education over the average are: Banjarnegara, Karanganyar, Sragen, Blora, Pati, Kendal, Pemalang, Tegal, Brebes.
- Quadrant IV: In 2008-2010, regencies/cities that have the growth of Gross Domestic Regional Product (GDRP) below the average, and the Gini index of education over the average are: Cilacap,

Magelang, Boyolali, Klaten, Sukoharjo, Wonogiri, Batang.

Table 2 shows the results of Klassen typology Type A. From Table 2, it can be seen that the local regions which in the ideal regions are Banyumas, Purbalingga, Purworejo, Grobogan, City of Magelang, City of Surakarta, City of

Salatiga, City of Semarang, and City of Tegal. With the higher of the economic growth than average, the enable to minimize the level of inequality of education. Unlike the region into the worst regencies (Quadrant IV) i.e. Cilacap, Magelang, Boyolali, Klaten, Sukoharjo, Wonogiri, and Batang.

TABLE 2. KLASSEN TYPOLOGY OF TYPE A : ECONOMIC GROWTH AND THE GINI INDEX OF EDUCATION OF REGENCY/CITY IN CENTRAL JAVA PROVINCE

| Indicator | GDRP growth 2008-2010 over the average | GDRP growth 2008-2010 below the average |
|---|--|---|
| Gini Index of Education 2008-2010 below the average | Quadrant I : Banyumas Purbalingga Purworejo Grobogan Magelang (city) Surakarta (city) Salatiga (city) Semarang (city) Tegal (city) | Quadrant II : Kebumen Wonosobo Rembang Kudus Jepara Demak Semarang Temanggung Pekalongan Pekalongan (city) |
| Gini Index of Education 2008-2010 over the average | Quadrant III : Banjarnegara Karanganyar Sragen Blora Pati Kendal Pemalang Tegal Brebes | Quadrant IV : Cilacap Magelang Boyolali Klaten Sukoharjo Wonogiri Batang |

Typology B

- a. Quadrant I: In 2008-2010, regencies/cities that have the government spending of education over the average and the Gini index of education below the average are: Purbalingga, Kebumen, Purworejo, Semarang.
- b. Quadrant II: In 2008-2010, regencies/cities that have the government spending of education below the average and the Gini index of education below the average are Banyumas, Wonosobo, Grobogan, Rembang, Kudus, Jepara, Demak, Temanggung, Pekalongan, City of Magelang, City of Surakarta,

City of Salatiga, City of Semarang, City of Pekalongan, City of Tegal.

- c. Quadrant III: In 2008-2010, regencies/cities that have the government spending of education over the average and the Gini index of education over the average are Banjarnegara, Magelang, Boyolali, Klaten, Sukoharjo, Wonogiri, Karanganyar, Sragen, Pati, Pemalang, Tegal, Brebes.
- d. Quadrant IV: In 2008-2010, regencies/cities that have the government spending of education below the average and the Gini index of education over the

average are pada tahun 2008-2010 Cilacap, Blora, Kendal, Batang.

spending on education is over the average of other regencies/cities in Central Java Province. However, in type C Klassen typology, there are 5 regencies that are moving toward an ideal region with the growth of education spending over average that have a positive impact on reducing inequality of education. The 5 regions are Banyumas, Rembang, Jepara, Temanggung dan Pekalongan.

The Klassen typology results of type B as shown at Table 3, classifies Purbalingga, Kebumen, Purworejo, and Semarang are in the ideal region with the government

TABEL 3. KLASSEN TYPOLOGY OF TYPE B : GOVERNMENT SPENDING OF EDUCATION AND GINI INDEX OF EDUCATION OF REGENCY/CITY IN CENTRAL JAVA PROVINCE

| Indikator | Government spending of education 2008-2010 over the average | Government spending of education 2008-2010 below the average |
|---|--|---|
| Gini index of education 2008-2010 below the average | Quadrant I : Purbalingga Kebumen Purworejo Semarang | Quadrant II : Banyumas Wonosobo Grobogan Rembang Kudus Jepara Demak Temanggung Pekalongan Magelang (city) Surakarta (city) Salatiga (city) Semarang (city) Pekalongan (city) Tegal (city) |
| Gini index of education 2008-2010 over the average | Quadrant III : Banjarnegara Magelang Boyolali Klaten Sukoharjo Wonogiri Karanganyar Sragen Pati Pemasang Tegal Brebes | Quadrant IV : Cilacap Blora Kendal Batang |

CONCLUSION AND POLICY IMPLICATIONS

Conclusions of this study are:

1. The results show that the Gini index of education of Central Java province is included in the category of low inequality of education (0.307), with the contributor of educational inequality is the inequality of education in regencies and cities.
2. City of Magelang and City of Semarang are local regions with the lowest Gini index. It mean that the two cities have the best equality in education than other regencies/cities. Sragen is the regency that has moderate level of inequality of education, and Brebes, Blora and Wonogiri are regencies that have highest level of inequality of education.
3. The results also indicate that there is inequality of education between the regencies and cities. This is evidenced by the average regency Gini index of education is higher than urban areas, which means that the level of equity of the distribution of education is better in urban areas than the regencies in Central Java province
4. Based on Klassen typology results, Purbalingga and Purworejo are two regions that included in Quadrant I. It is means that this two regencies have conducive economic condition, the proportion of spending of education is high, and the budget growth for education is always increase along 2008-2010.
5. Regions that be consistent in the quadrant two is Wonosobo, Kudus, Demak and City of Pekalongan. Regions are be consistent in quadrant three is Karanganyar, Sragen, Pati and Pemasang. While regions that are consistent in quadrant four Klassen is Cilacap.

Policy implications of this study are:

1. The Government has established 20 per cent of the national and local budgets on education. However, equity in education will not be achieved if not accompanied by proper budgeting planning.
2. It should be an appropriate method to establish the proportion of the education budget. Therefore, we need to identify the priority of the issues that cause the regional inequality of education.
3. The developed and growing of a region does not guarantee that there is no disparity of education. Therefore, it need a simpler indicator that can control and measure the achievement of disparity of education reduction.

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Good Governance in Malang Tourism to Improve People's Prosperity

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Abstract — Good governance can be defined as a mechanism to organize economic and social resources by involving both government and the people. In good governance, the government and the people must share equal rights and responsibilities. Due to the demand of globalisation, it is important nowadays to apply good governance in all sectors including in tourism. Therefore, government policies should adhere to good governance in order to support and to improve local tourism industry. In doing so, the policies should reflect the five principles of good governance: (1) pro-economy, (2) sustainability, (3) people's prosperity, (4) social cohesion, and (5) poverty alleviation. This paper aims to investigate good governance in Malang tourism by looking at government policies on tourism, its application on the practices of tourism industry, and the role of the people to support good governance in the form of supervision and direct participation. This is done by observation and deep interviews at the city and the regency of Malang. The interviews were conducted with tourism agencies, tourism workers, and tourism lecturers. Based on the observation and the interviews, it can be concluded that tourism policies in Malang have reflected the four principles of good governance: pro-economy, sustainability, people's prosperity, and social cohesion but not the poverty alleviation. However, the application of the policies in tourism practices has not yet met the five principles of the good governance. This can be solved by improving people's participation in good governance. Unfortunately, people's participation is still limited and it has not been able to supervise the application of good governance in tourism in Malang..

Keywords— *good governance, Malang tourism, people's prosperity*

INTRODUCTION

Good governance was first introduced by the World Bank in the early 90s to eradicate poverty caused by poor good governance in African countries (Pohan, 2000). The concept was known in Indonesia after the monetary crisis in 1997 which forced Indonesians to survive by applying good governance through innovative policies in both private and government sectors (Mardiasmo, 2008).

Good governance can be defined as a mechanism to organize economic and social resources by involving both government and private sectors including common people who are aware of their democratic rights.

With globalization, good governance should be applied in all sectors including in tourism. Therefore tourism policies should reflect the principles of good governance such as pro-economic, sustainability, people's prosperity, social cohesion, and poverty eradication (Murphy&Murphy, 2004; Beeton, 2006).

This is in line with the concept of good governance of the former Indonesian president, Susilo Bambang Yudhoyono, that development should be done based on the four pillars: pro growth, pro job, pro poor and pro environment (Kemenparekraf, 2011).

Therefore, a research should be performed to investigate whether the policies of tourism in Indonesia have reflected on the principles of good governance. This paper aims to investigate good governance in Malang tourism by looking at government policies on tourism in the region, its application on the practices of tourism industry, and the role of the people to support good governance in the form of supervision and direct participation.

RESEARCH QUESTIONS

This paper aims to answer the following research questions:

- (1) Are the policies on tourism in Malang have adhered to the principles of good governance?
- (2) What are the roles of the community (universities, tourism workers, common people) to help and to supervise the application of good governance on Malang tourism?
- (3) What kind of solutions can be done to improve good governance and people's participation in tourism?

LITERATURE REVIEW

Tourism and its Economic Potential

Tourism is one of the most important sectors in Indonesian development (Press Release of the Ministry of Tourism and Creative Economy, March 18, 2014). In 2013, the contribution of tourism to Indonesian economy reached 17%. The tourism industry also employs 10,18 million workers or 8,9% of the total employment in the country. As for now, Indonesian tourism ranks the 4th in ASEAN. But this number is expected to increase with the start of the ASEAN Economic Community (AEC) at the end of 2015.

Social Cohesion

Social Cohesion is defined as the ability of the community to secure long term prosperity for its whole members, including providing equal access to existing resources and respecting human rights (Council of Europe, 2005: 23). On the other hand, Reeskens (2007) describes social cohesion as processes influenced by

government policies which lead to the fulfillment of the basic right of the community.

Poverty Alleviation

The number of the poor Indonesia has declined by 1% in Indonesia each year. However, there are many Indonesians which can be classified as ‘almost poor’. This group risks to join the poor community if it experiences external pressure such as the increase of fuel and electricity’s cost, the rise of the basic need, social conflict or natural disasters (The State Secretary, 2014).

Initially, poverty was always connected to income and the rate of consumption. The World Bank and the ADB used to consider \$1 income a day as the threshold of the poverty line. Therefore, poverty alleviation was done among others by giving aids directly to the poor. However, the aids were often not accompanied by social strenghtening and therefore created dependencies and resulted in the lack of creativity and innovation within the community (Social Ministry, 2009). Therefore, the Ministry of Tourism and Creative Economy has created a plan of community empowerment through tourism industry (The Ministry of Tourism and Creative Economy, 2014).

METHOD

The Approach of the Research

The approach used in this research is qualitative descriptive. The approach is used because of its ability to describe existing phenomena inductively (Patton, 2005). The approach is also able to identify phenomena invisible to researchers such as those related to socioeconomic, gender, ethnic group, and religion (Woods, 2006). This is in line with the aims of the research to describe the application of good governance in the policies and practices of tourism in Malang.

Data Collection

The data was collected in the city and regency of Malang, East Java. Malang was chosen because it was included in the Destination of National Tourism of Bromo-Malang. Although known for its potential in tourism, the tourism in the area has not been developed properly.

The instruments used for the data collection were observation and deep interviews. According to Patton (2005), the data for qualitative research can be collected through field observation, interviews and written documents. The method of the observation is participant observation in which the researcher performs a direct observation through interaction and informal conversation to gain deeper insights of the subject of the research. The method of the interview is semi-structured research in which the researcher combines spontaneous interviews with prepared interviews.

Data Analysis

The data analysis is done with content analysis. The analysis consists of two steps: (1) data labelling and classification, (2) data interpretation, (3) data presentation.

RESULT AND DISCUSSION

The policies of the Malang government which fulfilled four principles of good governance.

Malang tourism is managed by the office of Tourism and Culture. Its duties are listed on the Regulations of the Major of Malang no. 47, 2012, on the Duties and Functions of the Tourism and Culture Office. The regulations only indicated four out of the five principles of good governance. The principles are pro-economy, sustainability, people’s prosperity, and social cohesion. However, the regulations do not include poverty alleviation.

TABLE I. ANALYSIS OF THE REGULATIONS OF THE MAJOR OF MALANG NO.47, 2012

| No | Principles of Good Governance | | | | | |
|----|-------------------------------|-------------|----------------|---------------------|-----------------|---------------------|
| | Policies | Pro-economy | Sustainability | People's Prosperity | Social Cohesion | Poverty Alleviation |
| 1. | Ch.II, no.3, 2.2 | √ | √ | - | - | - |
| 2. | Ch.II, no.3, 2.3 | √ | √ | - | - | - |
| 3. | Ch.II, 3, 2.4 | √ | √ | - | - | - |
| 4. | Ch.II, 3, 2.19 | - | √ | √ | - | - |
| 5. | Ch II, 3, 2.20 | - | √ | √ | - | - |
| 6. | Part 3, 11, 2.4 | √ | √ | - | - | - |
| 7. | Part 3, 11, 2.5 | - | √ | √ | - | - |
| 8. | Part 3, 11, 2.6 | - | √ | √ | - | - |
| 9. | Part 3, 11, 2.7 | - | √ | √ | - | - |
| 10 | Part 3, 11, 2.9 | - | √ | √ | - | - |

The application of the tourism policies in tourism practices in the community

The application of the good governance in the practice of tourism in Malang has not yet fulfilled the five principles of good governance.

TABLE II. ANALYSIS OF THE APPLICATION OF THE TOURISM POLICIES IN TOURISM PRACTICES IN THE COMMUNITY

| No | Principles of Good Governance |
|----|-------------------------------|
|----|-------------------------------|

| | <i>Practices</i> | <i>Pro-economy</i> | <i>Sustainability</i> | <i>People's Prosperity</i> | <i>Social Cohesion</i> | <i>Poverty Alleviation</i> |
|----|--|--------------------|-----------------------|----------------------------|------------------------|----------------------------|
| 1. | No Tourism Information Center run by the government in strategic places | - | - | - | - | - |
| 2. | No sidewalks for tourists to walk safely | - | - | - | - | - |
| 3. | Many historical buildings are not kept properly (e.g. vandalized by graffiti, renovated into modern buildings) | - | - | - | - | - |
| 4. | The community does not fully benefit from the tourism sites (only as parking attendants, or food sellers) | - | - | - | - | - |
| 5. | There is no qualified guide books for tourists provided in the tourism sites | - | - | - | - | - |
| 6. | There is little support from the government to promote handicraft industry and the industry relies on self-promotion. | - | - | - | - | - |
| 7. | There is little support from the government to promote museum sites and they only get a few visitors. | - | - | - | - | - |
| 8. | There is no specific tourism packages tailored to tourist's needs and they are often forced to join tours which are not of their interest. | - | - | - | - | - |
| 9. | The sanitary of the tourism sites are often not well-kept (e.g. dirty toilets). | - | - | - | - | - |

| | | | | | | |
|----|--|---|---|---|---|---|
| 1. | The vocational program of Brawijaya University is mentoring tourism villages in Klakah, Puncokusumo. | V | V | V | V | - |
| 2. | Tourism entrepreneur: Mr. Jon, a Malang entrepreneur founded private Tourist Information Center on Majapahit street | V | V | V | V | - |
| 3. | Tourism entrepreneur: Mr. Dwi, owner of Inggil restaurant, organized a volunteer program to clean historical buildings in the Kayutangan area. | - | V | V | V | - |
| 4. | Tourism entrepreneur: Mr. Hanan, owner of a batik company in Celaket self-promotes his business through social medias. | V | V | V | - | - |
| 5. | Tourism worker: Suryo, the caretaker of Jago temple in Tunpang, organized dance performances in Malang temples to promote the sites. | V | V | V | V | - |

CONCLUSION AND SOLUTIONS TO IMPROVE GOOD GOVERNANCE AND PEOPLE'S PARTICIPATION IN TOURISM

Based on the analysis on the policies and application of good governance in tourism in Malang, the researchers conclude and propose the following solutions.

TABLE IV. SOLUTIONS AND CONCLUSIONS

| No | Principles of Good Governance | | |
|----|---|--|---|
| | <i>Problems</i> | <i>Solutions</i> | <i>Practical Approach</i> |
| 1. | Government Policies on Good Governance in tourism have not adhered to the principles of good governance, particularly poverty alleviation | Helping the government to formulate policies which accommodate poverty alleviation | Seminar or workshop on the policies of tourism in relation to good governance and poverty alleviation |
| 2. | The application of good governance has not yet reached the five principles of good governance. | Helping the government to apply good governance in the community | Mapping of people around tourism site who live below poverty line |

People's Participation to Help and to Supervise Good Governance in Tourism in Malang

People's participation to strengthen good governance in tourism is mostly done by universities, tourism entrepreneurs and tourism workers. However, their efforts are mostly limited to help and not to supervise the practice of good governance in tourism. Similar to the government policies, people's participation has not touched the poverty alleviation yet.

TABLE III. ANALYSIS OF THE PEOPLE'S PARTICIPATION

| No | Principles of Good Governance | | | | | |
|----|-------------------------------|--------------------|-----------------------|----------------------------|------------------------|----------------------------|
| | <i>Practices</i> | <i>Pro-economy</i> | <i>Sustainability</i> | <i>People's Prosperity</i> | <i>Social Cohesion</i> | <i>Poverty Alleviation</i> |
| | | | | | | |

| | | | |
|----|---|---|---|
| 3. | People's participation to help and to improve the application of good governance in tourism is limited. | Encouraging people to help the application of good governance | Foreign language training and tourism management for people living near tourism site. The making of tourism website, guide books, and specific tourism packages. |
|----|---|---|---|

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The Strategy of Development Ecotourism in Conservation Areas in Central Kalimantan Province

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Abstract — Ecotourism development in conservation areas such as National Parks actually generate a positive impact for the preservation of natural resources and the environment through activities and conservation efforts, rehabilitation and restoration. Gossling (1999) states that the protection or conservation of biodiversity (*Biodiversity*) will improve the functioning of ecotourism through tourist arrivals and domestic, which in turn provides economic value to the surrounding of community. Correspondingly, Pamela (2002), states that prudent resource management will be able to meet the needs of economic, social, cultural and aesthetic. Ecotourism activities in conservation areas may be the people's livelihood because it can provide a diversified range of basic support for the activities of consumption of goods and services produced (Bromhead et al., 2000, Gobena.2008). The aims of research to (1). to analyze the potential of natural resources in order developing of the object and fascination nature on Sebangau National Park ; (2) to identify and develop business opportunities in the Sebangau National Park; and (3) to identify and recommend the strategies to be applied in the management of Sebangau National Park for developing Object and Fascination Nature. Survey research methods and interviews conducted with 179 respondents to the stakeholder groups (public, Sebangau National Park management and local government). Data analysis was done by using SWOT. The results showed that the factor is strengths greater than a factor weaknesses and the opportunities factor greater than on the threat factor. So that the development strategy of the Sebangau National Park, to related on the natural resources, business opportunities and management as one of the ecotourism destination in Central Kalimantan is a growth strategy.

Keywords— *conservation, ecotourism, development strategy, swot.*

INTRODUCTION

National Park (TN) is a conservation area which aims to maintain and preserve ecosystems and components of an area. Most of the national park location adjacent to the residential community, so it may be that society first inhabited the region before the government established as a national park. Patterns of residential communities adjacent to forest areas be the driving factor and the high dependence of the public in using forest products to meet their needs, including utilization of forest environmental services such as tourism.

Tourism development trend of the world since the 90s has changed the pattern and behavior of tourists from mass tourism to individual or small group tourism. Changes in travel patterns meant because tourists prefer the more experience and new, as well as more meaningful in his life (*expansion of life*). The emphasis is on the quality of the natural environment and socio-cultural local community, so that the tourism product sought after by the tourists is the special nuances such as natural attractions and local cultural attractions, as well as local facilities.

Ecotourism development in the protected areas, providing some economic benefits as well as business services have characteristics that are multi-product, but also can have negative impacts on natural resources and socio-cultural (Nuva et al, 2009: 173). Similarly Dameke et al (2013), Bromhead et al (2000), Gobena (2008) stated that tourism development can play an important role in the economy of developing countries, especially for countries that have the potential of natural resources and the environment are high. The environmental benefits that can be gained from the development of ecotourism with the principles of conservation, rehabilitation and restoration is the preservation of natural resources and the environment Gossling (1999). Furthermore according Sartika (2015: 65), strategy of development of ecotourism in protected areas, such as mangrove forests, is referring to growth through the analysis of the strengths and opportunities (SO strategies) with emphasis on the performance aspect of tourist attractions, public access and the development of ecotourism promotion.

Suradnya (2005) said that the visit both foreign tourists and the archipelago into a tourist attraction in a country will ultimately affect the structure of the national economy. Also Irawan (2013) states that tourism products, environmental uniqueness frequency and length of stay of tourists visiting tourist staying a significant relationship with the level of tourist spending and turn affect the income of the people in the surrounding sights. Besides, it also creates a positive impact on labor absorption and improve household incomes through activities as a tourist tour, tour guides, culinary, souvenirs, transportation and so forth. National Park is an economic area with the potential to be developed as a tourist area because it has the potential beauty of the natural resources that include landscapes, unique ecosystems, flora and fauna, art and culture of local communities. Determination of protected forest area forest group Sebangau with broad +/- 568 700 ha as Sebangau National Park by ministerial decree No.423 / Menhut-II / 2004 dated 19 October 2004. Sebangau National Park is located in the porch Central Kalimantan province, and is administratively located in one city and two districts: the city of Palangkaraya, Regency Home Knives, and Katingan. TNS region including peat swamp forest ecosystem that is a very strategic position because as the last bastion of the existence of peat swamp forest in Central Kalimantan and flanked by two river namely: Katingan River and River Sebangau. In terms of ecology, Sebangau peat swamp forest ecosystem is an area that plays a very important role as a reservoir of biodiversity and carbon storage warehouse.

The results study of Sulisty (2008) showed that in the region there TNS or fauna species, such as mammals, reptiles and birds. The types of mammals found as many as 35 species, consisting of: Orangutan (*Pongo pygmaeus*) with an abundance of a population of ± 6.200 tail, proboscis monkeys (*Natalis larvatus*), gibbon-gibbon (*Hylobates agilis*), long-tailed monkeys (*Macca fascicularis*), wild boar (*Sus barbatus*), deer (*Cervus unicolor*), deer (*Muntiacus atheroides*), deer (*Tragulus javanicus*), clouded leopard (*Neofelis nebulosa*), squirrel (*Tupaia spp*), Loris (*Nycticebus coucang*), and tarsier (*Tarsius bancanus*). Types of reptiles that have been identified include pythons (*Python reticulates*), water snake (*Homalopsis buccata*), snake pipe red-tailed (*Cylindropsis rufus*), Cobra (*Naja sumatrana*), Snake green (*Ahaetulla prasina*), Lizard (*Varanus salvator*), a box turtle (*Cuora amboinensis*) and spiny turtle (*Heosemys*). As for the group of birds recorded there are about 116 species that live in the area of TNS among others: stork casks (*Leptoptilus javanicus*), white stork, a swallow, seriti, cucak green, chamber, orioles, eagles, hornbills, pecuk snake, cangak red (Sulisty, 2008). So therefore resulted that with the high diversity of flora and fauna in the area of TNS, shows that the region has the potential to be developed as ecotourism.

Tourism potential that can be developed in TNS are: (a) the beauty of the natural resource / landscape, unique ecosystems, flora and fauna, (b) the art and culture of local communities / works of art, customs and all forms of community activities that support ecotourism activities. Noting the potential of tourism as peat swamp forest tropical with a diversity of flora and fauna, rivers, hills and lakes, the development of some objects and tourist sites are divided into three areas, namely: (1) region Resort bowl (SPTN II) is directed to educational tourism or tourism education and research, especially in biodirversity peat, rehabilitation and restoration, (2) regions Resort Baun Bango (SPTN III) which includes Lake Road Pangen, Kamipang, Panggualas directed to adventour tourism such as: water tours, observation of wildlife and the river edge, (3) Sebangau region upstream (SPTN I) which has a hilly region, including Foot Hill, Bukit Love Lust, Mendawai, geared for tours Geotourism, including: trekking, wildlife observation, cultural tours (BTNS Strategic Plan 2007-2011).

Ecotourism potential is quite high in the region have not been mampuh TNS encourage tourists to visit and make TNS as Object and attractions (ODTW) in Central Kalimantan, as illustrated in Table 1, below.

TABLE 1. VISITING TOURIST TO SEBANGAU NATIONAL PARK, 2006 - 2011 PERIOD

| No. | Year | Foriegn | Domestic | Totals | Share (%) |
|-----|--------------|------------|------------|--------------|-----------|
| 1. | 2006 | 24 | 185 | 209 | |
| 2. | 2007 | 45 | 195 | 240 | 12,9 |
| 3. | 2008 | 68 | 92 | 160 | -50,0 |
| 4. | 2009 | 56 | 123 | 179 | 10,6 |
| 5. | 2010 | 67 | 147 | 214 | 16,4 |
| 6. | 2011 | 80 | 176 | 256 | 16,4 |
| | Total | 340 | 918 | 1.258 | |

Source : Sebangau National Parks Report, 2011

METHODOLOGY

Study Region

The study was conducted at Sebangau National Park as one of natural tourism object (Ecotourism) at Central Kalimantan Province, like the figure 1 below.

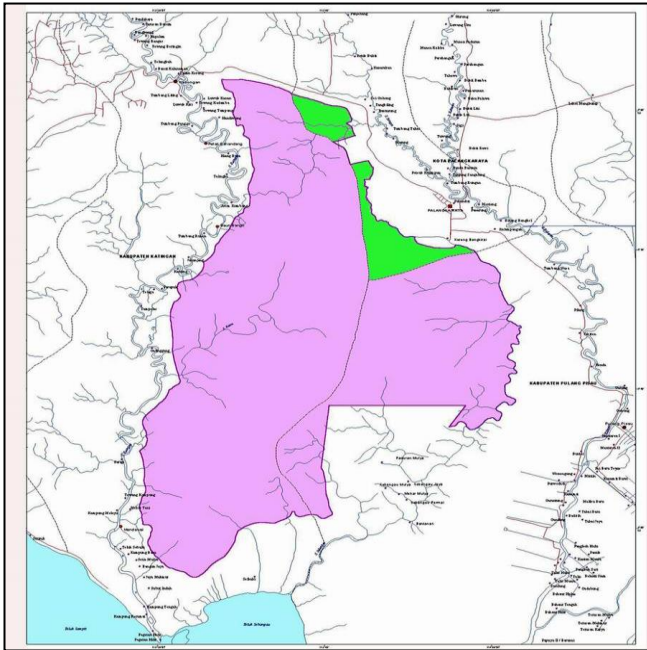


FIGURE 1. MAP OF SEBANGAU NATIONAL PARK

Study Design

From August 2014 to September 2014, the populations dynamics of the all community at the areas of Sebangau National Park. Based on the type of research is explanatory research. In addition, this study included in the descriptive study. The sampling technique used in this study is non probability sampling, namely Convinance sampling. In this study population include all community in the sides of the Sebangau National Park area. With reference to statement Heir, at al (1995) in Payangan (2005), the number of samples in this study were 179 respondents. In this study, the type of data used are primary and secondary data. Methods of data analysis using SWOT for internal environment factors (strength and weakness) and external environment factors (opportuniy and), like the figure 2 below.

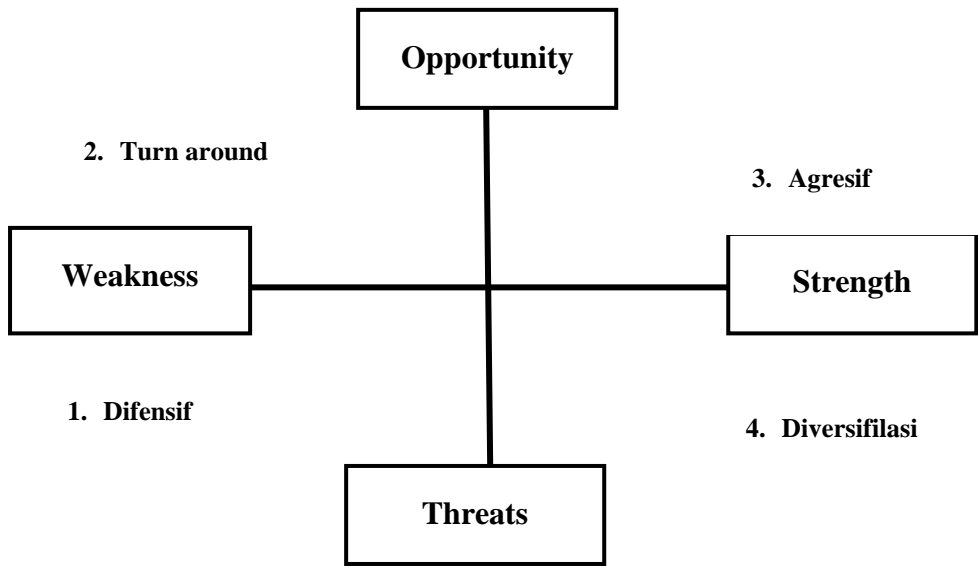


FIGURE 2. SWOT ANALYSIS DESIGN

Caption :

Quadrant 1: This is a very favorable situation. The company has the opportunity and the power, so it can take advantage of existing opportunities. The strategy should be applied in these circumstances is to support an aggressive growth policy (*Growth oriented strategy*).

Quadrant 2 : Despite facing various threats, it still has the power utilization of the internal aspect. The strategy should be applied is to use force to take advantage of long-term opportunities by way of business diversification strategy (product market).

Quadrant 3 : The company faced enormous market opportunities, but on the other hand faces several constraints / internal weaknesses. The strategy should be applied is to minimize the company's internal problems so that they can seize market opportunities better

Quadrant 4 : This is a very unfavorable situation, the company is facing various threats and internal weaknesses.

Through SWOT analysis can produce a 4 (four) the possibility of alternative strategies (Rangkuti, 2006), namely:

1. Strength-Opportunities Strategy (SO). This strategy is based on the cultivation of mind, that is by utilizing all the power to seize and exploit opportunities as possible.

2. Strategy Weaknesses-Opportunities (WO), this strategy is applied based on the utilization of existing opportunities by minimizing weaknesses.

3. Strategy Strength-Threats (ST), this is the strategy of using the power of the company to overcome the threat.

4. Strategy Weaknesses-Threats (WT), this strategy is based on activities that are defensive and try to minimize weaknesses and avoid threats.

As an alternative strategy matrix can be seen in Table 2 below, are as follows:

TABLE 2. SWOT MATRIX

| | | |
|--|---|--|
| INTERNAL | Strengths, Determine 5-10 chance factor. | Weaknesses, Determine 5-10 chance factor. |
| EXTERNAL | | |
| Opportunities, Determine 5-10 chance factor. | SO Strategy, Create a strategy that uses the power to take advantage of opportunities | WO Strategy, Create a strategy that minimizes the weaknesses to take advantage of opportunities. |
| Threats, Determine 5-10 chance factor. | ST Strategy, Create a strategy that uses the power to overcome the threat. | WT Strategy, Create a strategy to minimize weaknesses and avoid threats. |

Source : Rangkuti, 2006

RESULT AND DISCUSSION

Analysis of SWOT Matrix

The SWOT analysis is done on environmental factors internal and external environmental factors, which can directly affect the business in National Parks, these factors are as follows:

According of results internal and external analysis, that compilation like below :

1. Total Score of Strength is 17,60
2. Total Score of Weakness is -3,1
3. Total Score of Opportunity is 2,20
4. Total Score of Threats is -2,20

The calculation above, that in the calculation of the strategy requires confirmation of the position in the cross axis is between STRENGTHS and WEAKNESSES, OPPORTUNITIES and THREATS or all of which are

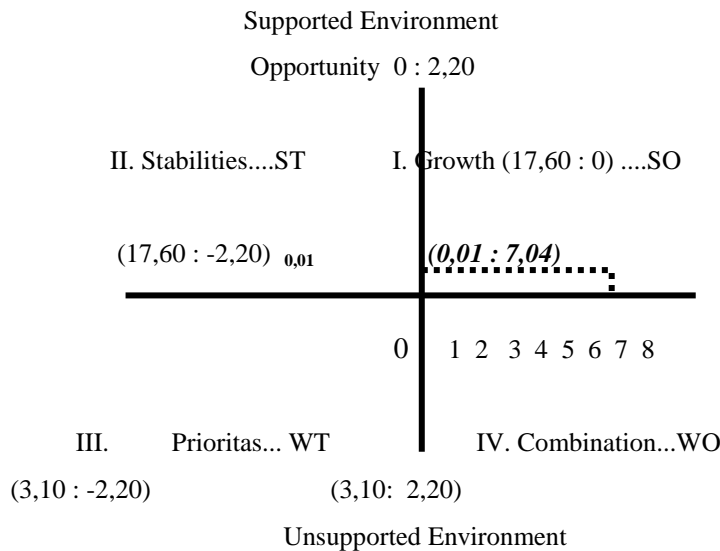


FIGURE 3. THE SWOT OF SCORE OF SEBANGAU NATIONAL PARK AS TOURITS VISIT

According examated rating and bobot, so we can find the point of position and wibes matrixs and rank as well as in the table below.

TABLE 3. THE WIDES OF MATRIX AND SRATEGY OF PRIORITIES

| Quadrant | Point Position | Matrix size | Ranking | Priority Strategies |
|----------|-----------------|-------------|---------|---------------------|
| I | (17,60 : 2,20) | 37,59 | 1 | Growth |
| II | (2,20 : 3,10) | 6,51 | 3 | Stability |
| III | (3,10 : 2,20) | 6,2 | 4 | Contraction |
| IV | (17,60 :- 2,20) | 35,8 | 2 | Combinations |

Source : Primer Data, analyzed. 2014

According of exploring data to determine the matrix and the priority strategies in Table 3, the obtained result is the largest area in the quadrant matrix I with an area of 37.59 matrix, however it should be noted that the vast matrix in

described in the lines of positive and negative. This resulted, total score total score of 17.60 fixed power while the total score of -3.1 weakness OPPORTUNITIES THREATS 2.20 and a total score of -2.20. The analysis showed that the factor is greater than a factor STRENGTHS WEAKNESSES OPPORTUNITIES factor and the effect of greater than a factor THREAT. Thus positioning Sebangau National Park in the axis system is in quadrant I, which means that for the development strategy of the TNS region as a destination for ecotourism in the position of GROWTH.

Learn in a position quadrant coordinate axes, can be described coordinate internal and external analysis as follows:

Coordinate internal analysis (Score total force - Total score weakness) : 2 (From 17.9 to 3.1 = 14.8 : 2 = 7.04 and coordinate external analysis (Score total force - total score of threats) : 2 (2.20 to 2.20) = 0.20: 2 = 0.1, so that the coordinate point lies on the axis (0.1 : 7.04) with the following figure:

quadrant II also has an extensive matrix that is taken into account, namely 6 , 51 Description of the largest matrix wide ranking position on the quadrant I with an area of 37.59 matrix, however it should be noted that the vast matrix in

quadrant IV also has an extensive matrix that is taken into account, namely 35.8.

A description of the broad ranking position matrix quadrant in the above table include:

1. Ranking 1st : in quadrant II with an matrix area 37.59
2. Ranking 2ed : in quadrant IV with an matrix area 35.8
3. Ranking 3trd : in quadrant II with an matrix area 6.51
4. Ranking 4th : in quadrant III with an matrix area 6.2

Policy Analysis and Development Strategy

Each strategy in the positioning analysis and evaluation map shows the important factors, as indicated in the quadrants in the SWOT analysis of each quadrant has the properties as follows:

1. First Quadrant depicts aggressive internal conditions, such as improving the economic strategy, ecotourism, environmental services, education and community participation.
2. The second quadrant depicts internal condition rather weak compared to the quadrant into one, because the extent of this quadrant matrix is far lower than the quadrant I.
3. The third quadrant illustrates the internal conditions of a strong and robust environment supports so that the direction of the target and strategy oriented to the tourism policy on government support, training and harmonization of local residents and migrants. Then strengthen the security of natural resources beyond Sebangau National Park in order to not be a private business, especially plantation.
4. Fourth Quadrant illustrates the internal conditions of strong support so that the direction, objectives and strategies appropriate tourism the nature of business diversification. Previous community involvement is very limited, with the diversification of business then there is a chance people to partner with managers Sebangau National Park in order to provide the supporting infrastructure of tourism such as the provision of means of transport, the Cottage Inn (*home stay*), food stalls including farmers who tried around the National Park area Sebangau as a buffer Sebangau National Park.

Ecotourism development in Sebangau National Park in essence, is to improve the welfare of society both materially and spiritually, in an atmosphere of livelihood is safe, comfortable, orderly, peaceful and environmentally friendly. SWOT analysis of the results yielded four (4) the possibility of alternative strategies, namely:

1. Strength and Opportunities (SO) strategies, which is a strategy which optimizes the strength to take advantage of opportunities (opportunities), are:
 - a. Object offers tourist destination areas such as biodiversity (flora and fauna), the beauty of the landscape, leading tourism products (such as mountain climbing, tracking, outbound, canoeing, wildlife observation, etc.) to attract foreign tourists and domestic tourists.
 - b. Entered into a collaboration with public and private stakeholders, such as local government, the private ecotourism businesses to manage Sebangau National Park.
 - c. The importance of community participation in ecotourism activities, such as holding local arts performances.
 - d. Promotion of intensive and continuous, either through mass media, television, and internet.
2. Weaknesses and Opportunities (WO) strategies, which is a strategy that minimizes the weaknesses (weaknesses) to take advantage of opportunities (opportunities), are:
 - a. Creating an attractive tour packages, such as climbing Mount Street, Mount of Love Sexual arousal, tracking, outbound on TNS region, while enjoying the beauty of the landscape in a cluster of Tangkiling hills .
 - b. Hold Agrofishing package, namely fishing, given that some areas with potential TNS lake fish are high enough.
 - c. Improving the investment climate, to provide guidance and oversight to the community around the area of TNS, as well as ecotourism entrepreneurs conducted by professional staff of TNS / Tourism Office / Local Government.
 - d. Motivate people to take an active role in the development of industrial manufacturing of home appliances, such as making souvenirs that are typical TNS region.
3. Strength and Threats (ST) strategies, which is a strategy that uses the power (strength) to address threats, are:
 - a. To supervise and act decisively against employers ecotourism in order not to damage the existing natural order.
 - b. Motivating local communities to provide guidance and oversight so that local indigenous culture is not displaced or contaminated by foreign cultures.
 - c. Increase innovation in packaging tourism products.
4. Weaknesses and Threats (ST) strategies, which is a strategy that minimizes the weaknesses (weaknesses) and avoid threats (threats), are:
 - a. Establish cooperation with relevant stakeholders (Local Government, Department of Tourism and Ecotourism Entrepreneurs) to

develop tourism in a safe, convenient, continuous and sustainable.

- b. Providing guidance, direction, and build a sense of community perception and importance of the Sebangau National Park.

From the results of SWOT analysis is done, the management of the Sebangau National Park (SNP) into First Quadrant on the diagram SWOT, while alternative strategy used, is Strength and Opportunities (SO), with the consideration that SNP has the natural potential and large to be marketed, but not yet utilized optimally, for it to develop its business SNP must create a strategy of using force (strength) to take advantage of opportunities. Therefore, on the basis of the results of the analysis of internal environment and the external environment (SWOT) mentioned above, the policy development of nature tourism in the Sebangau National Park directed to:

- a. Allowing all parties (stakeholders) in developing nature tourism in TNS, in addition to the participation of stakeholders is expected to support an increase in well-being and quality of life of the community and to encourage the preservation of natural resources.
- b. Improve the integration of the planning of regional development that is able to drive the local and national economy on an ongoing basis.
- c. Raising public awareness to actively participate in the conservation of natural resources.

CONCLUSION

The strategic position is in quadrant I, with the formula SO namely to maintain and increase the diversity of tourist attractions, community involvement in management activities package ecotourism began the planning, implementation and evaluation, increasing the capacity of communities to provide services to tourists, to develop cooperation between the manager with the community outside in the development and promotion of ecotourism.

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APPENDIX I: SWOT ANALYSIS DEVELOPMENT SEBANGAU NATIONAL PARK AS A REGIONAL TOURISM DESTINATION.

| I. INTERNAL FACTOR EVALUATION (IFA) | Rating | Quality | Total |
|--|--------|---------|-------|
| 1. STRENGTH | | | |
| 1.1. Economy | | | |
| a. The availability of different types of fish | 4 | 0.20 | 8 |
| b. Transportasi available to Sebangau Nasional | 3 | 0.20 | 6 |

| | | | |
|--|---|-------------|-----------|
| Park | | | |
| c. Provision Cottage Inn in surrounding villages Sebangau National Park (Service inn) | 3 | 0.10 | 3 0. |
| d. Guide services for visitor | 4 | 0.10 | 4 0. |
| e. Hotels, agent travel, restaurant at Palangka Raya City | 4 | 0.10 | 4 0. |
| f. Supplier of foods from community around Sebangau National Park | 2 | 0.10 | 2 0. |
| g. No Monopoly bussiness around Sebangau National Park | 4 | 0.20 | 8 0. |
| | | | 3. |
| Number of Economy Factors | | 1.00 | 50 |
| 1.2 Ecotourism | | | |
| a. Tthe shift of mass tourism to special interest tourism | 4 | 0.20 | 8 0. |
| b. Local wisdom from community (cultur) | 4 | 0.20 | 8 0. |
| c. Tourist spots rivers, lakes, hills, bays, peat ecosystems | 4 | 0.20 | 8 0. |
| d. Tourist sites such as Tanjung Puting side in Kotawaringin Barat, ourist cascade in Katingan district (Riam Mangkikit) | 3 | 0.20 | 6 0. |
| e. Sago palm and narcissus plants | 2 | 0.2 | 4 0. |
| | | | 3. |
| Number of Ecotourism Factor | | 1.00 | 4 |
| 1.3. Environmen Services | | | |
| a. Maintain hydrological balance | 4 | 0.20 | 8 0. |
| b. Supplier of Clean air for human life | 4 | 0.20 | 8 0. |
| c. The absorption of carbon dioxide | 4 | 0.20 | 8 0. |
| d. The presence of rare and unique species | 3 | 0.20 | 6 0. |
| e. Herbs and flowers | 4 | 0.20 | 8 0. |
| | | | 3. |
| Number of Environment Services Factor | | | 8 |

| | | | |
|--|----|----------|--------------|
| 1.4. Education | | | |
| a. Society has the ability to read and write | 4 | 2 | 0.8 |
| b. The community has the capability of regional languages and the national language | 3 | 2 | 0.6 |
| b. Ttransfer of knowledge, informal education migrant communities to communities surrounding villages Sebangau National Park about modern cultivation methods, preserving the environemtn and others | 4 | 2 | 0.8 |
| d. Sebangau National Park has been used as a place educational, peatland research location | 4 | 2 | 0.8 |
| e. Community learn from the success of conservation nature in Sebangau National Park | 3 | 2 | 0.6 |
| Number of Education Factor | | 1 | 3.6 |
| 1.5. Community Partisipation | | | |
| a. Society does not over exploitation of resources at Sebangau National Park | 4 | 2 | 0.8 |
| b. Society does not hunting fauna at Sebangau National Park | 4 | 2 | 0.8 |
| c. Society does not taking the ornamental plants From Sebangau National Park | 3 | 2 | 0.6 |
| c. Society does not use poisons and stun to catch fish in Sebangau National Park | 3 | 2 | 0.6 |
| e. Firefighting team cooperation with society for the prevention of forest fires | 4 | 2 | 0.8 |
| Number of Community Participation | | 1 | 3.6 |
| Number of Strength | | | 17.90 |
| 2. Kelemahan | | | |
| a. The price of fish is not worth to daily of price needies | -4 | 1 | 0.4 |
| b. No official tariff for tourist transportation, but depending on aggrement of supplier and demander | -2 | 2 | 0.4 |
| c. There is a tendency over the business from Vegetables to forestry (logging Galam) | -4 | 1 | 0.4 |
| d. Lack of cultural attractions in the surrounding villages Sebangau National Park | -3 | 1 | 0.3 |

| | | | |
|--|-----------|-------------|----------------|
| e. The people are less interested in a job that requires rules and work discipline | -2 | 1 | 0.2 |
| f. There are illegal hunting of animals, resulting | -4 | 2 | -0.8 |
| g. promotion Sebangau National Park as ecotourism is still low and does'nt national and global scope | -3 | 2 | -0.6 |
| Number of Weakness | 1 | -3.1 | |
| INTERNAL FACTOR POSITION | | | 14.80 |
| MATRIK EKSTERNAL FAKTOR EVALUATION (EFE) | ng | Rati | Quality |
| Faktor-faktor Strategi Eksternal | | | Tot |
| 1. Opportunity | | | al |
| a. The appeal of the Local Government, and Manajemen of Sebangau National Park about the necessity of preserving | 4 | 0.20 | 0.80 |
| b. Training intensively on integrated fisheries and animal husbandry | 4 | 0.20 | 0.80 |
| c. The relationship between migrants with local residents is harmonious | 4 | 0.20 | 0.80 |
| d. Natural resources outside Sebangau National Park is still quite extensive like land, sea, river and lake | 4 | 0.20 | 0.80 |
| e. The existence of public awareness to keep land respectively in order to prevent fires | 3 | 0.10 | 0.30 |
| f. Warning and a reprimand from the manager Sebangau National Park to the people who violate the law | 3 | 0.10 | 0.30 |
| number of Opportunity | | | 2.20 |
| 2. Ancaman | | | |
| a. Unclear boundaries with forest and land community land in Sebangau National Park | -4 | 0.2 | 0.80 |
| b. Land around Sebangau National Park is often used as a pilot project by the Government | -1 | 0.2 | 0.20 |
| c. Fires around on communities land spread to Sebangau Nasional Park | 2 | 0.2 | 0.40 |
| d. There are still people who do not know conservation activities on Sebangau National Park | -1 | 0.2 | 0.20 |
| e. The existence of palm oil companies around environmentally damaging irrigation in the area | -1 | 0.2 | 0.20 |

| | | | |
|--|----|-----|--------------|
| f. Social jealousy when people outside the village opens the small plantation and rubber in the surrounding villages | -1 | 0.2 | - 0.20 |
| Number of Treath Factor | | | -2.00 |
| EXTERNAL FACTOR POSITION | | | 0.20 |

The Influence of Pornographic Media Towards Adolescents Sexual Behavior at Public Senior High School in Bengkulu City

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Abstract — Background : Adolescents' reproductive health issues among others premarital sexual behavior, HIV / AIDS, dan drugs. The Impact of sexual behavior include unwanted pregnancy, abortion, sexually transmitted infections (IMS) as well as physical and psychological disorders. The purpose of this study is to know relationship of knowledge, the role of parents, peers, and media access pornography on sexual behavior in Junior high schools of Bengkulu city in 2013. **Methods :** This study is a survey of a *cross sectional analytic*. The population in this study was high school students in Bengkulu city in 2013 amount 96 people. The Sample in this study was 96 people in a way elections saturated samples using sampling techniques and instruments that was used in the form of a questionnaire. The data was obtained through analyzed with the chi square test with $\alpha = 0.05$. **Results :** The univariate analysis can be explained that the majority (62.5 %) are less knowledgeable respondents , respondents' parents have less role in the development of adolescents (67.7 %) , respondents conduct peer influence on adolescent sexual behavior of the respondents (52.1 %) , most (37.5 %) of respondents rarely accessing pornographic media and as many as 82.3 % of respondents had sexual behavior . Vicariate analysis results obtained that there was no relationship between knowledge, peers, and media access pornography on the sexual behavior of adolescents with value $p > 0.05$ and no parental role relationships for adolescents sexual behavior with values of $p < 0.05$. **Conclusion:** It is suggested that parents make open communication to adolescent and keep a harmonious relationship in order to adolescent will not do sexual behavior which prohibit to be done before the proper time.

Keywords— Knowledge, the Role of Parents, Peers, Media Access Pornography and Adolescents' Sexual Behavior

INTRODUCTION

The population of Indonesia in the age group 10 - 24 years (adolescents) of approximately 27.6%, or approximately 64 million people of Indonesian total population which is based on the population census in 2010 in BKKBN (2012). The number of teenagers who are not a bit is potentially a very significant in the continued development in Indonesia. Various attempts to explore the potential has been done, as listed in "Garis - Garis Besar Pembangunan Indonesia", the Outline of the Development of Indonesia that coaching children and adolescents conducted through coaching behaviors religious life and noble character, of growing interest in learning, increase creativity and the power of reason and creativity, growth of consciousness healthy living, as well as the growth of idealism and patriotism (Notoatmojo, 2011).

Teens on the one hand is the generation of hope of the nation, but on the other hand face a lot of problems is not likely to interfere with their psychological and physical development of the next. According to Widyastuti, et al (2010), a common problem in adolescents include unemployment, no schools, crime and so on. Health problems in adolescents include malnutrition, anemia, tuberculosis disease (TB) and infections. Problems on adolescent reproductive health, among others, premarital sexual behavior, HIV / AIDS and drugs. The problems that have the greatest impact, namely reproductive health issues related to sexual behavior.

Based on the Health Survey of Indonesians' Adolescent Reproductive (IYARHS, 2002-2003) in a survey of Agus (2007) found that teens said having friends who've intercourse at the age of 14-19 years (girls 34.7%, boys 30.9%) , while those aged 20-24 years (women 48.6%, men 46.5%). From a research conducted by Wimpie Pangkahila (1996) in the BKKBN (2010) to 633 high school students in Bali, it was found that 27% of teenage boys and 18% girls had sexual intercourse.

According to the survey of the National Commission for Child Protection (KPA) in 33 provinces in January until June 2008 concluded 97% of middle and high school teens had ever watched porn movies, 93.7% middle and high school teens ever kissing, genital stimulation (touching the genitals) and oral sex. 62.7% of junior high school teenagers are not virgins and 21.2% of adolescents said they had abortions (BKKBN, 2010).

One of the first of five children born to women married at the age of 20-24 years is the child of a sexual relationship before marriage. The rise of the media coverage regarding *percum, kupu – kupu muda, perek kampus*, and other terms used to describe the sexual behavior of adolescents, especially adolescent premarital, also showed more permissive adolescent sexual behavior (Notoatmojo, 2011).

Sex outside marriage shows no sense of responsibility and led to a series of new problems that cause physical and psychological disorders, the dangers of abortion, the spread of sexually transmitted diseases, the destruction of the institution of marriage, as well as the vagueness of the lineage. Family life marred freedom will only be destructive to the family and give birth to a generation that is far from the joints of religion. Nowadays every day there are 100

abortions for pregnancies out of wedlock, if calculated per year, 36 thousand fetus is killed by a teenager from her womb. This suggests sexual promiscuity among teenagers today are very alarming. Health Survey Research Center, University of Indonesia found the number of abortions in Indonesia each year reach to 2.3 million and 30% of them committed by teenagers (BKKBN, 2010).

MATERIALS AND METHODS OF WORK

This research is analytic survey research, the research explores how and why health phenomena that occur (Notoatmojo, 2005). This study used cross sectional approach, the researchers only measuring variable at a particular time. Each subject is only subjected to one time measurement, without any follow-up or repeatability of measurements (Saryono, 2011). This study was conducted in Bengkulu City at Senior High School in Mei - June 2013.

Before collecting data on the location of the study, tested the validity and reliability of the advance made in another location that is characteristic of the region is similar to the location of research, namely the students of SMP 01 Kab. Seluma as many as 30 respondents.

RESEARCH FINDING

TABLE 1 FREQUENCY DISTRIBUTION OF RESPONDENTS BY KNOWLEDGE, ROLE OF PARENTS, PEERS AND THE ROLE OF THE MEDIA PORNOGRAPHY ACCESS AND SEXUAL BEHAVIOR

| Variable | n = 96 | Percentage | (%) |
|-----------|--------|------------|-----|
| knowledge | | | |

| | | | | |
|--------------------|----|------|--------|----------|
| • Less | 60 | 62.5 | | |
| • good | 36 | 37.5 | | |
| Role | | | of | Parents |
| • Less | 65 | 67.7 | | |
| • good | 31 | 32.3 | | |
| Role | | | of | Peer |
| • Influential | 46 | 47.9 | | |
| • Less Influential | 50 | 52.1 | | |
| Pornography | | | Media | Access |
| • Often | 33 | 34.4 | | |
| • Rarely | 36 | 37.5 | | |
| • Never | 27 | 28.1 | | |
| Adolescent | | | Sexual | Behavior |
| • Yes | 79 | 82.3 | | |
| • No | 17 | 17.7 | | |

Based on the table above, can be explained that the majority (62.5%) of respondents are less knowledgeable, parent respondents have a less role in the growth of adolescents (67.7%), the act of peers who are less influential on the sexual behavior of adolescent respondents (52.1%), respondents rarely access pornography media (37.5%) and respondents have sexual behavior (82.3%).

Bivariate analysis

TABLE 4 RELATIONSHIP BETWEEN THE AGE AND KNOWLEDGE ABOUT REPRODUCTION HEALTH

| Knowledge | Adolescent Sexual Behavior | | | | Total | | OR (95% CI) | P value |
|-----------|----------------------------|-----|----|-----|-------|----|----------------------------|------------|
| | Yes | | No | | | | | |
| | n | % | n | % | n | % | | |
| Less | 4 | 8 | 1 | 2 | 6 | 1 | 0,645 (0,207 -2,011) | 0.6 29 |
| Good | 8 | 0,0 | 2 | 0,0 | 0 | 00 | | |
| Amount | 3 | 8 | 5 | 1 | 3 | 1 | | |
| | 1 | 6,1 | | 3,9 | 6 | 00 | | |
| | 7 | 8 | 1 | 1 | 9 | 1 | | |
| | 9 | 2,3 | 7 | 7,7 | 6 | 00 | | |

Table 4 is the results of analysis of the relationship between knowledge and adolescent sexual behavior showed that there were 12 (20.0%) of respondents who have less knowledge not perform sexual behavior. While among respondents who have a good knowledge, there were 5 (13.9%) of respondents who did not perform sexual behavior. Statistical test results obtained by value $p = 0,629$, it can be concluded there is no connection between the knowledge of the sexual behavior of teenagers. From the results obtained by analysis of the value of $OR = 0.645$, meaning that teens who have less knowledge has 0,645 times the opportunity to

perform sexual behavior than teens who have a good knowledge.

Results of the analysis of the relationship role of parent to teen sexual behavior showed that there were 7 (10.8%) of respondents whose parents have less role in the development of young people do not do sexual behavior. While among respondents who have good parents role in the development of teenagers, there were 10 (32.3%) who did not perform sexual behavior. Statistical test results obtained by value $p = 0.022$, it can be concluded there is a relationship between the roles of parents on teen sexual behavior. From the results

obtained by analysis of the value of OR = 3.946, meaning that teens who have a role parents have less chance of 3,946 times to perform sexual behavior than teens who have the role of a good parent.

Results of the analysis of peer relationships on adolescent sexual behavior showed that there were 4 (8.7%) of respondents related peer influence sexual behavior is not sexual behavior. While among respondents who lacked influence peers related to sexual behavior, there were 13 (26.0%) who did not perform sexual behavior. Statistical test results obtained by value $p = 0.051$, it can be concluded there is no connection between peers on adolescent sexual behavior. From the results obtained by analysis of the value of OR = 3.689, meaning that teens who have an influence peers related to sexual behavior 3.689 times have the opportunity to perform sexual behavior than teens who lack the influence of peers.

Results of the analysis of the relationship of media access pornography on teen sexual behavior showed that there were 7 (21.2%) of respondents who frequently access pornographic media did sexual behavior, 5 (13.9%) of respondents who rarely access pornography media does not perform sexual behavior and 5 (18.5%) of respondents who never access the pornographic media abstinence. Statistical test results obtained by value $p = 0.722$, it can be concluded there is no connection between the media access pornography on the sexual behavior of teenagers.

DISCUSSION

The Relationship Among Knowledge, Role of Parents, Peers And The Role Of The Pornography Access Media And Sexual Behavior

The study showed that 82.3% of respondents have done sexual behavior. BKKBN (2010) stated that the factors which influence sexual behavior among other biological changes in adolescence, adolescent reproductive health knowledge and the impact of sexual behavior, the role of parents and teachers in the stage of adolescent development, the influence of peers and the pornography media access.

Sarwono (2011) mentions in general the individual enters adolescence without adequate knowledge about sex, it can be seen by Table 4.4 that the majority (62.5%) of respondents are less knowledgeable. Parents of respondents also largely lacking role in adolescent development when parents play an important role in mental development and adolescent behavior. Sarwono (2011) states that parents who do not want an open and frank with their children about sex for reasons to talk about sex with children is taboo, causing difficulty in communication between parents and children.

Peers mostly less effect related sexual behavior of adolescent respondents, this is because although more teenagers were outside the home along with their peers, teens will still ask for consideration of parents and family are the

factors that determine the level of conformity adolescents with peer group (Kusmiran, 2012).

This century is the century of information, which is characterized by rapid advances in information technology. teenagers began wondering about the sexual life of men. For that they look for information about sex, either through books, movies, or other images that done clandestinely and one way is to access pornographic media (Kusmiran, 2012). It is also appropriate based on the findings that most of the respondents had (rare and often) media access pornography. Pornographic media sources that are most frequently accessed via the Internet (61.5%).

1. Relationship between Knowledge and Adolescent Sexual Behavior

Statistical test results obtained by value $p = 0,629$, it can be concluded there is no connection between the knowledge of the sexual behavior of teenagers, but teens who have less knowledge has 0,645 times the opportunity to perform sexual behavior than teens who have a good knowledge. These results were obtained from the value of OR = 0.645.

Respondents who have less knowledge was not doing adolescent sexual behavior (20.0%) and respondents who have a good knowledge but do adolescent sexual behavior (86.1%). Notoatmojo (2010) states that knowledge is closed and the reaction is one of the factors the formation of behavior. Functions of knowledge is not an action (open reaction) or activity, but predisposes behavior (actions) or a closed reaction. Knowledge is not necessarily manifested in behavior because of the realization of behavior, there are other factors such as perceptions, beliefs, desires, motivations, intentions and attitude of someone who also predispose behavior (actions) or a closed reaction. This is why teens have less knowledge did not perform sexual behavior, and vice versa adolescents who have a good knowledge but do sexual behavior.

The results also supported by research conducted by Supartiningsih (2010) which is based on the statistical test Alfa Cronchbach, the result is the value of rho calculated 0.175 less than rho tables of 0.364 means that statistically did not show a significant number in other words there is no relationship between the level knowledge of reproductive health with free sex. In this study, knowledge is not a dominant factor influencing sexual behavior.

Research Asfriyati (2002) entitled "*Perilaku Seksual Remaja Santri di Pesantren Purba Baru Tapanuli Selatan Serta Faktor-Faktor yang Mempengaruhinya*" (Sexual Behavior of Youth Students in boarding Purba New South Tapanuli And Factors Affecting). This research obtains results that characteristic factors that influence the behavior of students is the gender factor while knowledge and the family order no influence on the sexual behavior of students.

From the results of the study researchers and several previous studies concluded that the level of knowledge does not always affect the behavior of respondents are positive about premarital sex as well as vice versa. The level of knowledge that less is not always negatively affect the behavior of respondents. There are other factors that shape the behavior because knowledge is still a closed reaction and not necessarily materialized in the form of behavior.

2. Relationship Role of Parents on Teen Sexual Behavior

Statistical test results obtained by value $p = 0.022$, it can be concluded there is a relationship between the parental role towards sexual behavior. The analysis results obtained also value $OR = 3.946$, meaning that teens who have a role parents have less chance of 3,946 times to perform sexual behavior than teens who have the role of a good parent. These results are consistent with the results of research Ari Pristiana Goddess (2012) which showed no relationship with the family norm adolescent sexual behavior. Research Ririn Darmasih (2009) also showed the results of which states that there is the influence of the role of families with adolescent sexual behavior with a value of $p = 0.000$.

This research is also consistent with the theory Gunarsa (2003) which states that parents should be more open in discussing sexual problems to their children. Attempts to cover up sexual problems before the child is not going to resolve the problems faced, even to narrow perceptions of children against sexual field. It can bring the child to try to perform actions that can be fatal to children, for example, try kissing or sexual intercourse with her boyfriend.

Parents harmonious relationship will also foster optimal emotional life to the development of children's personality and vice versa. According to Hurlock (1973) in the BKKBN (2010), many studies conducted by experts found that teenagers who come from families with attentive, warm and harmonious have the ability to adapt and good socialization with the surrounding environment, including avoiding sexual behavior which is not allowed done prematurely. Relationship of Peert Adolescent Sexual Behavior Statistical test results obtained by value $p = 0.051$, it can be concluded there is no connection between peers on adolescent sexual behavior but on the analysis results obtained value $OR = 3.689$, meaning that teens who peers have an influence related to sexual behavior have the opportunity 3.689 times to perform sexual behavior when compared to teens who have less influence from peers. Respondents that peers have an influence did not commit adolescent sexual behavior (8.7%) and respondents were less influence from peers turned out to perform sexual behavior (74.0%). Kusmiran (2012) mentions that in the teenage years a person spends more time with their peers than with their parents, so naturally if the behavior and norms / rules that held much influenced by peer group. However, although it seems teenagers are very dependent on their peers, teens will still ask for consideration of parents and family are the factors that determine the level of conformity with the adolescent

peer group. So although peer influence related to sexual behavior but when parents act with good communication between parents and adolescents goes well then it is not necessarily adolescent sexual behavior, and vice versa teenagers who lack the influence of peers but the role of parents and the communication goes not good, then the influence of peers who are less still can lead to teenage sexual behavior.

The results are consistent with research Dien GA Nursal (2007) which stated that the factor of peer communications not related to sexual behavior in bivariate test but the results of the study also noted that respondents who do not actively communicate with peers will have the opportunity to 0,56 times protected risky sexual behavior weight than actively communicate with peers (95% CI = 0.46 to 1.85).

Research finding of Ariesta Amellia Harnomsari (2011) also showed no significant correlation between the influence of peer groups ($p = 0.309$) on the behavior of teenage dating. This is in line with research Atina Hasanah (2012) in which the results showed no significant relationship between peer conformity with sexual behavior in adolescents. Ardillah Andi Pratama (2008) in a study entitled "The relationship between attitudes toward sexual behavior with Conformity to Peers in Adolescents Associate" also shows the result there is no significant relationship between attitudes toward sexual behavior with conformity to peers.

4. Relations Media Access Pornography on Sexual Behavior of Youth

Statistical test results obtained by value $p = 0.722$, it can be concluded there is no connection between the media access pornography on the sexual behavior of teenagers. These results are consistent with research Ani Mariani and Imam Bachtiar (2010) entitled "Exposure Material Pornography and Sexual Behavior Junior High School Students" in which the results showed no strong evidence of a causal relationship between exposure to pornography with sexual behavior of students. Results Ari Pristiana Goddess (2012) in the bivariate analysis showed no significant association between the frequency of access to pornography often or sometimes with adolescent sexual behavior.

Results of the analysis of the relationship of media access pornography on teen sexual behavior showed that there were as many as 21.2% of respondents who frequently access pornographic media but does not perform sexual behavior, 13.9% of respondents who rarely access pornography media but do not perform sexual behavior and 81.5% respondents who never have access to pornographic media but do sexual behavior. Purwakanian (2008) stated that teenagers who adhere to religious norms will avoid or withstand the detrimental effect on the environment, so although teen ever (frequent and rare) to access pornographic media is not necessarily sexual behavior because there are other factors such as religious norms that become the defense to avoid or able to survive not to perform sexual behavior.

The results are shown no association between the media access pornography on adolescent sexual behavior, but it can be seen from table 4.10 that respondents who had (rare and often) to access pornographic media larger amount (69) conduct sexual behavior of respondents who never access media pornography (27), so parents should supervise teens in using technology, especially the Internet. This is consistent with the theory that if someone accesses the occasional pornographic media impact is not too large. The problem is when people are driven to constantly accessing pornographic media which resulted in a boost to channel his sexual desires becomes large (BKBBN, 2002).

CONCLUSIONS AND SUGGESTIONS

1. The Knowledge of public Senior High School students in the city of Bengkulu in the poor category (62.5%).
2. The parents role of the students is in the poor category (67.7%).
3. Peers of public Senior High School students in the city of Bengkulu have less effect on sexual behavior of adolescents (52.1%).
4. The media access pornography of the students is in rare category (37.5%).
5. Sexual behavior of the students is in the category of doing the sexual behavior (82.3%).
6. There is no correlation between knowledge of sexual behavior of the students Bengkulu city ($p = 0.629$).
7. There is a relationship role of parents on sexual behavior of public Senior High School students in the city of Bengkulu ($p = 0.022$).
8. There is no relationship of peer to sexual behavior of public Senior High School students in the city of Bengkulu ($p = 0.051$).
9. There is no relationship of media access pornography of public Senior High School students in the city of Bengkulu ($p = 0.722$).

SUGGESTION

1. Parents play an important role in mental development and adolescent behavior. Parents should make an open communication to youth, creating a harmonious relationship, instilling religious values and a good personality to adolescents so that teens have the ability to adapt and socialize well with their surroundings and to reduce / prevent adolescent sexual behavior irresponsible,
2. Other researchers who want to investigate on adolescent sexual behavior should also incorporate factors of hormonal changes in adolescents, because if teenagers can not control properly, it can lead to the sexual behavior of adolescents who have not been on appropriate time.

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Rapid Appraisal for Agricultural Land Utilization (RApALU)

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Abstract— This research aimed at assessing the land utilization using analysis model RApALU (*Rapid Appraisal for Agricultural Land Utilization*). The aspects to be assessed was ecological, socio-economic, socio-culture and technological dimensions. The research was conducted in the hilly-mountainous regions in Kulonprogo Regency, Province of Yogyakarta Special Area, Indonesia. Analysis result showed that ecological dimension was less sustainable, while other dimensions (socio-economic, socio-cultural, and technological) was sufficiently sustainable. Analysis showed that 9 out of 21 attributes of RApALU have sensitive effect to the sustainability index and status. To increase the sustainability status, improvement should be done in all sensitive attributes.

Keywords— RApALU, sustainability index and status

INTRODUCTION

The hilly-mountainous areas in Kulonprogo Regency typically have limited land potency. These hilly-mountainous areas are mainly utilized as paddy field, moor land, settlement, courtyard, woods, and plantation areas. The area of the hilly-mountainous areas in Kulonprogo Regency reached 154.41 km² (51,19%) and majority is a non-forest area (75,38%). The forest area is less than 30% of total regency area, which means that Kulonprogo regency is below the minimum threshold (Law No. 47 year 1997). This means that the forest area could not function well as the safe environmental buffer, especially in terms of water supply, flood control, erosion, recreational needs and to meet the need of forest products for various purposes (Kepas, 1985; Ka'ban, 2006).

Various landforms that can be found in research site, among others are denudational mountains, denudational hills, reshuffled foot slopes, karst mountains, karst hills, structural- complex hills, fault block mountains, and intrusion hills, all may affect the ability of existing land. Therefore, the patterns of the land utilization are vary too. The slopes are mainly utilized to plant perennials, the middle slopes are for seasonal crops and plantations, while the foot slopes are the settlement areas.

The agricultural development in Indonesia which was emphasize too much on economical development has negative impacts on the sustainability of natural resources and the environment. To maintain the sustainability of the

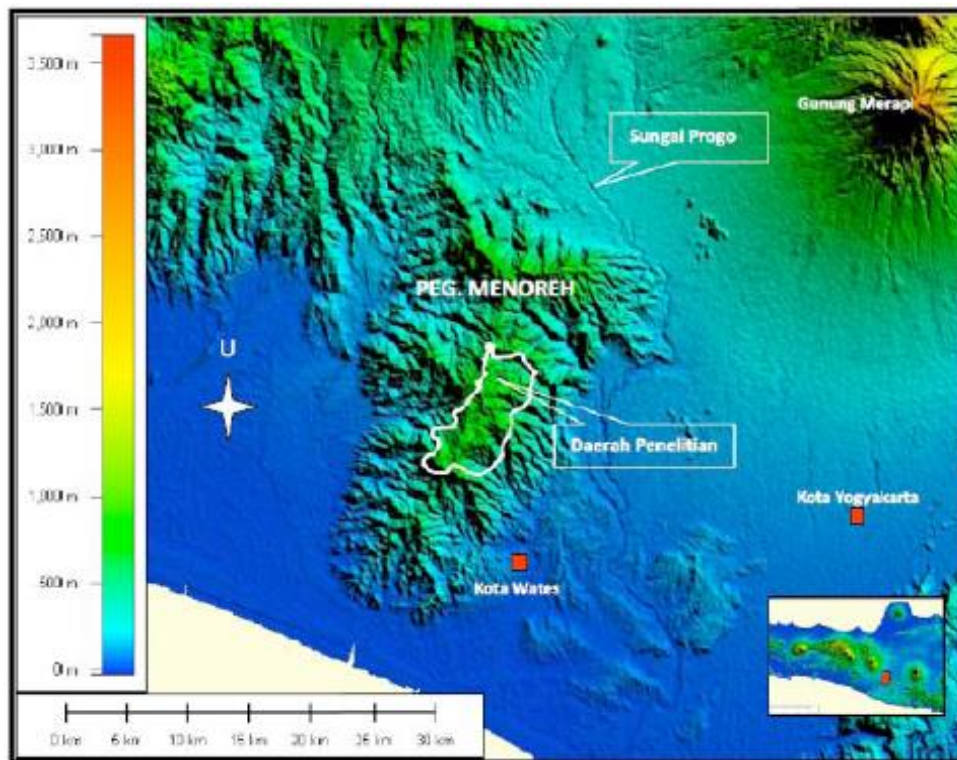
agricultural land resources, efforts are necessary both in terms of direction, strategy and technical policy such as the use of a multidimensional-based evaluation model for sustainable land utilization. The evaluation model for sustainable agricultural land utilization remains a disputable concept and there is no standard criteria in accordance with the dynamics of agricultural development itself (Adnyana, 2001). Studies have been done but still limited to the evaluation of ongoing agricultural activities (Adiningsih, *et al.*, 1992; Goodland, 1995; Lefroy, *et al.* 2000; Pranadji, 2006; Carvalho de Sena, *et al.*, 2009, Hadmoko, *et al.*, 2010;). The main challenges in the land sustainability analysis is the integration process of the various components of the ecological, socio-economic, socio-cultural and technological aspects. Until now, the various assessment models of the sustainability level have been done by using different approaches such as dignity systems and weighting (FAO, 1976, 2007; Arsyad, 2006), the summation parameter system and the matching system between land quality and land characteristics and the growing requirements of the plants (Sitorus, 1985).

RESEARCH METHODOLOGY

Study site

First, confirm that you have the correct template for your paper size. This template has been tailored for output on the A4 paper size.

The study site was the hilly-hilly-mountainous areas in Kulonprogo Regency, at a distance of around 25 km westward of Jogjakarta, the capital of Province of Yogyakarta Special Area, Indonesia. The research was focused in the hilly-mountainous areas in Kulonprogo Regency, Province of Yogyakarta Special Region, Indonesia. The basic considerations in choosing the location was that the hilly-mountainous regions in Kulon Progo Regency based on Urban Planning (RTRW) was actually function as the protected area, but now it has become a agricultural cultivation area. Moreover, the hilly-mountainous regions in Kulon Progo are ecologically function as buffer for the water system for Wates town and its surrounding



Analysis Method

The analysis method of the sustainable agriculture land utilization was using a Multi Dimensional Scaling (MDS) approach called *RApALU (Rapid Appraisal for Agricultural Land Utilization)* analysis model (Juhadi, 2012). *RApALU* model is a further development of *Rapfish (Rapid Appraisal of Fisheries)* method which is used to appraise sustainability status of fisheries (Kavanagh, 2001). *RApALU* model is based on an ordinance technique in which a thing is placed on a measurable attribute order using *Multi Dimensional Scaling (MDS)* approach. *MDS* itself is basically a statistical technique which attempt to transform in a multidimensional way to a lower dimension. The dimensions in *RApALU* was related to the aspects of sustainability i.e. ecology, socio-economic, socio-cultural and technological dimensions. Each dimension will have its own attributes or indicators related to sustainability.

The analysis unit in this research is landform. The analysis was done in several stages (Figure 1), i.e. (a) the determining of integrated and sustainable attributes in the study site which comprise of four dimensions, namely, ecological dimension, socio-economic dimension, socio-cultural dimension and technological dimension/farmer’s preference; (b) valuation of each attribute in an ordinal scale based on sustainability criteria for each dimension; (c) indexing and sustainability status of land utilization for agriculture. Each attribute on each dimension is scored based on *scientific judgment* from the score maker. The score ranged from 1 to 5, or depending on the state of each attribute, being the worst is scored (1) to the best (5). Next, the score of each attribute was analyzed in a

multidimensional way to determine one or several facets which reflecting the position of the sustainability of land utilization for agriculture, and further assessed relative to two reference points i.e. the good points and the bad points. Each scores which is essentially the sustainability index value for each dimension was labeled as Bad, Insufficient, Adequate, and Good (Table 1).

Table 1. Classification of sustainability status of land utilization for agricultural

| Index Value | Category | Remarks |
|----------------|--------------|--------------------------|
| 0,00 - 25,00 | Bad | Not sustainable |
| 25,01 - 50,00 | Insufficient | Less sustainable |
| 50,01 - 75,00 | Adequate | Sufficiently sustainable |
| 75,01 - 100,00 | Good | Very sustainable |

Source: Bourgeois and Jesus, 2004 (in Bohari, 2008)

(d) *Leverage* analysis i.e. the sensitivity analysis to determine the sensitive attributes that influence the sustainability; and (e) *Monte Carlo* analysis to predict the effect of errors at the confidence level of 95%. The position of the sustainability point can be visualized using *RApALU* model with horizontal and vertical axes. Using rotation process, the position of the sustainability point can be visualized at horizontal axis with sustainability index value scored 0 percent (bad) and 100 percent (good). If the considered system has the sustainability index value that is greater than or equal to 50 percent ($\geq 50\%$), then the system is said to be sustainable.

Conversely, if the index value is less than 50 percent (< 50%), then the system is not sustainable.

To know the most sensitive attribute that contribute in sustainability index value in utilization of land for agriculture in the study site, a sensitivity analysis is employed by looking at the change of ordination of root mean square (RMS) on X axis. The larger the change of RMS value, the more sensitive is the attribute in utilization of the said land for agriculture.

In this analysis there maybe some errors which can be caused by various factors, such as the unintentional errors in making scores, the mistake in understanding the

attributes, or deficiency of the study site, score variance due to dissenting opinion or assessment by researchers, repeated MDS analysis, data entry errors or loss of data, and the stress value is too high, since Kavanagh (2001) stated that stress value is acceptable if < 25%. To evaluate the error influence in predicting the ordination value in utilizing the land for agriculture in the study site, *Monte Carlo* analysis is employed. All operational processes from sustainability analysis of each dimension, to *Leverage* analysis and *Monte Carlo* analysis was done by help of *Rapfish* software, which then developed to be *RApALU* software.

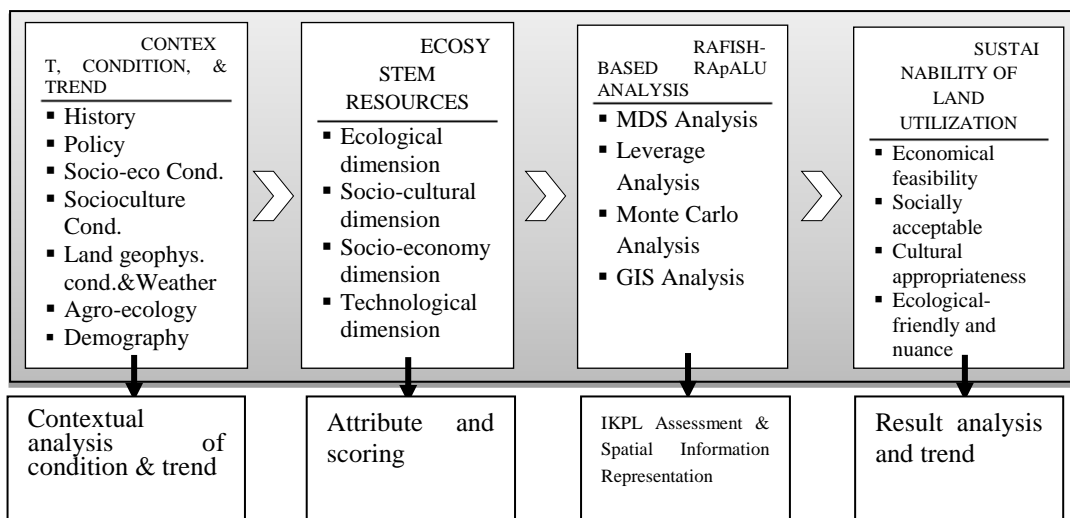


Figure 2. RApALU Model Framework

RESULTS AND DISCUSSION

Analysis of Sustainability of Land Utilization for Agriculture – Ecological Dimension

Analysis result of index and status of sustainability of land utilization for agriculture in the hilly-mountainous regions in Kulonprogo for ecological dimension in the study site showed a diversity of index value of sustainability between landform units, ranging from category *Less sustainable* to *Sufficiently sustainable*. There were 7 landform units which categorized as *Less*

sustainable (33.33%). The rest (14 landform units) were categorized *Sufficiently sustainable* (66.67%).

The magnitude of landform units with sustainability status of *Less sustainable* in the study site primarily was caused by land geophysical condition factors, especially related to the high rate of damage to the land due to erosion and landslides. The H5D0 (Andesite-Breccia Complex Denudational Hills) landform unit has the lowest sustainability index of land utilization in ecological dimension, i.e. 29.32 (Table 2, Appendix).

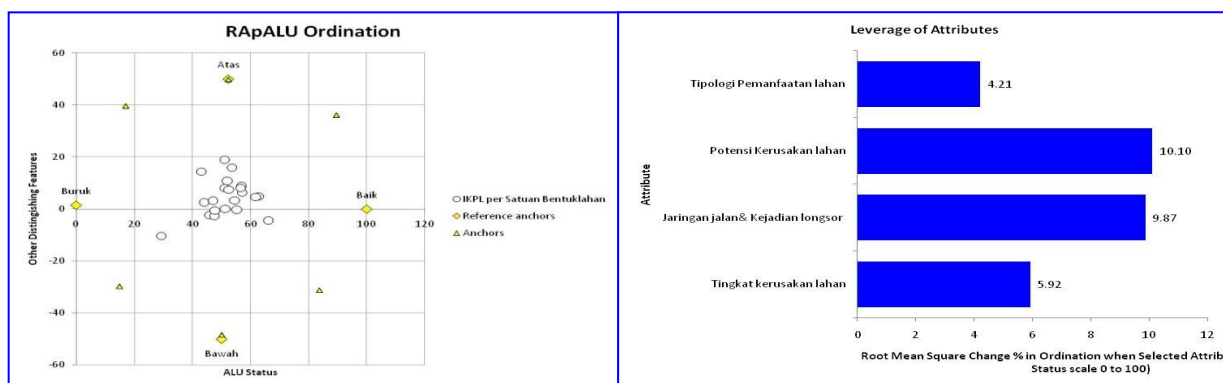


Figure 3. Index and sustainability status, and sensitive attributes influencing the sustainability in ecological dimension (Source: Juhadi, 2013)

Among 4 examined attributes, namely, the typology of land utilization, the potential land damage, the land network and landslide events, the actual land damage levels, 2 attributes are sensitive in influencing the sustainability, they are (1) the potential land damage with score of 10.10 and (2) the landslide events in the land network with score of 9.87. The score of potential land damage is relatively high in the study site because it is a hilly-mountainous region with complicated topography, ranging from plains to mountains with slope variation ranging from flat to steep. The slope stability is vary due to topography complexity. Morphogenetically, the study site was formed from denudational, structural, and fluvial processes (Sartohadi 2005).

Analysis of Sustainability of Land Utilization for Agriculture – Ecological Dimension

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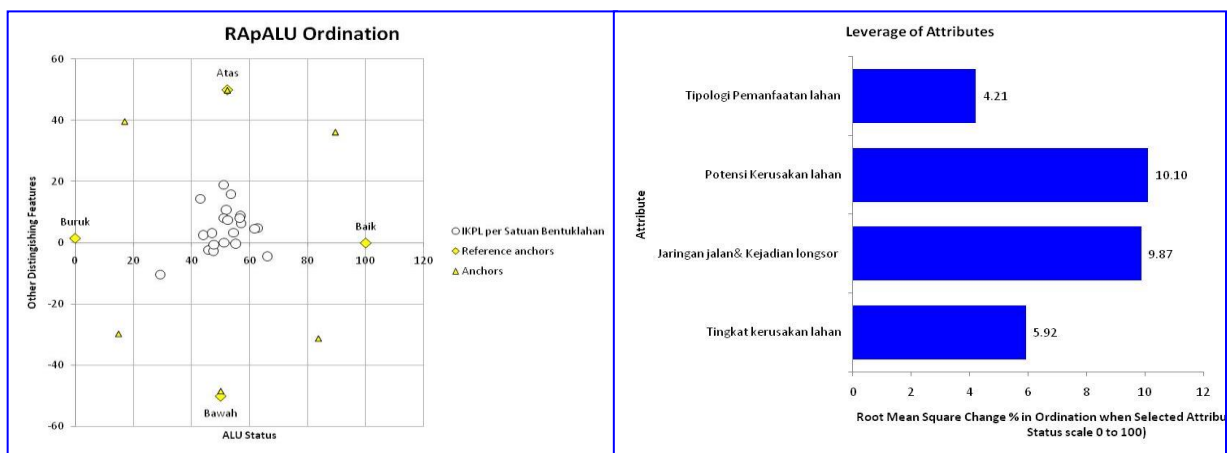


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Sustainability of Land Utilization for Agriculture in Socio-Economical Dimension

Sustainability of land utilization for agriculture in socio-economical dimension based on empirical data was varied in several landforms, with index values ranging from 55.50 – 84.52, and this means that the sustainability status was categorized *Adequate to Good*. This is different to analysis of ecological dimension. In the socio-economic dimension there were 3 landform units (14.29%) that have been categorized as *good*, whereas 18 landform units (85.71%) were categorized as *sufficiently sustainable* (Figure 4). The sustainability index value in socio-economic dimension of some landforms was also high, i.e. more than 80. The lowest value was 55.50, i.e. H2D0 (Sentolo formation denudational hilly complex) landform unit which was categorized as *sufficiently sustainable*. In general, the distribution of the index values and the sustainability status of land utilization in socio-economic dimension in each landform was categorized as *sufficient* (Table 3, attached).

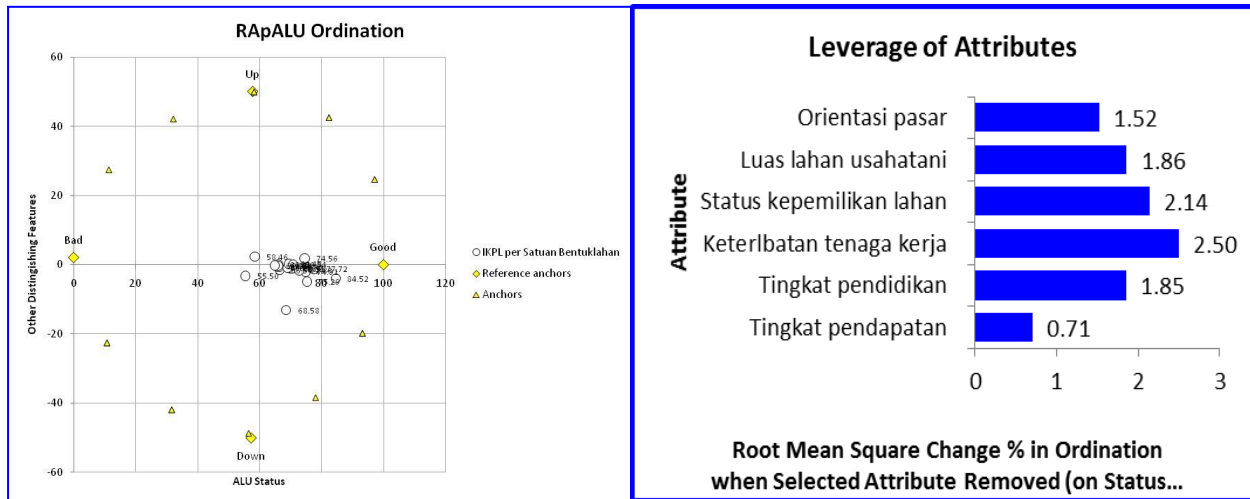


Figure 4. Index and sustainability status, and sensitive attributes influencing sustainability in socio-economic dimension (Source: Juhadi, 2013)

Four sensitive attributes influencing the sustainability index value in socio-economic dimension, were (1) labor involvement; (2) tenure; (3) farming land area, and (4) education level. The distribution of the index values and the sustainability status of land utilization in socio-economic dimension of the upper part of the hilly-mountainous region which is dominated by mixture plantation is categorized as good. Whereas, the low slopes which is commonly used as moor land or field, was categorized as *sufficient* (Figure 9, attached).

In general, in economic dimension, majority of the study areas are categorized as *sufficient*. The high or low value of sustainability index of land utilization in socio-economic dimension in the study areas is influenced by several factors, such as the diversity of sources of

income from a number of agricultural commodities and income from non-agriculture sector.

Sustainability of Land Utilization for Agriculture in Socio-Cultural Dimension

The sustainability indices of land utilization for agriculture in socio-cultural dimension in various landform units in the study area that were calculated using RAPALU program showed scores ranging from 56.83 to 78.38, which means that they are in category range of *sufficient* and *good*. The sustainability index value in category *sufficient* was very dominant, being found in 20 landform units (95.24%). Conversely, the landform unit that is categorized as *good* is only 1 unit (4.76%) (Figure 5).

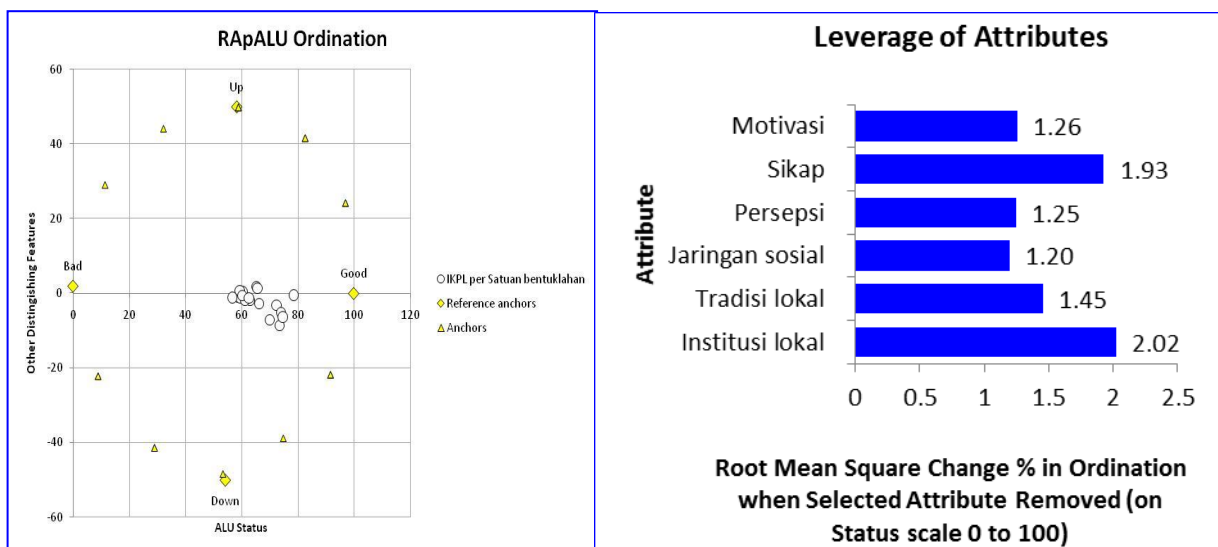


Figure 5. Index and status of sustainability, and sensitive attributes influencing sustainability in socio-cultural dimension (Source: Juhadi, 2013)

Analysis on 21 landform units in general showed that they are categorized as *sufficient*, and only 1 landform unit in category *good*, i.e. H3D0 (Jonggrangan Formation Denudational Hilly Complex) (Table 4, and Figure 10, attached). Socio-cultural aspects that have been went well in societal life on the study area seemed have positive trend for the sustainability of land utilization. This is proven from the availability of land resources that resulted in category *sufficient* for the sustainability index value.

Leverage analysis showed similar result with *MDS* analysis, in that the sensitive attributes influencing the socio-culture dimension were (1) local institution, (2) attitude, (3) tradition, and (4) society perception. Among

the 4 sensitive attributes, local institution scored the highest, i.e. 2.02. When compared with economical dimension analysis result show the similar trend, that is, positive trend with sustainability index value were in the range of *sufficient* to *good*.

Sustainability of Land Utilization for Agriculture in Technological Dimension (Farmer's Preference)

IKPL analysis for technological dimension showed a variation of sustainability index and status for each landform (Figure 11, attached). *RApALU* analysis for technological dimension showed that 19 landform units (90.48%) have sustainability index of more than 50.01 percent (Table 5).

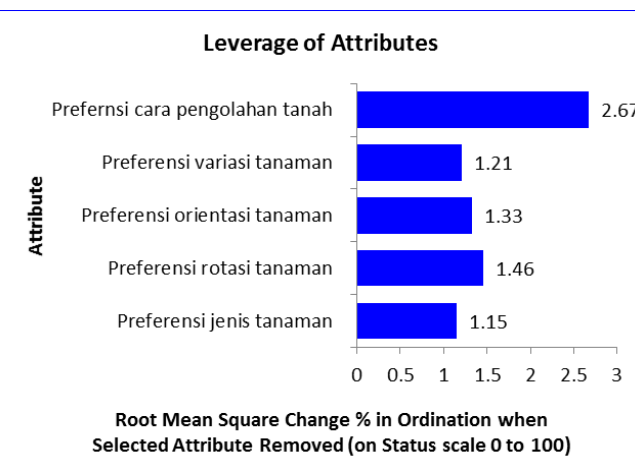
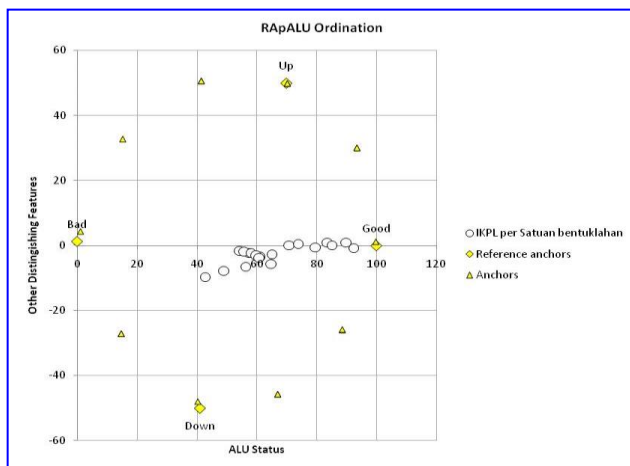


Figure 6. Index and sustainability status, and sensitive attributes influencing the sustainability in technological dimension (Source: Juhadi, 2013)

This means that from technological dimension point of view, the land utilization in the study area is categorized as *relatively good*. The Land Utilization Sustainability Index (IKPL) for technological dimension that categorized as *less sustainable* were found in 2 landform units, i.e. H4D0 (Andesite Denudational Hilly Complex) and H3D5 (Jonggrangan Formation Denudational Hilly Middle Slopes).

From the *Leverage* analysis it can be seen that attribute or factor that sensitively influence the sustainability for technological dimension / farmer's preference was only 1 attribute, i.e. tillage or the way to prepare the land for growing crops. This tillage attribute that resulted in highly sensitive influence to the sustainability of land utilization need special attention in order to increase or maintain the level of the sustainability of land utilization. Inappropriate technique in land utilization might result in land damage.

The condition of land utilization in technological dimension spatially also showed that most of them in category *sufficient*. But several locations especially in Sub-District Kokap are in category less sustainable (Figure 6, attached). Most areas studied in this research are categorized sufficient to very good in terms of sustainability index of land utilization for agriculture in technological dimension. The farmers seemed have used

basic principles of land conversion in managing their agricultural field.

The sustainability indices in ecological, socio-economic, socio-cultural, and technological dimensions are shown in Figure 7.

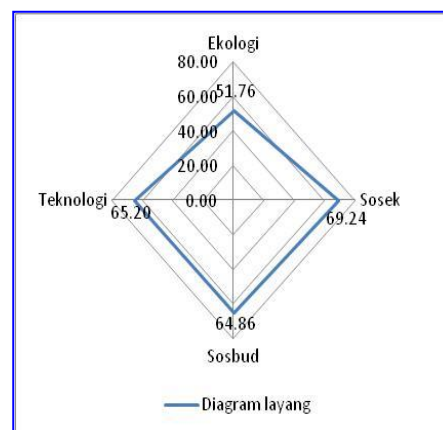


Figure 7. Kite Diagram sustainability index value of land utilization for agriculture (Source: Juhadi, 2013)

Kite diagram shows the scores ranging between 0%-100% with interval of 25%, and with criteria of *bad*,

insufficient, adequate, and good. If the score moves outward, then the sustainability status is going better. On the other hand, if the index score moves inward, then the sustainability status is going worse. Based on kite diagram analysis, it was shown that overall the sustainability index of land utilization for agriculture in the study area fell in the range of 30% - 94%. It means that the sustainability index of land utilization for agriculture in the study area is in the criteria of *less sustainable to good.* Of 4 examined dimensions, the socio-economic dimension showed the better sustainability level, with Land Utilization Sustainability Index of 69.24% and therefore is categorized as

sufficiently sustainable. It was followed by technological dimension (65.20%), socio-cultural dimension (64.86%) and lastly, ecological dimension (51.7%). However, these values are still categorized as *sufficiently sustainable.*

Analysis of Sustainability of Land Utilization for Agriculture – Multidimensional

A multidimensional *RApALU* analysis using ordination technique through MDS method has resulted Land Utilization Sustainability Index (IKPL) value for each landform unit (Figure 8).

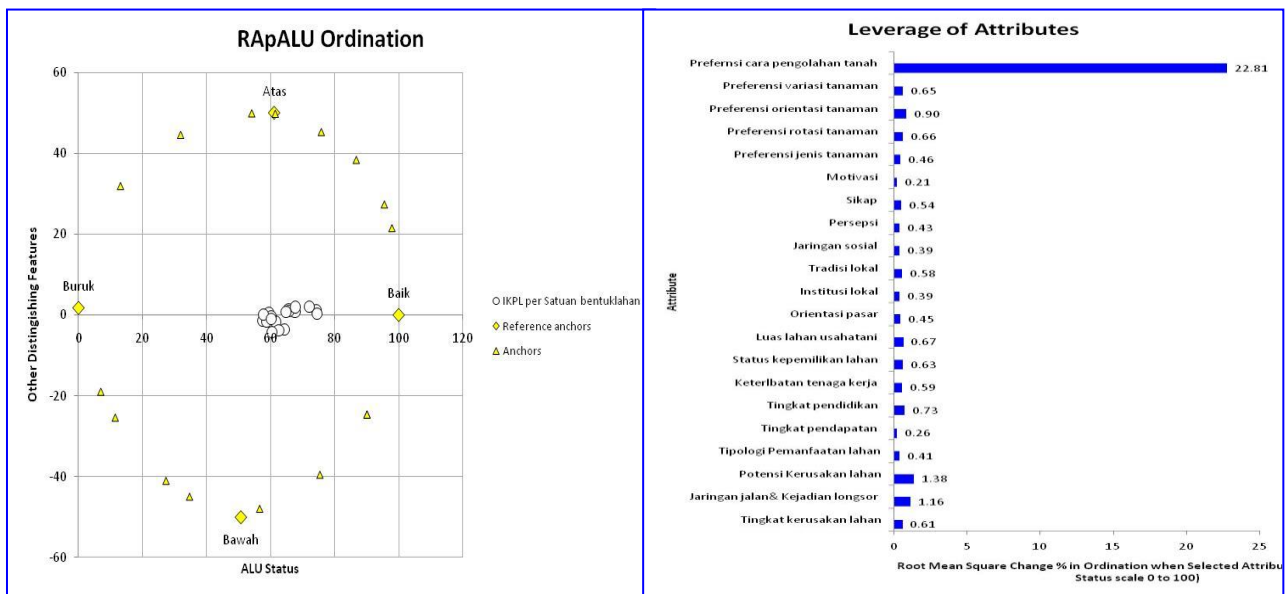


Figure 8. Index and sustainability status, and sensitive attributes influencing the multidimensional sustainability (Source: Juhadi, 2013)

The IKPL value for each landform unit was obtained based on the valuation against 21 attributes which were covered in 4 dimensions, i.e. ecological dimension (4 attributes), socio-economic dimension (6 attributes), socio-cultural dimension (6 attributes), and technological / farmer’s preference (3 attributes). The result of the study on 21 landform units showed that 2 landform units have sustainability indices of category *good* i.e. D1F8 (Fluvio-Coluvial Foot Plains) and H3D2 (Jonggrangan Formation Denudational Hilly Ridge), because they fell within the range of 75.01 – 100 (Figure 12, attached). This is because the D1F8 landform unit is mainly utilized as paddy fields and secondary crop fields and therefore the society always try to make efforts to maintain the land productive and keep it away from land damage. Whereas D1F8 (Jonggrangan Formation Denudational Hilly Ridge) landform unit mainly utilized is forest areas and perennial plantations and therefore useful to produce wood and fruit as one of the pillars of economic sources of the societal income. It is therefore this area is maintained, and always be preserved, and despite routine harvest, the society always carry out continuous rejuvenation.

A *Leverage* analysis in a multidimensional way showed that the most sensitive attributes in influencing the sustainability of the land utilization for agriculture in the study area is *the tillage*. This is because the geobiophysical characteristics of the study area is very complicated due to the high vulnerability to erosion and landslide (Dibyosaputro, 1999; Mardiatmo, 2002; Gunadi, et al.,2004; Sartohadi, 2005; Hadmoko, et al, 2009; 2010; Juhadi, et al.,2011; Dwi Priyono, 2012). Empirical data also strengthen the previous study, in that majority of the study area are highly potential to experience land damage. Therefore, the problem of land management in this area needs special attention.

RApALU analysis showed that all attributes examined against the sustainability status of the land utilization for agriculture in the hilly-mountainous region in Kulonprogo Regency, Province of Yogyakarta Special Area, is relatively accurate so that it can provide more reliable and more accountable analysis result. This can be seen from stress value and determination coefficient value (R^2). This figure is obtained automatically in the MDS analysis using *RApALU* software . Kavanagh and Pitcher (2004)

suggested that the analysis result is considered accurate and accountable when the stress value is lower than 0.25 or 25 percent and the determination coefficient value (R^2) is close to 1.0 or 100 percent (Table 2).

Table 2. *RApALU* Analysis Result for Values of Stress and Determination Coefficient (R^2)

| Parameter | Sustainability Dimension | | | | |
|------------------------|--------------------------|------------|----------------|----------------|---------------|
| | Multidimensional | Ecological | Socio-Economic | Socio-Cultural | Technological |
| Stress = Squared | 0,200 | 0,118 | 0,128 | 0,089 | 0,027 |
| Correlation (RSQ) = | 0,841 | 0,949 | 0,973 | 0,978 | 0,998 |
| Number of iterations = | 4 | 3 | 4 | 3 | 3 |

Source: Primary Data Analysis (Juhadi, 2013)

The stress values for all analyzed dimensions, either individually or collectively (multidimensional) showed a very good result, i.e. the stress values were far from 0.25% and the RSQ values were close to 1. The MDS analysis using *RApALU* program showed that all examined attributes were accurate and accountable. The analysis also showed that the result was not significantly different to *Monte Carlo* analysis and *MDS* analysis (Table 7, attached).

The Stress values were ranging only from 2 to 20 percent whereas the determination coefficient (R^2) values were ranging from 84 percent to 99 percent. The stress values and the determination coefficient values were presented in Table 7. This result supported Kavanagh (2001) findings that the analysis is considered adequate when the stress value is less than 0.25 (25%) and the determination coefficient value (R^2) is close to 1.0. It means that errors in the analysis have been minimized, either during the attribute scoring process, the variation in scoring due to dissenting opinion was relatively small, the data analysis process performed repeatedly was relatively stable, and the data entry mistake and loss data were minimized or avoided.

Distribution of multidimensional sustainability index and status of land utilization for agriculture showed that are study areas were in category *sufficient to very good* (Figure 13, attached).

CONCLUSION

RApALU analysis can be used as preliminary analysis to comprehend general and overall description on the status of the sustainability index of land utilization for agriculture in hilly-mountainous regions. The study confirmed that *RApALU* analysis can help determine the status of the sustainability of land utilization in intricate areas. *RApALU* technique was able to comprehensively identify important factors affecting sustainability status of various dimensions. *RApALU* analysis is a method which still can be developed extensively, such as by expanding and sharpening the dimensions to be used as required in

the research or by increasing the number of attributes for each dimension.

Of 4 examined dimensions, the socio-economic dimension showed the better sustainability level, with average Land Utilization Sustainability Index of being categorized as *sufficiently sustainable*. This is followed by technological dimension, socio-cultural dimension, and lastly was ecological dimension, however, all were still categorized as *sufficiently sustainable*.

Out of 21 attributes analyzed in a multidimensional way, the most sensitive attribute on the sustainability of land utilization was *tillage*. The problem of land management in the study area needs special attention, especially the geobiophysical characteristics of the area is very complicated due to the high vulnerability to erosion and landslide. If the method of land management is not using / less attention to the land conservation principles land then the land damage will be potentially hazardous in the future.

Commonly, the hilly-mountainous regions is highly vulnerable to some aspects of land geophysics, and they are normally will have high potential to be damaged too. The level of the land damage is triggered by societal member activities in utilizing the land for agriculture and for other purposes. The current research that use *RApALU* analysis found that the sustainability status of the land utilization for the four examined dimensions, either individually or collectively showed a relatively good result. This phenomenon indicated that the severely damaged land (due to erosion and landslide) in the study area was not merely caused by land geophysical factors. But more be caused by non-natural factors, especially human factor.

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Analysis of Determinant Regional Expenditure Allocation In The Autonomy Era In Sumatra

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Abstract--Efforts to ensure the implementation of regional autonomy independent, done by improving the ability finance itself. The financial resources either from regionally original income and financial government transfers given to regions. This study examines the influence of General Allocation Fund, Specific Allocation Fund and profit sharing fund to allocation of regional spending the Regency/City Province in Sumatra. The research data is secondary data from APBD Realization Report on site Director General of Fiscal Balance Areas during 2011-2013. An important finding of research by regression analysis shows that all four of these factors affect the allocation of regional spending, where fund profit sharing is a factor with the greatest influence.

Keywords--allocation of regional spending, autonomy, regionally original income

INTRODUCTION

In implementing the regional development one of the local financing principle is the principle of decentralization. The embodiment of the principle is regional autonomy rules. Regional autonomy in Indonesia is regulated in Law Number 22 Year 1999 on Local Government. This rule refurbished Law No. 32 of 2004 and Act No. 25 of 2009 on Financial Balance between Central and Local Government, subsequently revised by Law No. 33 of 2004 [8]. The authority of regional autonomy set in order to implement regional development in all fields, especially for the construction of public facilities and infrastructure (public service). The implementation of regional autonomy is an effort to improve social welfare to carry out development activities in accordance with the will and interests of the community [20]. This means that the central government authorizes to local governments to manage their own regions in accordance with existing regulations . Each region should be able to manage and utilize resources or the potential of the region. Fiscal Balance, the average ratio of locally-generated revenue to regional revenue was 8.5% , while the average ratio Transfer Funds to regional revenue was 91.2% . This shows that the dependence of local governments and municipal authorities Transfer of the funds are still very high . Role of locally-generated revenue to finance government spending varies greatly among regions. In the study [13] found locally-generated revenue and the balance of the funds affect the Regional Expenditure allocation. Locally-generated revenue is all income derived from economic resources native to the area. While the research [1] shows the influence positif

locally-generated revenue; Special Allocation Fund; profit sharing funds and the negative impact of locally-generated revenue towards capital expenditure. Furthermore, research [12] found that the locally-generated revenue and general allocation funds positive effect on the structure of expenditure.

Sumatra is an island rich with crops, so if managed properly will certainly help increase locally-generated revenue. Thus the balance of the funds given by the central should be used effectively and efficiently.

With the difference in the results, need to learn more about Determinant Analysis Regional Expenditure allocation In the Autonomy Era in District/City in the region of Sumatra island.

DEVELOPMENT HYPOTHESIS

Locally-Generated Revenue Impact on the Regional Expenditure Allocation

Regional Income is gained acceptance from sources within its own territory levied according to local regulations with the legislation in force [18]. Locally-generated revenue goal is to provide authority to the Regional Government to fund the implementation of regional autonomy in accordance with the potential of the region as the embodiment of decentralization. Local Revenue derived from income tax, retribution, results of wealth management and other areas [15]. The better the locally-generated revenue an area, the greater the allocation of capital expenditure [11]. In the study [12] states that locally-generated revenue affect the Regional Expenditure allocation. These findings indicate that the magnitude of locally-generated revenue became one factor in determining the shopping areas. From the empirical study, it can be arranged hypothesis as follows:
H1: locally-generated revenue affect the regional expenditure allocation

General Allocation Funds Impact on the Regional Expenditure Allocation

According to [18], general allocation funds is sourced funds from APBN allocated with the purpose of equalization of fiscal capacity among regions to fund local needs in the context of decentralization. The total number of general allocation funds set at least 26 % of the Internal Revenue Netto in the state budget. Local government can use general allocation funds to provide services to the public which is realized through capital expenditures [11]. Research results [1] states that there is influence between general allocation funds to the

shopping area. From the empirical study it can be arranged hypothesis is as follows :

H2 : general allocation funds affect the regional expenditure allocation

Special Allocation Fund impact on the Regional Expenditure Allocation

One fund balance is special allocation funds, which is a fund sourced from the state budget allocated to local governments to finance specific activities which is a matter of local and national priorities. special allocation funds goal is to reduce the burden of the cost of specific activities to be borne by local governments. special allocation funds utilization redirected for investment development, procurement, improvement, improvement of physical infrastructure. Special Allocation Funds utilized for public service activities the economic life of the long, so expect can improve public services realized in capital expenditure [11]. Research conducted by [6] get that special allocation funds effect to the Regional Expenditure. From the empirical study it can be arranged hypothesis is as follows:

H3: special allocation fund affect the regional expenditure allocation

Profit Sharing Fund Impact on the Regional Expenditure Allocation

According to [18], profit sharing Fund is sourced from the state budget allocated to area based percentage figures for financing needs of the region in the context of decentralization. According to Article 160 paragraph (1) of [18], revenue-sharing sourced from taxes and natural resources. Tax consists of the Land and Building Tax (PBB), the Tax on Acquisition of Land and Building as well as income tax (PPH).

While profit sharing funds of natural resources from forestry, mining, fisheries, mining, petroleum, mining, natural gas and geothermal. profit sharing Fund is a considerable source of local revenue potential and is one of the authorized capital of the regional administration in obtaining development funds and fulfill shopping area not from Locally-Generated Revenue in addition general allocation funds and special allocation funds. The main objective of the profit sharing funds is to reduce the vertical fiscal imbalance between the central government and regions [9]. Research results [10] states profit sharing funds affect the allocation of expenditure. From the empirical study, it can be arranged hypothesis as follows:

H4: profit sharing funds affect the regional expenditure allocation

Locally-Generated Revenue, General Allocation Fund, Special Allocation Fund, and DBH Impact on the Allocation of Regional Spending

In the implementation of the local authorities, central government will transfer the balance funds consisting of general allocation funds, special allocation funds and

parts of the area of profit sharing funds consisting of taxes and natural resources. Fund balance is the local revenue which comes from the central government transfers funds in the form of regional expenditure.

Besides balancing funds, local governments have sources of funding itself in the form of Locally-Generated Revenue, financing and other income. Policy of the use of all funds handed over to the local government. From the study it can be arranged hypothesis is as follows:

H5: locally-generated revenue, general allocation fund, special allocation fund, and profit sharing funds simultaneously affect the allocation of regional spending

METHODS

This study used a quantitative approach, in order to focus more on aim for generalization. Statistical testing conducted research and sterile of subjective influence of researchers. Statistical analysis techniques used in this study is multiple linear regression. Tests conducted research data with SPSS 22. Sampling technique purposive sampling method is used, ie based on criteria specified in the study. The object of research is the island of Sumatra, which is the largest island in Indonesia after Borneo. There are 10 provinces in Sumatra Island, namely Nanggroe Aceh Darussalam, North Sumatra, West Sumatra, Riau, Jambi, South Sumatra, Bengkulu, Lampung, Bangka Belitung and Riau Islands. The research data is secondary data Realization of the development of the district budget/City Province in Sumatra, that was obtained from Director General of Fiscal Balance Government site [19]. Realization of the budget report obtained data on the realization of Locally-Generated Revenue, general allocation funds, special allocation funds, profit sharing funds. profit sharing funds and Regional Expenditure Budget 2011-2013.

Variables used in this study consisted of three independent variables (locally-generated revenue, general allocation funds, special allocation funds, profit sharing funds,) and one dependent variable (Regional Expenditure Budget). Locally-generated revenue is all local revenue derived from the original local economic resources, can be seen from the ability and responsibility of local governments to provide a good public service and improve social welfare through the allocation of expenditure. The larger the Locally-Generated Revenue received the greater the authority of local governments in implementing the policy of autonomy. General Allocation Fund is a fund from APBN allocated with the purpose of equalization of financial capability among regions for financing needs of the region in the context of decentralization. Special Allocation Fund is a fund of the state budget allocated to local governments to finance specific activities which is a regional affairs and national priorities. profit sharing funds, is funds from the state budget allocated to area based digit percentage to fund local needs in the context of decentralization. Shopping area is all obligations regions recognized as deduction of

net worth in the relevant fiscal year period [18]. Allocation Shopping areas consisting of indirect expenditures and direct spending. Indirect spending is expenditure which has no direct connection with the implementation of government programs and activities consisting of personnel expenditure, interest expenditure, subsidies, grants, social assistance, shopping for results, financial aid and spending unexpectedly while direct spending activity the budgeted expenditure related directly to the implementation of programs and activities [5].

RESULTS AND DISCUSSION

The independent variable in this study was Locally-Generated Revenue, general allocation funds, special allocation funds, and profit sharing funds, while the dependent variable is Regional Expenditure allocation District/City in the region of Sumatra island in 2011 until 2013. Descriptive statistical test results shown in Table 1 the number of research sample 117. The minimum value of Locally-Generated Revenue is Rp11.990.000.000,00, Kapahiang located in the district of Bengkulu province in 2011. Conversely The maximum value of Locally-Generated Revenue is Rp157.869.000.000,00, namely from the District Kampar Riau Province in 2013 .

General Allocation Fund has a minimum value of Rp 71.909.000.000,00 obtained from Natuna regency of Riau Islands Province in 2011. General Allocation Fund has a maximum value of Rp 1086335000000.00 of Central Lampung regency in the province of Lampung in 2013.

TABLE 1 DESCRIPTIVE STATISTICS

| | Minimum | Maximum | Mean | Std. Deviation |
|---------------------------|---------|---------|-----------|----------------|
| locally-generated revenue | 11990 | 157869 | 48276.52 | 24715.223 |
| general allocation funds | 71909 | 1086335 | 482316.97 | 182583.239 |
| special allocation funds | 8177 | 126574 | 49839.50 | 22476.668 |
| profit sharing funds | 16509 | 1159206 | 152278.33 | 245315.160 |
| Regional Expenditure | 389807 | 2114899 | 837073.77 | 344448.352 |
| Valid N (listwise) | | | | |

source :Results of data processing SPSS 22 , 2015

Special Allocation Fund has a minimum value Rp8.177.000.000,00 is in Ogan Ulu South Sumatra Province in 2011. Special Allocation Fund has a maximum value Rp126.574.000.000,00 is Central district in Lampung Province in 2012.

Profit sharing funds has a minimum value of at Rp16.509.000.000,00, Which is located in the province of West Sumatra Payakumbuh in 2011. Funds for the maximum value of Rp1.159.206.000.000,00. Showed the highest acceptance of profit sharing funds is located in Kampar regency of Riau Province in 2012 .

Regional Expenditure has a minimum value of Rp389.807.000.000,00. This value is located Payakumbuh in West Sumatera 2011. Regional

Expenditure has a maximum value Rp2.114.899.000.000,00. Regional Expenditure is the highest located in the district Kampar Riau Province 2013.

Normality test is done as a prerequisite test analysis, to know normality of data distribution [7]. Based on the value Asymp.Sig (2-tailed) with the value of Kolmogorov –Smirnov amounted to 0.064. The test results show figure of significance greater than 0.05, so that it can be concluded Research data were normally distributed.

TABLE 2.COEFFICIENTS^a

| Model | Collinearity Statistics | |
|---------------------------|-------------------------|-------|
| | Tolerance | VIF |
| (Constant) | | |
| locally-generated revenue | .484 | 2.067 |
| general allocation funds | .295 | 3.395 |
| special allocation funds | .435 | 2.297 |
| profit sharing funds | .658 | 1.519 |

a. Dependent Variable: Regional Expenditure
 source : Results of data processing SPSS 22 , 2015

Based on the test multikolinearitas Locally-Generated Revenue values obtained (tolerance 0.484 and 2.067 VIF), general allocation funds (0.295 tolerance and VIF 3395), special allocation funds (tolerance 0.435 and 2.297 VIF) and profit sharing funds (tolerance 0.658 and 1.519 VIF). The value of each variable research has a value of tolerance more than 0.1 and VIF less than 10. concluded that the regression model not found the problem multicollinearity between independent variables in the regression model.

Heteroskedasitas test used to know whether irregularities heteroskedasitas classical assumptions, that is variant inequality residuals for all observations regression model. Based on the graphic display scatterplot, can be assumed it does not happen heterokedastisitas. It is based graphic image, of points on graph does not form a specific pattern clear and point spread above and below the number 0 on the axis Y.

Autokolerasi test used to determine whether or not classic assumption deviation autokolerasi, that correlation is happening between residuals on one other observation the regression model. To diagnose the autokolerasi in a regression model testing to test the value of the Durbin-Watson (DW Test). Based on the results of table 3 below shows that the value of the Durbin-Watson (DW) amounted to 2.121. So as $1.55 < 2.121 < 2.46$ it can be concluded the model is autokolerasi.

TABLE 3 MODEL SUMMARY^B

| Model | R | R Square | Adjusted R Square | Durbin-Watson |
|-------|-------------------|----------|-------------------|---------------|
| 1 | .983 ^a | .967 | .965 | 2.121 |

^aPredictors: (Constant), locally-generated revenue; general allocation funds; special allocation funds; profit sharing funds
^b Dependent Variable: Regional Expenditure
 source : Results of data processing SPSS 22 , 2015

Multiple linear regression conducted to determine the influence of the locally-generated revenue, general allocation funds, special allocation funds and profit

sharing funds to the Regional Expenditure allocation. Based on the table 4 can be found regression model by looking at the value of B column unstandardized coefficients as follows :

$$Y = -2433,842 + 0,741 X_1 + 1,148 X_2 + 1,806 X_3 + 1,052 X_4$$

TABLE 3. MULTIPLE LINEAR REGRESSION TEST RESULTS

| Model | Unstandardized Coefficients | | t | Sig. |
|---------------------------|-----------------------------|------------|--------|------|
| | B | Std. Error | | |
| (Constant) | -2433.842 | 18025.833 | -.135 | .893 |
| locally-generated revenue | .741 | .346 | 2.141 | .034 |
| general allocation funds | 1.148 | .060 | 19.125 | .000 |
| special allocation funds | 1.806 | .401 | 4.504 | .000 |
| profit sharing funds | 1.052 | .030 | 35.194 | .000 |

source : Results of data processing SPSS 22 , 2015

Coefficient of Determination or R² test used to know the percentage contribution of the influence of the independent variables (X₁, X₂, X₃, X₄) the dependent variable (Y) .

From Table 3 obtained R – Square or the coefficient of determination amounted to 0.965, or 96.5 % . This shows that the percentage of donations the influence of the independent variables (locally-generated revenue, general allocation funds, special allocation funds, and profit sharing funds) on the dependent variable (Regional Expenditure allocation) amounted to 0,965, or 96.5%, and the remaining 3.5% is explained by variables other than the locally-generated revenue, general allocation funds, special allocation funds, and profit sharing funds.

Based on the partial test results by t-test is obtained significant value in independent variables

less than 0.05. Significant value of The independent variable is: locally-generated revenue=0.034; general allocation funds=0.000; special allocation funds=0.000 and profit sharing funds=0.000. Can be concluded that variable; locally-generated revenue, general allocation funds, special allocation funds, profit sharing funds partial positive and significant influence Regional Expenditure allocation. While Anova based using a 95% confidence level , $\alpha = 5\%$, found that p - value of 0.000. Thus, it means the locally-generated revenue, general allocation funds, special allocation funds, profit sharing funds variables simultaneous positive and significant influence allocation Regional Expenditure allocation.

Variable locally-generated revenue partially positive and significant impact on the Regional Expenditure allocation. Concluded that throughout the Regency / City in the province of Sumatra Island has the potential in digging locally-generated revenue to meet all the needs of the region. Means the higher locally-generated revenue from local taxes, levies, operating income areas as well as other income which is valid the greater the Regional Expenditure issuance. Therefore government spending Regency/City Regional Province of Sumatra Island still

very dependent the amount of locally-generated revenue in Sumatra mostly allocated to indirect expenditures and direct spending. Indirect expenditures consist of personnel expenditure, interest expenditure, subsidies, grants expenditure, social assistance spending, spending for results, financial aid, and unexpected expenditures. While direct spending composed of personnel expenditure, spending on goods and services, and capital expenditures. It is supported on previous studies conducted by [2] and [14] which found that local revenues positive and significant impact on regional spending.

General allocation fund partially positive and significant effect on the Regional Expenditure. This is because general allocation funds is a form of the most important fund transfer besides profit sharing funds and special allocation funds. Transfer is the consequence of unequal financial capabilities and the local economy. It is increasing general allocation funds received from the central government the expenditure for a Regional Expenditure also higher. Therefore, the magnitude of local government expenditures district/province city island in Sumatra still relies heavily on transfer of funds granted Central Government to the Regional Government to finance the Regional Expenditure operations. Because most of the general allocation funds allocated for shopping indirect form personnel expenditure for the Regional Civil Servants which consists of a basic salary, family allowances, and allowances in accordance with the Civil Service payroll regulations. Results of this study support the research that has been done before by [3] which found that Regional Expenditure magnitude is affected by the amount of general allocation funds received from the central government. Reference [4], states that there is a very close attachment between transfers from the central government to the shopping area. Reducing the number of transfer will cause a decrease in regional spending. The general allocation fund each region would not be as great, where regions with low revenue will get high general allocation funds, and vice versa.

The results showed special allocation funds partially positive and significant effect on Regional Expenditure. This means that government expenditure Regency/City Provincial Sumatra Island still very dependent on special allocation funds magnitude sourced from Budget allocated for specific regions. It is intended to help fund special activities which is a regional affairs and in accordance with national priorities, particularly to finance the public service infrastructure who have not reached a certain standard or to accelerate regional development. Special allocation funds can not be predicted every year. The funds are also not routinely given by the local government. This is because the priorities for special allocation funds financing needs are specific and urgent character such as Education, Health, Infrastructure Roads, Maritime Affairs and Fisheries, Agriculture Environment, Family Planning, Forestry, Rural Infrastructure especially in coastal areas, remote areas areas prone to flooding and landslides, as well as food-insecure areas.

Profit sharing funds variable in this study partially positive and significant effect on the Regional Expenditure. Thus spending District Government/City Province Region Sumatra Island still very dependent on the magnitude of profit sharing funds. May mean that the District / City who get big profit sharing funds, Regional Expenditure will tend to have that great anyway. Revenue-sharing is a source of local revenue considerable potential and is one of the authorized capital local governments in obtaining development funds and meet the expenditure areas that are not from the locally-generated revenue, general allocation funds and special allocation funds. The pattern of revenue sharing done by a certain percentage based on producing region. It can be concluded that when the profit sharing funds, budget increase then the Regional Expenditure allocation will also increase

CONCLUSION

Based on the results of the discussion of the research that has been described above, it can be concluded that:

Locally-generated revenue affect significant and positive the Regional Expenditure allocation. This means that the higher the locally-generated revenue will further increase the allocation of Regional Expenditure.

General Allocation Fund affect significant and positive the Regional Expenditure allocation. This means that the higher the general allocation funds will further increase the allocation of Regional Expenditure.

Special Allocation Fund affect significant and positive the Regional Expenditure allocation. This means that the higher the Special Allocation Fund will further increase the allocation of Regional Expenditure.

Profit sharing funds affect significant and positive the Regional Expenditure allocation. This means that the higher the profit sharing funds it will further increase the allocation of Regional Expenditure.

Based on the Anova concluded that locally-generated revenue, general allocation funds, special allocation funds, profit sharing funds together positive and significant the Regional Expenditure allocation. This means that the higher the locally-generated revenue, general allocation funds, special allocation funds, profit sharing funds together, it will further increase the Regional Expenditure allocation.

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Religiosity Develop Model Employee As Environmental Control Based Islamic Paradigm

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Abstract — Problems of fraud (fraud) carried by the company internally is still a difficult problem solved to date, including the Islamic financial institutions. This study aims to explore the model develop religiosity value employees as environmental controller that is used to increase the effectiveness of the internal control system based on Islamic Paradigm. To achieve the above objective, this study used a qualitative method using exploratory data analysis. Object of this research is the Islamic Financial Service Cooperative (KJKS) you Salatiga. The first step in this research is to assess the reliability of the internal control system, as well as assessing the implementation of Islamic values in the company. The second step is to reveal the method or model KJKS in developing religiosity employees who are part of an effort to improve the control system KJKS. Results of testing the reliability of the internal control system showed that the average value of 0.842, indicating that a reliable internal control system.

Keywords— *control environment, risk assessment, control activities, information and communication, and monitoring.*

INTRODUCTION

Fraud (fraud) in banking remains a serious problem to be solved. Some time ago, many media highlighted several scandals in banking is done either by bank employees, the leadership of the bank and the customer. Even the bank scandal also be done through cooperation between employees and customers of the bank. Some banking scandal embezzlement case Citybank, (vivanews.com, April 1, 2011 at 00:09), Bank Negara Indonesia, Bank Internasional Indonesia (BII), Bank Viktoria (vivanews.com, April 1, 2011). Bank scandal also occurred in Semarang. Banks that once compromised is Bank Mandiri Branch Dr Naidoo (www.suaramerdeka.com, October 20, 2011).

Some parties considered that the banking crime cases can be minimized by changing the operation of the banking operations of the bank in accordance with Islamic principles. President Director of BRI Syariah, Ventje Raharjo stated that Islamic banking is more secure than banking crime for Islamic banks adhere to Islamic principles (Vivanews, May 10, 2011). This is because the Islamic financial institutions as financial institutions that use the values of sharia should use Islamic law as the foundation of its operations, including the development of corporate culture that emphasizes the attitude of trust, ikhsan and falah oriented (Satin, 2011; Mukhibad, 2010; Yuwono 2004; Haniffa, 2001)

However, preliminary studies indicate that fraud cases also occur in Islamic financial institutions. This can be evidenced by the case of burglary through fictitious loans at

Bank Syariah Mandiri (keuangan.kontan.co.id) and Bank Syariah Central Java (Suara Merdeka, November 21, 2011). In addition, fraud also occurs in sharia or savings and credit cooperatives are often called Baitul Maal wat Tamwil (BMT), the BMT Mentari Kendal (Suara Merdeka, March 31, 2006) and BMT Human Light Demak (www.KP2KKN.com).

When considered further developed in the system of banking supervision, including Islamic banking is a surveillance system that relies on surveillance among men and negate the existence of god. That is, a paradigm developed in building an internal control system still uses conventional concept. This paradigm has become less conscious of the concepts used by Muslims in economic activity (Hashim, 2012).

Basic paradigm built on the Islamic system for presenting God in all aspects of life. This is because that the universe was created by God as a mandate and means the joy of life for all mankind to prosper materially and spiritually essential. This means that for Islam, the whole universe (which includes employment, position and others) is a mandate that has an element of accountability that should be given to fellow human beings, and to God. A Muslim must have the same paradigm for the presence of accountability in the Hereafter should dipertanggungjawaban whole man to his god. In other words, humans must carry out its mission well (Surat an-Nisa verse 58; Surah al Anfal verse 27). The results of accountability is what the future will determine whether humans live happily in the afterlife.

Based on the above, it is necessary for research that examines the effectiveness of the internal control system in the Islamic financial institutions as well as the development of an internal control system based on Islamic Paradigm. This study is focused on the Islamic Financial Service Cooperative (KJKS or BMT), This is because KJKS not have complex rules in assessing business risk and which have not been as good as pengawasan supervision of banks. This will likely have an impact on KJKS weak internal control systems.

Islamic Paradigm

Islam is a perfect religion (Surah Al Maidah verse 3). Islam does not only teach how human beings worship Allah, Islam namn also been setting out how human relations with other human beings. Relation between human beings in all fields has been set in Islam, including the how the Muslims in performing economic activities. In the Quran, God has

said that God has determined business rules to humans (Hashim, 2012).

Zarqa (in Antonio, 2001) developed a concept which illustrates that Islam is a comprehensive way of life. The concept is illustrated in the following figure:

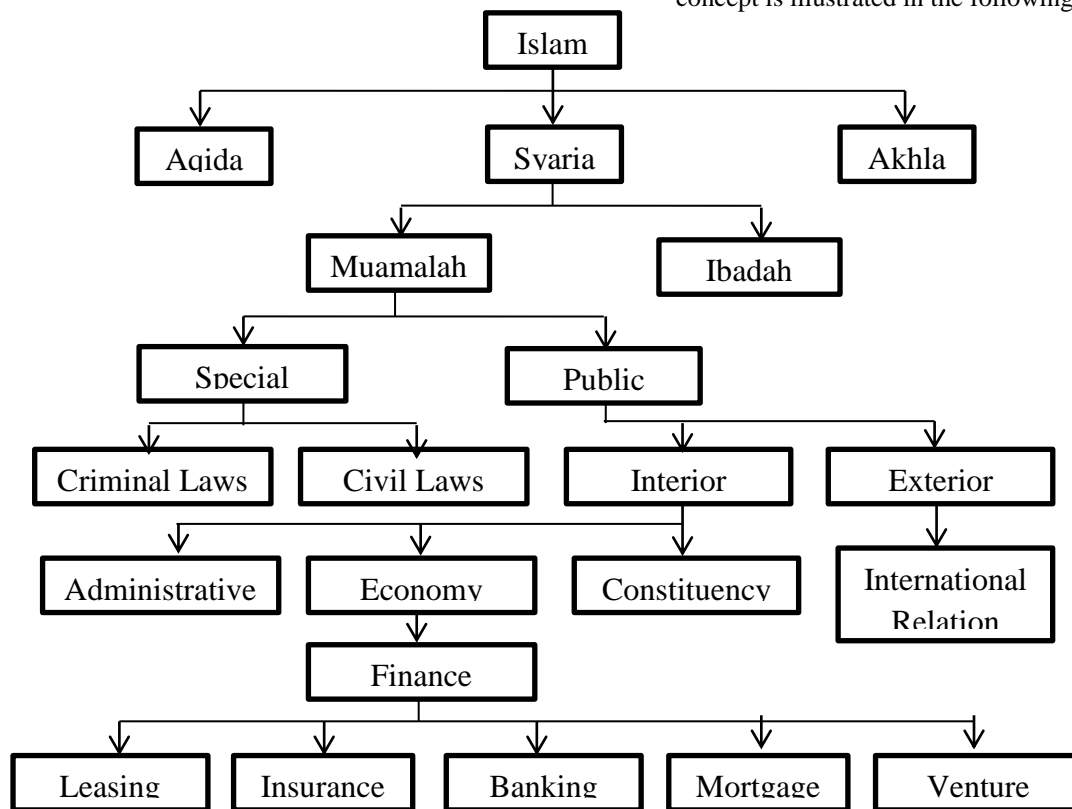


Chart 2.1. Islam as Comprehensif Life Way

Resource : Antonio (2010)

Some researchers have formulated Islamic Paradigm that must be applied by a Muslim in carrying out economic activities. One concept that has been formulated is Islamic Work Ethics (Ali, 1992; Ali and Azim, 1999; Ali and Al-Kazemi, 2006; Khanifar et al, 2011).

Khanifar et al (2011) in his study produced findings that 27 indicators in measuring the Islamic Work Ethics in 8 categories. These categories are (1) the seriousness and solidarity work (itqon and work solidity); (2) Liabilities Work (work obligation); (3) Effort and persistence (Effort and perseverance); (4) Motivation Spirituality (Work spirituality motivation); (5) Sustainable Improvement (Continuous improvement); (6) orientation for melayanai (Service- oriented morale); (7) Justice (justice); and (8) Welfare and comfort (Welfare and comfort).

Internal Control System Based Islamic Paradigm Fraud is a crime that should be avoided and is one indicator. Tuanakotta (2007; 163) considered that to reduce fraud, the company can implement effective internal control system. The same solution is also provided by the Committee Of Sponsoring Organizations of Treadway Commission (COSO) by issuing 26 fundamental principles in the implementation of the internal control system. The 26 fundamental principles associated with the five key components of internal control

systems such as: 1) environmental control (control environment); 2) risk assessment, (risk assessment); 3) control activities (control activities); 4) information and communication (information and communication); and 5) control (monitoring). (Institute of Internal Auditors in Tone At The Top November 2005). Of the five aforementioned components, the components are highly stressed by COSO is the control environment (Institute of Internal Auditors 2005; Blochooldt 1999). This is because the control environment is a major factor to avoid the risk of misstatement of financial statements (the Institute of Internal Auditors in Mukhibad (2010)).

The hypothesis is in line with the results Puspasari (2012) who found that there was an interaction between individual morality and internal control. Internal control element conditions do not affect individuals with moral level tend not to stay for accounting fraud. While individuals with low moral level tend to perform the accounting fraud on condition there is no element of internal control. Financial scandals that occurred in the company departs from ineffective governance issues characterized invitation did not commit ethics within the company (Salin et al., 2011).

Bologna and Lindquist (1995) named indirectly will need honesty (ethics) in reducing fraud (fraud). The opinion was expressed in the form of allegory as follows:

"Some people are honest all the time, some people (fewer than the honest ones) are dishonest all the time, most people are honest all the time, and some people are honest most of the time" Bologna and Lindquist (1995)

The phrase indicates that the attitude of someone who is sometimes honest and sometimes dishonest it is potentially someone to commit fraud. In his research, Albrecht replace aspects of rationalization in the fraud triangle theory with personal integrity. That is, the rationalization is more influenced by the code of ethics. Ramamoorti (2008) argues that rationalization and pressure are the causal factors accounting fraud based on the psychological condition of the perpetrator. Even Dorminey (2011) states that rationalization and pressure factor is a characteristic of the accounting fraud perpetrator can not be observed because it is impossible to know what is thought by actors when it will do the accounting fraud. From the above statement, it can be concluded that the accounting fraud in a very close relationship with ethics (Puspasari (2009); Liyanarachchi, 2009). Chapra and Ahmed (2002: 3-4) reveals that there are several factors that affect the success of the Islamic economic system during the heyday of Islam by creating a corporate environment which ensures that employees behave honestly and efficiently. The company's success is an indication of the results of the performance of companies that Good Corporate Governance (GCG) and the reflection of the absence of fraud. Thus, we can conclude that honesty (mandate) which is one of the Islamic culture is needed to reduce fraud. More details, Salin et al. (2011) explains that the company's scandal and problems can be avoided with the right approach from the perspective of religion in general, especially Islam.

Ahmed (2004) explains that in Islam, Allah created man to be the inheritors of the earth (QS. Al-Naml, 62). The consequence of this is a man not only as a leader, but the whole human being as God's agent or steward of the world, so the price of wealth that human beings must come from measures in accordance with Islamic law, not violate moral, does not come from stealing, fraud and various injustice that violates sharia law (Ahmed, 2004). Humans in the world can not be separated from responsibility. In Islam, human responsibility is horizontal (*hablum-min annas*) and responsibilities vertically (*hablum-min Allah*). With this consequence, all human ethics must be in harmony with "the requesting Responsibility". Beekun (1997) defines ethics of Islam as a set of moral principle distinguishing whether this is right or wrong in the Islamic perspective.

Organizational Culture Islam is a set code of ethics that shape the behavior of people in a particular organization which is based on Islamic law, the Quran; 'an and Hadith. Ethics is defined as a set of moral principles that distinguish things that are wrong and right (Beekun, 1997). If associated

with Islam, then the code of ethics of Islam (Islamic Work Ethics) is defined as a set of moral principles that membedakan things wrong and correct in the context of Islam (Rokhman, 2010). In Islam there are three fundamental importance, namely faith, Sharia and morals (Nurhayati and Wasilah, 2011). Third relationship is like building a house. Creed in this case is strong agreement between man and God as the foundation. Sharia is a set of rules that govern human activities (worship) includes worship mahdah (man's relationship with Allah SWT) and muamalah (human relationships with other human beings). A manifestation of faith and morals which reflects the sharia is the behavior of a Muslim who is always being watched by Allah in carrying any actions. The attitude of the Prophet Muhammad that should serve as a role model (*uswatun hasanah*) is a manifestation of his nature. These properties are *sidiq* (honest), *trust* (trustworthy), *tabligh* (humanist) and *fathonah* (smart).

RESEARCH METHODS

Object Research

Object of this research is the Islamic Financial Service Cooperative (KJKS) you Salatiga. In accordance with the purpose of research which will develop a model of the internal control system, so as to support the objectives of the study, the parties are involved in this study is the manager KJKS. Determination of your BMT as the object of study as based on preliminary studies, BMT religiosity you have a good development.

In the KJKS, have two of the respondents, the general manager and manager financing. Determination of the two speakers was conducted to validate the answers among the respondents. The data in question is valid if that responden have similar answer. But if the lack of a match, it will be done by analyzing document data retrieval or data observations.

Research design

This study is a research and development (R & D), in which the end of research will produce. The produce products that people needs, required a needs analysis. Early research used for sharpening a problem with the design of exploratory research and continued with the development of the model.

Development of the model involved multiple speakers. Model data analysis using comparative models of fixed (constant comparative method) proposed by Glaser and Strauss. The steps in the model fixed ratio (refer to the opinion Glaser and Strauss) is:

1. Reduction of data, which includes the identification unit (units) and manufacture of coding;
2. Categorization, which gives the name of each category and each category will be labeled;

3. Sintesisasi, which is synthesized between categories that have relevance;
4. Develop a working hypothesis. This working hypothesis is the result of the formulation of a statement that is proportionate and also to answer questions.

RESULTS AND DISCUSSION

One indicator of the internal control system is the control environment, where one indicator is the control culture. Culture developed by the company is able to shape the attitudes of employees to comply with what is legalized and stay away from all prohibitions. Some base that can be used to develop the corporate culture, one of which is religion. Religious teachings in which there are control his behavior if followed will continually be the source of religious culture. The KJKS specified as a sample, there is one of the most well KJKS in the actualization of the principles of Islam is that you KJKS Salatiga district.

The actualization of Islamic principles which favor the formation of a corporate culture and support the company's internal control system are as follows:

First, KJKS pressure the value of soft skills in candidates in the selection of employees. Indicators of employee morality is becomes a major factor recruitment. KJKS more concerned with prospective employees who have good manners than employees who have excessive competence but has a low morality.

Mr Madiyono the following statement:

"If yes recruitment system, we used. There is a written test, interview.

If there are administrative practice tests as well.

"If the marketing ya later part of marketing that rate, how marketing.

"Especially in our in morality. Their akhlaq nice if it already has a good point.
"The first was morality. Other new capabilities later :.

"If the problem dikerja, we could have motivated them".
"Yes ... the most important thing that (ed - morality)."

"The size of our benchmark religious one yes their tilawah.

"While interviews we also asked him at masjid activities, active or not. It has also become a benchmark ".

After employees have good soft skills, companies need to perform maintenance on the soft skills that employees have. KJKS have a regular review program conducted by the weekly (once a week) and monthly. In addition, the company delivers targeted to all employees for at least 1 juz tadarus day. The target is a complement of

the target kinerjakantor. Mr Mardiyono the following statement:

"Yes. We study routine every week in each office.

"Then to recitations of the Qur'an, we also targets"

"If we call it MKU. Main Family Assembly ".

"There, there will be a point-point. There is a morning or afternoon. There will be asked to report. "

"If the office is close to the mosque, pray together at the office sought. If an office away from the mosque, we are small mosque. So every time dhuhur and Asr, we also call for prayer as well.

"If the ministry, remain. Who are serving are welcome. Who are not serving pursued pray

"Each morning we were briefing the morning, there will be a boy there berdoanya. His prayer also we standardize.

"Well if this (red - KJKS have mading or magazines that can improve the religiosity of employees) we have not. We only use once a week for their routine which is held in all branches.

"Schedule recitals in the branch varies. There is a Friday afternoon, Thursday morning. For example 8.00 s / d 09:00, specifically for recitation.

The same information with the statement of Mr. Mardiyanto also delivered by Mr. SP.

Based on excerpts of the interviews showed that KJKS emphasis on every employee to have a degree of good faith to Islamization. Selection of employees who have a good level of religiosity began pda while recruitment. KJKS preferred indicator of morality held by prospective employees as a major indicator before indicator of competence.

After the selection process, KJKS perform maintenance level to the Islamization of employees with regular recitals held every other week. This teaching activities carried out in the presence of all employees. To increase effectiveness, the implementation of a study conducted at each branch office. Each branch has a different assessment schedule. This means that all employees in one branch are obliged to follow the study conducted by the branch concerned. At the time of implementation of the study, it is done is only to carry out the study of Islamization and not talking about office activities.

Other activities to improve employee religiosity are recitations of the Qur'an. Findings on your KJKS stated that in addition to financing and savings targets, all employees are also given a target recitations. KJKS give each employee a target of at least 1 juz every day. Achievement recitations employees will be submitted at the time of study.

Further activities to improve employee devotion is to maintain pray on time. The results showed that the office

KJKS you have a mosque, except for the branch office adjacent to the mosque. In addition, at the time of afternoon prayers, KJKS which has musholaakan hold azan and appealed to all the employees or members to carry out dhuhur, except employees who are providing services to members. These activities are also carried out when the 'Asr prayer.

CONCLUSIONS AND RECOMMENDATIONS

Based on the above it can be concluded that the actualization of the internal control system emphasizes on the development of a corporate culture based on Islamic hukum. This culture is able to establish an effective system of internal control in KJKS. Cultural development is done through the weekly routine study undertaken by KJKS. The existence of recruitment of employees who use the level of religiosity as a leading indicator, pray culture, culture recitations, and pray together before and after work.

Advice can be given is the effort to develop Islamic culture as the culture of the company, especially in a principled institution of Islamic law as a core business.

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Strategic Policies for Increasing The Competitive Power of Malaysian Fruits

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Abstract — Pomiculture or fruit cultivation has become an important component of the Malaysian agricultural industry with a value of RM11,449 million (USD 3,000 million) and a total of 2.88 million metric tons of fruits consumed in 2014 (FAMA, 2014). However, the local production of fruits is not able to meet all the demands of the population. Besides taste, quality and preferences, imported fruits are also consumed. In 2014, Malaysia imported a total value of RM327.16 million (USD81,079) of fruits for local consumption (FAMA, 2014). With the increasing demand for fruits, pomiculture is seen as a strategic industry with a great economic potential that will contribute significantly to the well being of the population. A growing trend in consciousness for a healthy living will catapult the consumption of fruits to grow exponentially in the coming years and hence create an increasing demand for fruits. What can be done to meet this demand?

INTRODUCTION

Malaysia's trade performance has shown a moderate surplus since November 1997 with a value of RM2.38 billion in July 2015 (MATRADE, 2015). The high exports recorded in July 2015 were manufactured goods, mining, and agricultural commodities such as crude natural rubber and palm oil to the People's Republic of China (PRC), the United States of America (USA), Vietnam, Indonesia, Thailand,

Japan, and the European Union (EU) . Despite a positive outlook on the potential of manufactured goods and agricultural commodities, pomicultural products particularly fruits, have yet to contribute to Malaysia's export performance.

A study on the potential of tropical fruit export is promising. Mohd Jani and Tih (2010) projected that in 2010, tropical fruit export to developing countries would reach 4 million tonnes. Mango for example, is a highly sought after fruit in Europe. The Centre for the Promotion of Imports from developing countries Market Information (CBI, 2014) reported that the European market demand for mango is rising and that the demand of other fruits are also increasing. The two largest mango producing countries, India and China, produce 50% of the world production with China's produce is mainly for local consumption. This leaves a gap for other fruit producing countries to fill.

In the Malaysian context, Malaysia's trade balance for fruits is relatively negative (Table 1). This is an opportunity for export and calls for the enhancement of selected fruit production for the world market.

Table 1: Estimated Balance of Fruit Demand and Supply for 2014

| | Demand (RM million) | Type | Supply (RM million) | Balance (SS-DD) |
|------------|------------------------|------------|------------------------|--------------------|
| Pineapple | 1362.71 | Pineapple | 566.09 | (796.62) |
| Watermelon | 602.15 | Watermelon | 364.65 | (237.50) |
| Starfruit | 274.63 | Starfruit | 40.76 | (233.87) |
| Papaya | 176.18 | Papaya | 69.15 | (107.03) |
| Guava | 494.01 | Guava | 116.49 | (377.52) |
| Mango | 1,193.04 | Mango | 110.90 | (1,082.14) |
| Durian | 1,333.81 | Durian | 2,138.34 | 804.53 |
| Rambutan | 364.57 | Rambutan | 182.37 | (182.20) |

| | | | | |
|-------------|-----------|-------------|----------|------------|
| Ciku | 10.36 | Ciku | 14.34 | 3.98 |
| Langsat | 203.31 | Langsat | 71.09 | (132.22) |
| Mangosteen | 46.21 | Mangosteen | 78.33 | 32.12 |
| Cempedak | 48.80 | Cempedak | 81.81 | 33.01 |
| Jackfruit | 18.83 | Jackfruit | 64.22 | 45.39 |
| Banana | 640.54 | Banana | 588.88 | (51.66) |
| Limau Bali | 25.52 | Limau Bali | 14.90 | 16.38 |
| Limau Manis | 645.12 | Limau Manis | 235.95 | (409.17) |
| Pitaya | 46.89 | Pitaya | 42.19 | (4.70) |
| Coconut | 3,962.58 | Coconut | 387.69 | (3,574.89) |
| Total | 11,449.26 | Total | 5,195.15 | (6,254.11) |

Source: FAMA 2014

Malaysia is now making an active entry into the fruit market. A study on the Revealed Comparative Advantage (RCA) Index with selected Asian countries (Table 2) shows that Malaysia has a high comparative advantage for watermelon over those countries but loses out to a few in

other fruits especially edible fruits and nuts. Despite the low competitive advantage in some fruits, Malaysia has specific fruits that have high quality that can compete in the world market. Starfruit, for example, has been proven to be one of the premier choice of fruits among European countries

Table 2: Revealed Comparative Advantage (RCA) Index of Malaysia and selected Asian countries

| | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|-------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Edible fruits and nuts | | | | | | | | | |
| Malaysia vs Thailand | -0.2 | 0 | -0.3 | -0.7 | -0.8 | -1 | -1.1 | -1.5 | -1.6 |
| Malaysia vs Indonesia | -0.1 | -0.1 | -0.3 | -0.7 | -0.7 | -0.8 | -0.9 | -1.2 | -1.2 |
| Malaysia vs Philippines | -2.4 | -2.5 | -2.8 | -3.1 | -3.2 | -3.2 | -3.4 | -3.8 | -4 |
| Malaysia vs China | -0.3 | -0.4 | -0.7 | -1.2 | -1.5 | -1.5 | -1.7 | -2.2 | -2.7 |
| Malaysia vs India | -1.7 | -1.5 | -1.8 | -2 | -2.2 | -2.3 | -2.3 | -2.5 | -2.8 |
| Banana | | | | | | | | | |
| Malaysia vs Thailand | 1.6 | 1.8 | 1.5 | 1 | -0.1 | 0.1 | 0.3 | 0 | -0.2 |
| Malaysia vs Indonesia | 2.8 | 4.5 | 1.9 | 2.3 | 1.9 | 1.4 | 1.7 | 2.1 | 2 |
| Malaysia vs Philippines | -29.1 | -29.1 | -29.5 | -30.1 | -30.4 | -30.6 | -30.4 | -30.9 | -31.3 |
| Malaysia vs China | 2.2 | 1.7 | 1.3 | 0.8 | 0.7 | 0.6 | 1 | 0.8 | 0.6 |
| Malaysia vs India | 0.8 | 1.1 | 1 | 0.9 | 0.4 | 0.1 | 0.4 | 0.2 | -0.6 |
| Watermelon | | | | | | | | | |
| Malaysia vs Thailand | 5.6 | 6.4 | 5.6 | 6.1 | 5.6 | 6.2 | 5.9 | 5.1 | 5.1 |
| Malaysia vs Indonesia | 5.8 | 3.6 | 3.2 | 7 | 3.8 | 7.2 | 8.3 | 4.2 | 3.3 |
| Malaysia vs Philippines | 3.4 | 3.6 | 3.9 | 3 | 4.3 | 4 | 5.5 | 3.9 | 3.2 |
| Malaysia vs China | 3.1 | 3.2 | 2.7 | 2 | 1.9 | 2.2 | 1.8 | 1.5 | 0.8 |
| Malaysia vs India | 4.1 | 4.3 | 3.1 | 3 | 2.9 | 2.8 | 2.7 | 2.2 | 1.8 |
| Papaya | | | | | | | | | |
| Malaysia vs Thailand | 5.3 | 4.9 | 3.8 | 3.8 | 3.9 | 3.9 | 3.7 | 3.2 | 2.9 |
| Malaysia vs Indonesia | 7.2 | 8.4 | 8.3 | 4.5 | 2.7 | 5 | 5.5 | 6.4 | 9.8 |
| Malaysia vs Philippines | 0.7 | 0.6 | 0.3 | 1.3 | 0.3 | 0.1 | -0.2 | -1.1 | -0.9 |
| Malaysia vs China | 7.9 | 7.5 | 6.2 | 4.4 | 4.3 | 3.8 | 4 | 2.3 | 5.4 |
| Malaysia vs India | 1.5 | 3.7 | 3.5 | 3 | 2.8 | 2.4 | 2.1 | 1.1 | 0.8 |
| Pineapple | | | | | | | | | |
| Malaysia vs Thailand | 1 | 0.9 | 0.5 | -0.1 | 0.2 | 0.3 | 0.2 | -0.2 | 0.4 |
| Malaysia vs Indonesia | 0.9 | 1.1 | 0 | -0.1 | 1.4 | 2.6 | 3.9 | 2.5 | 3.9 |
| Malaysia vs Philippines | -3.3 | -3.4 | -3.6 | -4 | -4.2 | -4 | -4 | -4.3 | -4.3 |
| Malaysia vs China | 2.7 | 2.8 | 2.5 | 1.3 | 1.3 | 1.9 | 1.8 | 1.8 | 2.1 |
| Malaysia vs India | 2.6 | 2.2 | 2.1 | 1.7 | 1.3 | 1.3 | 1.2 | 1.5 | 1.6 |

Source: Suntharalingam, et. al (2011).

Porter (1998) competitive strategy outlines five elements that firms or countries have to consider when competing in the market. After analyzing own strengths and weaknesses

and the potential threats and opportunities, Porter advises to work on the competitive advantage. On this basis, Suntharalingam, et al. (2011) advocated that Malaysia focus

on fruits such as papaya and watermelon and to formulate a sustainable fruit production and export plan. In line with this argument, the authors suggested better utilization of land, improving the supply chain and continuous R & D to increase productivity. Therefore, with a huge prospect in fruit export, Malaysia needs to strategize a workable plan in order to be a player in the fruit market.

Porter's Competitive Model

In order to stay in business, Porter (1998) laid out a Five-force competitive model that firms need to employ to gauge their level of competitiveness (Fig. 1): potential threat of substitutes, ease of entry into the industry, power of customers, power of suppliers, and the level of competitive intensity:

- (i) Barriers to entry.

Cost, economy, legal issues, and knowledge of products can be a hindrance for new firms to enter the fruit industry. Firms may also encounter difficulties in adapting to different culture, unfamiliar with distribution practices and fulfilling the country's health regulations when exporting food products, in this case, fruits.

- (ii) Bargaining Power of Customers and Buyers

Customers would have an edge over sellers if customers have many alternatives to choose from. Fruits are taken as a source of vitamins and fiber and there are many types of

fruits that customers can choose from. Price would be a limiting factor followed by fruit quality such as taste and freshness.

- (iii) Bargaining Power of Suppliers

Even though fruit growers may not need many types of supplies for cultivation, good quality and certified seedlings, fertilizers, pesticides, and weedicides are important. A supplier may choose to not provide growers the supplies needed but this will affect the production of fruits.

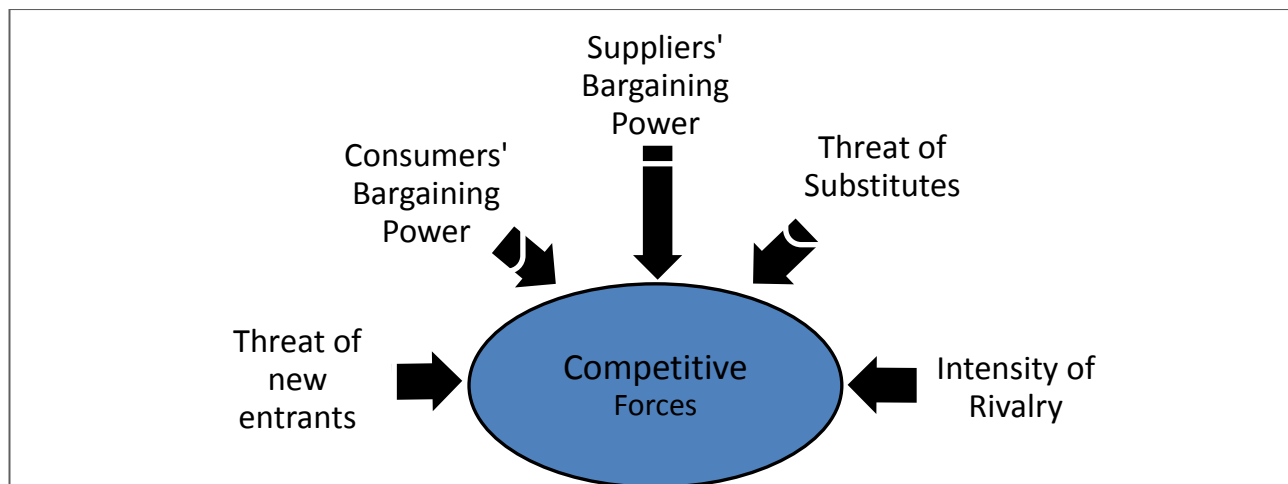
- (iv) Threat of Substitute Products

Substitute products for fruits may not be many. Vitamins and minerals in fruits can be substituted with vegetables but in the long run fruits are preferable for the delicious and scrumptious taste. Another alternative will be supplements but still, fruits taste better.

- (v) Intensity of Rivalry among Existing Competitors

There are many fruit growers in the industry. However, fruits compete based on the region where they are grown such as Mediterranean or tropical fruits. Countries with a Mediterranean climate would have a distinctive advantage over countries which have a tropical climate for fruits such as grapes and apples while bananas and pineapples are mainly for the tropical climate. On this basis, rivalry among competitors would be more intense for countries with similar climatic conditions.

Figure 1: Porter's Five-Force Competitive Model



Apart from analyzing competitiveness and potential of success, growers also need to look into their own strengths and build on these capabilities to develop competitive advantage. Weaknesses are to be addressed as to not jeopardize any strategies in place and to garner potential opportunities to match the existing strengths.

To sum, Malaysia has to identify the key strengths and weaknesses of its potential fruits that can be exported and

determine the distinctive competitiveness by analyzing the five competitive forces suggested by Porter.

Competitive advantage of Malaysian fruits

There is very little difference amongst the types of fruits grown in ASEAN countries. The basic difference between these fruits can mainly be found in taste, size and color. One other important factor is that the fruits are harvested at different times of the year. The fact that fruits harvested at different times of the year is a competitive advantage because

it can influence the price structure especially if they are exported to other countries. For example, mangoes and durians (two popular fruits of ASEAN countries) are harvested in Thailand much earlier than in Malaysia because of different soil types and climatic conditions. Because this fruit production is "out of season" in Malaysia, the fruits usually fetch much higher prices before local mangoes and durians come into production a few months later. However, when the fruits are in season, Malaysia would be able to export these fruits since Thailand would have its fruits at end of season.

Fruits are perishable items. Besides cold rooms and freezer facilities provided by FAMA to lengthen the storage life of fruits, MARDI and institutes of higher learning research centers have produced a technology for long term storage of durian through deep freezing for export purpose. This technology has produced significant results where durian can now be exported to other countries without losing its original flavor and has given a competitive advantage for the Malaysian fruit industry.

Research and Development (R & D)

The need to increase productivity and quality of local fruits through R & D is of paramount importance to compete favorably with imported fruits. Malaysian Agricultural Research Development Institute (MARDI) is charged with the research, development and commercialization of horticultural crops (fruits, vegetables and flowers) since 1982. The focus of MARDI's research is on improving the genetic characteristics of horticultural crops, agronomic

practices, pathological, entomological, and physiological aspects of crops as well as post-harvest practices (MARDI,2009). Besides research and technology development, promotion and transfer of technology have to be included in the strategic plan. The new technology generated by MARDI should be effectively disseminated to farmers to be adopted. Farmers should be given incentives and start-up capital to get involved in fruit farming. They should be supervised closely by extension agents to get maximum results and also continue to receive the latest technology in fruit farming. In line with the adoption of improved and enhanced practices and technology, the increase in hectareage of fruit cultivation should also be a strategic practice by state and federal governments as a policy to match the increasing demand of local fruits. The expected increase in quality and yield of fruits per hectare from research and development would serve as a competitive advantage to Malaysia's fruit industry.

Marketing and distribution outlets

Marketing has become even more important in this century. Timeliness, price and distribution channels play crucial roles to get the produce from farm to table. Some 44% of the fruits produced come from Asia (ESCAP, 2007) and these fruits have to be in good condition when they reach the consumers. A systematic and organized distribution channel should consider the perishable nature and vulnerability of fresh produce in sending these fruits to their destinations. One such example is provided by Netherlands (Figure 2). Netherlands has taken into account all the players in the distribution channel as illustrated in Figure 2.

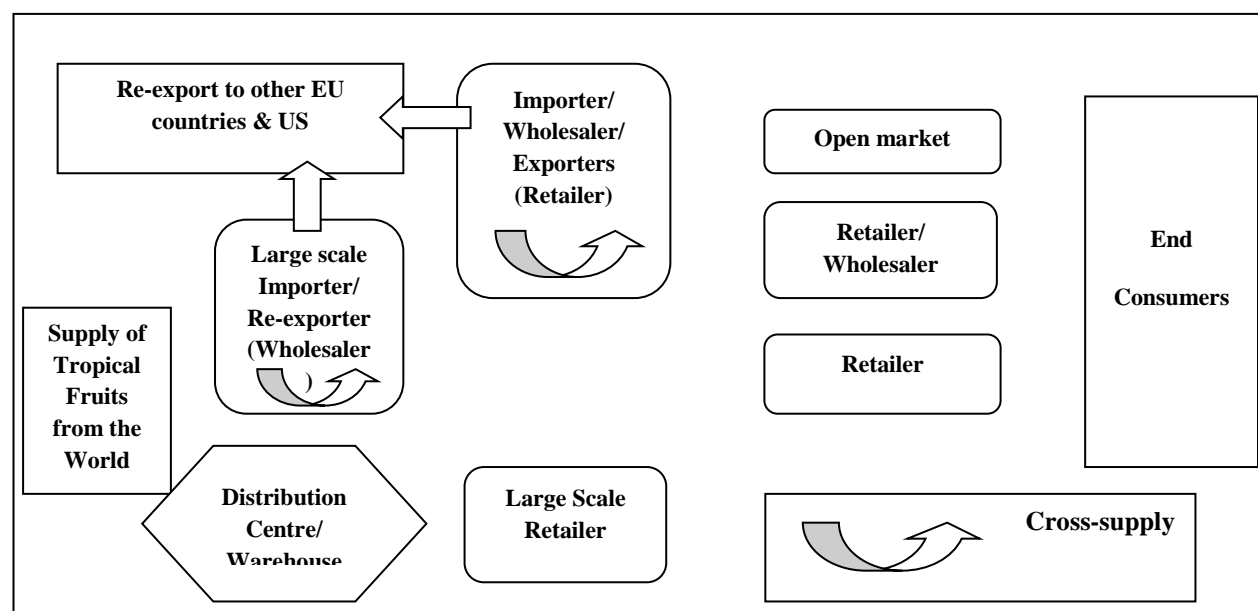


Figure 2: Overview of the Netherlands Channel of Tropical Fruit Distribution. Source: Mohd Jani & Tih (2010)

Distribution channels are influenced by type of product, type of consumer, and size of business. Several studies were conducted to analyze the distribution channels of Europe. Grant (1995) noticed that the supply industry of European

conducted to analyze the distribution channels of Europe. Grant (1995) noticed that the supply industry of European

fresh produce is highly fragmented with three common channel members operating at the primary supply and distribution levels. First, marketing boards such as Pear Marketing Board constitute an important part of EU fresh produce import trade. Second, integrated fruit companies such as Fyffes, Chiquita, and Dole are large international suppliers that emphasize on added value, branded products with a high degree of vertical integration. Finally, specialist importers presence in the wholesale markets take the most risk as the supply chain shortens and becomes increasingly competitive.

Marketing of agricultural products is one the most important function of an agricultural industry. If all of other aspects in an agricultural enterprise are successful, effective marketing strategies and practices will hold key to continued and sustained growth of the enterprise. Realizing its importance, the Federal Agricultural Marketing Authority (FAMA) under the Ministry of Agriculture and Agro-based Industry was established in year 1965 to overcome marketing problems and challenges as well as to expand market size of agro-food products such as vegetables and fruits and to raise the income of producers. FAMA is also responsible in ensuring consistent supply of agriculture and agro-based products at affordable prices to consumers by way of

Table 3: Production under Contract farming For Year 2013

| Commodity | Land area(hectar) | Production (tonne) | Value in million(RM) |
|--------------|-------------------|--------------------|----------------------|
| Vegetables | 3,203 | 192,180 (56.8%) | 3.84 |
| Fruits | 3,057 | 97,824 (28.9%) | 1.95 |
| Pineapple | 1,202 | 48,080 (14.2%) | 0.96 |
| Total | 7,462 | 338,084 | 6.76 |

Source: FAMA Annual Report, 2013

The supply and distribution chain by FAMA (2014) is to increase the income of the growers through direct sales from farm to retailers without going through middlemen (see Figure 3). The Ministry of Agriculture and Agro-based Industry opened up a total of 7,462 hectares of contract farms as of end of December 2013. These contract farms are planted with fruits and vegetables to supplement shortages as well as to reduce import bills on fruits and vegetables. By December 2013, a total of 4,157 growers participated in contract farming with a projected value of RM660 million (USD165,000) To ensure the harvest arrives at collection centers on time, efficient transportation system is needed with sufficient storage facilities before the produce is

intensifying efforts to improve efficiency throughout the marketing chain by focusing on:

- a. Strengthening supplies through contract farming program;
- b. Expanding market access; and
- c. Increasing domestic and export market promotions.

(FAMA, Annual Report, 2013, p.1)

- d. Role of private sector in marketing

(a) Supply chain contract farms

To ensure constant and adequate supply of agricultural products, the Ministry of Agriculture and Agro-based Industry (MOA) established contract farms planted with crops to supplement inadequate supply produced by current producers. In 2013, a total of 7.46 thousand hectares of contract farms involving 4,157 producers throughout Malaysia were involved in contract farming. Fruits occupied 3,057 hectares or 40.96% of the total contract farms (Table 3).

distributed to retailing centers all over the country. One of the most popular retail outlets is farmers' markets where fresh and processed products are sold at 517 outlets throughout the country involving 23,554 participants. Another retail outlet is the agro-bazaar k-shoppe owned by individual entrepreneurs that sell and promote domestic SME products. By end of December 2013, a total of 27 agro-bazaars were established with 253 participant entrepreneurs. The agro-bazaars also act as collecting, and selling centers for agricultural products produced by local producers as well as buying agricultural products gathered by tri-cycles entrepreneurs from various parts of the locality.

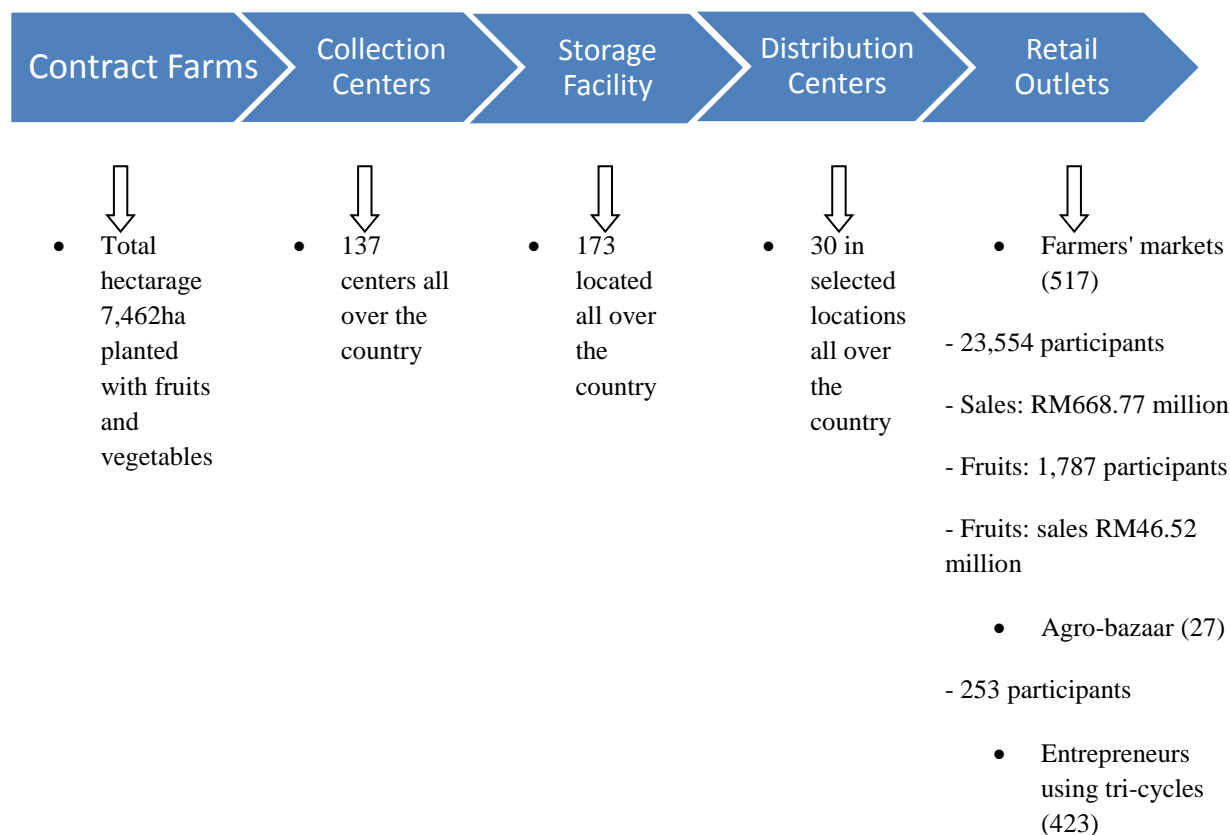


Figure 3: The supply and distribution chain of products from contract farms to retail outlets

Source: FAMA (2015)

Regardless of the effort to provide more hectareage on fruit farming, production has yet to increase adequately to meet the demand of local and international markets. This calls for more intensive

R & D and an effective diffusion and adoption of innovation by the fruit farmers.

(b) Expanding market access

One of the objectives of FAMA is to develop a distribution strategy and a marketing supply chain system that is effective and efficient both for the local and international consumers. The establishment of *pasar tani* (farmers' market) and agro-bazaars (community shops) are aimed to expand market access of producers' products, besides acting as agent for collecting, buying and selling of agricultural products for small-sized farms (see Figure2 for details of market access by FAMA).

(c) Promotion of agricultural products locally and internationally

FAMA has also conducted road shows and carnivals locally and internationally including business matching with potential agents. The promotion of agricultural products

locally, especially fruits and vegetables, is geared towards getting more people to eat more of local fruits and vegetables. The promotions are in the form of campaigns through print and electronic media with messages focused on healthy living at state and national levels. School children become the main target of these campaigns as they would become the future consumers of local agricultural products. FAMA had also collaborated with the private sector such as the Kuala Lumpur Tower, Telecom museum and Putrajaya Holdings in promoting "eat local fruits" campaign in the form of mango fiesta and durian party aimed at increasing the market size of local fruits. (FAMA Annual Report, 2013,).

For the international market promotion program, FAMA participated in trade exhibitions involving Malaysian embassies /agricultural and consular offices abroad. The Malaysian embassies are encouraged to promote Malaysian popular fruits (durian, mangoes, starfruits, mangosteens, and jackfruits) by inviting guests to special celebrations such as the Malaysian Independence Day, the birthday of the Yang Di Pertuan Agong (king).

Apart from marketing efforts with Malaysians counterparts, the government of Malaysia had also organized promotional activities with international companies such as Malmo, Sweden in April 2015, and Oslo, Norway in August

2015 (Mingguan Malaysia, 27 September 2015) aiming to introduce Malaysian exotic fruits, for example, starfruit, jackfruit, rambutan, and mangosteen) to the Scandinavian community. During these promotional activities, feedbacks were obtained (which were generally positive) with improvements that can be made to cater to the tastes of the Scandinavians.

Print and electronic media were also used in the campaigns (FAMA Annual Report, 2013).

(d) Role of private sector in marketing

The private sector is also actively involved in the marketing activities through well-established association of producers to supply domestic as well as export market. The private sector has established an efficient marketing distribution system through its network throughout the country with excellent transportation and storage facilities to cater for the needs of producers as well as to benefit consumers. The government is working with the private sector to perform market analysis and networking to widen the market share of Malaysian fruits, both locally and abroad.

Policy on fruit industry

The underlying philosophy in the policy of agricultural industry is to reduce the deficit of RM 16.7 billion per year in the food Balance of Trade due to import (Utusan Malaysia, 31 Aug. 2015). In the National Agro-Food Policy, 2011-2020, the government has strengthened the agricultural plans and translating this philosophy into policy strategies and action plans. A number of government departments and private sectors are involved in planning and implementing agricultural program to increase productivity of local agricultural products through:

- a. Expanding the hectareage of planting areas and increasing the number of livestock poultry and fish projects to meet the growing demand of local population;
- b. Encouraging farmers to adopt the latest technology in farming to reap maximum benefits from such practices. Extension agencies (department of agriculture, Risda, Felda, KADA, MADA) are to develop effective strategies to transfer the latest technology to their clients;
- c. Controlling the cost of agricultural inputs to reduce the burden of total cost of production so as to ensure farmers/producers get high returns from their enterprises;
- d. Developing an efficient and effective collecting, distribution, and marketing chain with storage and cold room facilities;

- e. Allocating a generous budget in research and development to continuously provide the agricultural sector with cutting edge technology to increase productivity and improve quality of local products, not only for local market but also for export markets.

Increasing competitive powers

Other than R & D and hectareage expansion, Malaysia can look into other strategies to be competitive. Tapping into its highest quality fruit farming experience and knowledge, the star fruit, and other fruits such as mango, durian and, pineapple can gain advantage of that experience and knowledge. Local consumers in Dubai perceived Malaysian fresh products are of good quality (Ali, Dardak, 2014) adding more confidence that quality is crucial in fruit production. So more research on improving fruit quality and yield is pertinent to gain further market confidence on the produce.

Having quality fruits, branding comes next. Malaysia should demonstrate the value of Malaysian fruits by fostering believable and reliable branding strategies. Quality control and grading of products are responsible production practices and this in turn builds confidence in consumers.

Export development process (including distribution process) includes educating farmers right up to those who market and consume the produce. Along this chain of development process, any entity involved should be included to ensure that all stakeholders understand the process. Knowledge on what we eat makes us informed of the nutrients and diet that we are consuming, so everyone in the export development process should be able to relate this information to the consumers.

When people are confident of the quality and know the value of Malaysian fruits through branding and information obtained from distributors, Malaysia has secured a valuable value-added competitive advantage over its competitors.

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Climate Change Impact on the Livelihood of Semarang Coastal Community

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Abstract — The Semarang coastal zone has high levels of vulnerability, danger, and risk caused by climate change impacts such as abrasion, seawater intrusion, and the phenomenon of land subsidence, which worsen the environmental conditions of the coastal areas. This study aims to determine the limitations of the ecological systems, the impact of climate change on society, and to identify the vulnerabilities of these coastal communities. This research was conducted as a qualitative study with a descriptive approach. Methods of data collection include: secondary data collection, observation, interviews and discussions. It is estimated that Semarang's Genuk District has approximately 1894.2 ha or 1.65% of the total area of land inundated by flood, and 1952.1 hectares or 0.56% of the total area in Tugu District. Additionally, the fishponds in these districts are predicted to disappear by 40% when following the increase of the sea level rise calculation of 21 cm. The increasing amount of area inundated by tidal floods has resulted in the loss of land use in the coastal area of Semarang, which impacts the livelihoods of fish farmers and fishermen. The conclusion of this study is that climate change is not only impacting the environment, but also the social and economic conditions of Semarang coastal communities. Fish farmers and fishermen are the most vulnerable communities facing these climate change impacts.

Keywords— *climate change impacts, land subsidence, Semarang coastal area, vulnerability*

INTRODUCTION

Semarang City, with 13.6 km of coastline and total area of 373.70 km², has great potential for capture and aquaculture fisheries. However, this condition can be turned into a threat to the community if the city is not managed integrally and sustainably. Based on the research results of Friend of The Earth (FoE) – Japan, since 1998 many of the coastal communities in the Tugu District have lost their river embankment due to tidal abrasion and tidal flood, resulting in the loss of roads and road access. In addition to the above conditions, Semarang is burdened with land subsidence, which has worsened the environmental condition of the coastal area of Semarang (Suhelmi, 2013).

Many efforts to improve the coastal environment have been led by the communities in the coastal areas of Semarang. For instance, the people of Mangkang Wetan village planted mangroves and constructed a breakwater (seawall), and the community of Dukuh Tapak in Tugurejo village also reduced the effects of abrasion in their area by installing a breakwater. In these examples, the breakwater was constructed from used tires filled with sediment mud. Since 2006, the efforts performed by Dukuh Tapak have been

quite effective. The breakwaters are still in good condition due to routine maintenance achieved by re-filling the construction with mud. The presence of the breakwater has protected the embankment from continued abrasion. These communities also planted mangrove to provide additional protection from waves and strong wind, and to restore the ecological condition of their coastal areas.

Climate is defined as the average weather condition that is a complex interaction between physical, chemical, and biological processes which reflect the interaction between geosphere and biosphere occurring in the earth's atmosphere. Thus, the climate of an area or region is the statistical description of the atmospheric condition in the long term so that it represents the average weather variable (Murdiyarso, 1999). Based on the report of the Intergovernmental Panel on Climate Change (IPCC, 2001), Earth's climate system is complex as it involves the interaction of various climate system components, including the atmosphere, hydrosphere, land surface, and biosphere. Climate change occurs as the result of two things, internal and external variations (either natural or anthropogenic). The impact of external factors on the climate can be compared by using the radiative forcing concept. The radiative forcing concept is defined as the measurement and influence of a factor in changing the energy balance, both inflow and outflow, in the earth's atmosphere system, as well as an index which shows the importance of that factor in the climate change mechanism. The positive radiative forcing factor tends to raise the earth's temperature; on the other hand the negative radiative forcing tends to lower the earth's temperature. The natural factors, such as the change in the solar output or volcano eruption activity, may also cause radiative forcing.

is evidenced by the rise in sea levels. The IPCC projected that from 1990 to 2100 the increase of the global sea level would reach 18-59 cm, while the world's temperature would rise from 0.6°C to 4°C within that time frame. Resulting effects from the sea level rise are erosion, inundation of coastal areas, and the loss of wetlands rich in biodiversity (de Lourdes and Olivio, 1997). Based on Susandi *et al.* (2008), the impacts of climate change are:

1. The increasing frequency of natural disaster/extreme weather (landslides, flood, drought, tropical storm);
2. Threat to the clean water supply;

3. Shifting of weather and rain patterns;
 4. Lowering farming productivity;
 5. Temperature increase which causes forest fire;
 6. Threat to biodiversity;
 7. Sea level rise, which causes permanent flooding and damage of the infrastructure in the coastal area;
- of diseases (typhoid, malaria, fever, etc.).

Furthermore, in addition to the physical impacts on the coastal areas, climate change has social, economic, cultural, and public health impacts that must be considered. Those impacts may cause government and community investments in the respective area become of no use. Mercy Corps (2009) identified the vulnerable areas and the impacts of climate change. The vulnerable areas are classified as follows:

1. The lowland coastal area, which is exposed to flood and sea level rise. Residential zones located in the coastal area are threatened by inundation due to sea level rise. Additionally, the embankment area is also threatened by inundation. This results in the decrease of production in the fishery sector and subsequently affects those reliant on fish farming livelihoods.

2. s which are exposed to flood. The area exposed to flood will be frequently inundated due to effects of climate change such as unpredictable rainfall.
3. The hillside that is exposed to strong wind due to extreme weather. The strong winds often threaten the hillside communities.
4. Area which is exposed to subsidence and landslides. Due to climate change, the rainfall is more intensive in the wet season thus increasing the likelihood and severity of subsidence and landslides on hilly areas. Additionally, wave circulation triggers coastal abrasion.
5. Suburban settlements which are far from the water source. These remote communities are threatened by drought in the dry season.

, and vulnerabilities due to those impacts, on the coastal communities of Semarang. The primary focus of this study is to discuss the impact of climate change on the livelihoods of the coastal communities in Semarang.

RESEARCH METHODOLOGY

This study was conducted from June-December 2013 in the coastal area of Semarang, which was divided into two districts: Genuk District, which consists of Kelurahan Trimulyo; and Tugu District, which consists of Kelurahan Karanganyar, Kelurahan Mangunharjo, Kelurahan Randugarut, Kelurahan Mangkang Wetan, Kelurahan Mangkang Kulon, and Kelurahan Tugurejo.

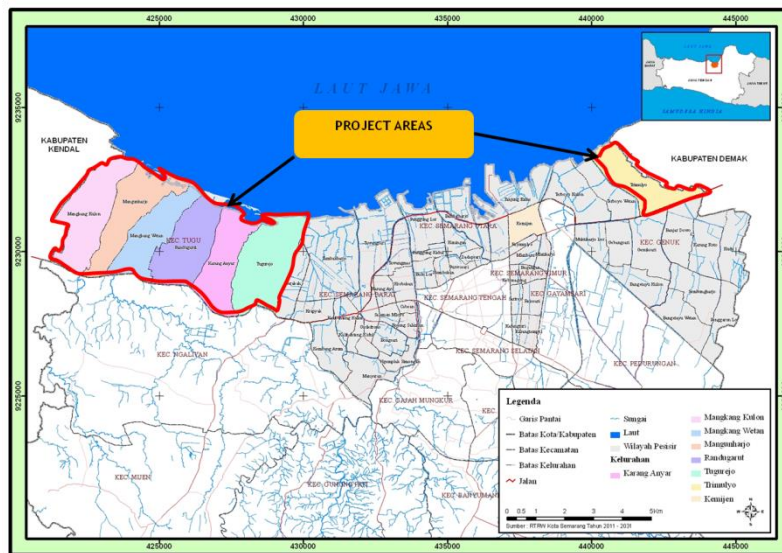


FIGURE 1. MAP OF THE RESEARCH LOCATION

The qualitative study uses a descriptive approach to provide an overview of the data collected regarding the ways the coastal communities in Semarang encounter climate change impacts. The data collected in this study include secondary data and primary data collected through observation, interviews, and focus group discussions (FGD).

DISCUSSION

Effects of Climate Change

s experienced throughout the world are caused by the global warming of the earth. As some parts of the world become drier, other parts experience increased rainfall; the

effects of climate change are not the same for every region, and not all coastal populations have increased flood risk. The disturbed climate patterns have a direct effect on human health. This is evident in the rise of disease and deaths correlated with extreme temperatures and air pollution caused by spores and fungus. Indirectly, the change in weather patterns can have an effect on public health through water or food-borne diseases, vector and rodent transmitted diseases, or diseases caused by lack of food and/or water. Climate change also endangers the ecosystem's stability and biodiversity.

The climate disturbance has become a serious problem in Semarang, especially the coastal region, which is affected by sea level rise (SLR). According to Asian City Climate Change Resilience Network (ACCCRN) 2010, the resilience strategy of Semarang estimated that the Tugu and Genuk Districts were threatened to be inundated due to SLR. Tugu District has an estimated area of 1,952.1 ha of land, or 0.56% of the total area, already inundated. Genuk District has 1,894.2 ha of land, or 1.65% of the total area, inundated as a result SLR, and about 40% of the total embankment area was estimated to be lost. Following a SLR calculation of a 21 cm increase, 7.2 billion IDR is estimated to be lost each year. If we add it with the other climate challenges, such as wind, extreme temperatures, and increased rainfall, those conditions result in reduced production for fishermen and fish farmers.

From the study of Miladan (2009), Tugu District is presently under greatest threat from sea level rise, with an inundated area of 1,689.133 ha. Tugu has high vulnerability caused by land use in the northern region as embankment area. The topographical condition (the slope) of Tugu District is less steep than the other district at coastal area of Semarang with land gradient of less than 25%.

In addition to Tugu, Genuk District also has quite high vulnerability. This is caused by a concentration of human activity, such as residential areas and industry. The increase of the inundated area due to SLR is predicted to reduce land use in the coastal area of Semarang.

The extreme climate change The effects of climate change not only cause the increase of tidal flooding in Semarang, but also cause the increase of wave height in the Java Sea. The rising tides in the Java Sea present safety risks, and fishermen are often reluctant to go fishing. This has led to a reduction in fishing productivity and has forced some fishermen to change their profession to factory labor or construction workers.

Social and Economic Effects

Semarang City has a coastal area 13.6 km long. As in other coastal cities in Indonesia, climate change occurring in the last decades has resulted in ecological problems, namely abrasion and tidal flood caused by SLR and extreme wind patterns. Irresponsible management and land use change aggravates the condition.

The effects of climate change do not only affect the environment, but also the social and economic health of the communities along Semarang's coastline, especially at Tugu and Genuk districts of Semarang. The effects of climate change on the social life and economy of the community is evidenced by a vulnerability analysis, which identifies the socio-economic conditions that affect the vulnerability of the community when climate change impacts occur, specifically sea level rise. Vulnerability is easily affected by danger or potency to change or transform a system when facing disturbance (Gallopín, 2006). Meanwhile, Miladan (2009) explains that the socio-economic vulnerability of a community to climate change could be analyzed through the level of poverty and land ownership status.

Poverty level is an indicator of climate change effect on the socio-economic condition of a community. A population's poverty level will affect the community's perspective on addressing climate change. An assessment of the poverty level vulnerability in Semarang is shown in the following table.

TABLE 1 ASSESSMENT OF THE POVERTY-LEVEL VULNERABILITY IN VULNERABLE INUNDATED AREA DUE TO SEA LEVEL INCREASE IN 2009*)

| Kelurahan | Poor RT in inundated area (%) | Weight | Score | Vulnerability | Value |
|----------------|-------------------------------|--------|-------|---------------|-------|
| Mangkang Kulon | 41,64 | 3 | 2 | Intermediate | 6 |
| Mangunharjo | 35,39 | 3 | 2 | Intermediate | 6 |
| Mangkang Wetan | 50,66 | 3 | 2 | Intermediate | 6 |
| Randu Garut | 33,75 | 3 | 2 | Intermediate | 6 |
| Karang Anyar | 29,01 | 3 | 1 | Low | 3 |
| Tugu Rejo | 41,52 | 3 | 2 | Intermediate | 6 |
| Trimulyo | 25,87 | 3 | 1 | Low | 3 |

*)Miladan (2009)

According to As seen in Table 1, the vulnerability levels of the population in the coastal areas of Semarang, especially in Tugu and Genuk districts, are between low and intermediate. Kelurahan Mangkang Kulon, Mangunharjo, Mangkang Wetan, Randu Garut and Tugu Rejo have intermediate vulnerability, while Kelurahan Karang Anyar and Trimulyo have low vulnerability to climate change impacts according to the poverty level in those regions. The intermediate and low vulnerability levels are based on the percentage of poor in the population in the area vulnerable to sea level rise; vulnerability is not high compared to the total population. Furthermore, Suhelmi (2013) categorized Tugu District as a region that will not see vulnerability increase by 2030 because it is located in an area with little land subsidence.

Effects of climate change on the social economics of the community can also be observed through the analysis of land ownership status, be it community, private, or government owned land. Land ownership vulnerability is used as an indicator because land ownership highly affects the community-owned assets which threaten to be lost as a result of climate change impacts.

Based on analysis and evaluations that have been performed, it is known that on average land ownership in the coastal region of Semarang has high vulnerability. This is because much of the land owned by the community is located in the inundated areas. The high vulnerability level in the seven kelurahan at Tugu and Genuk districts shows that climate change leads to loss of community assets ownership, which negatively affects the socio-economic condition of the community. This is also supported by findings following field observations of the socio-economic problems of the seven kelurahans at Tugu and Genuk districts.

The productivity of embankment livelihoods on Semarang's coastline is also negatively impacted by climate change and has been in decline year after year. In 1989 – 1990 the 3 – 5 Ha embankment had a production rate of 1–2 ton/ Ha; in 2000 the productivity started to decline with only 0.5 – 2 ton/Ha; now the average fish farmer can only catch 0.3 – 1 ton/Ha.

The As the effects of climate change occur more frequently, fish farmers are encouraged to employ adaptation efforts, such as increasing the height of the embankment dam. In the 1980s, the community focused on embankment maintenance to, but now activities are aimed to maintain and protect the embankment from tidal flood. The frequency of dam enhancement has also increased. Previously, maintenance only occurred once a year, but since 1990 dam enhancement is conducted twice a year and considers the condition of the embankment and surrounding environment. In general, the communities in the coastal area of Semarang already have good adaptive capacity. They improve their conditions according to the environment, and they have the ability to minimizing the potential of danger. Adaptive capacity is the ability to adapt to all possibilities that may occur in the environment (Smit and Wandel, 2006).

According to IPCC (2001), adaptive capacity is defined as natural or system management used to respond to and estimation climate stimulation and its effects, and use or exploit to their advantage.

Aside from dam enhancement, fish farmers also used perimeter nets to prevent loss of milk fish and shrimp due to tidal flood and abrasion. Thus, as a consequence, the investment became expensive and as a result some of fish farmers changed their professions or engaged in additional work on the side, or alternative livelihoods. Alternative livelihoods have been utilized by the fishing community for quite a long time. It is noted that in the 1980s, fish farmers were also farming rice. However, as the ecology of the area has changed, so has the paradigm of the fish farmers. Beginning in the 1990s, fish farmers engaged in construction and trade, and as mangrove cultivation increases, fish farmers have grouped together to make mangrove cultivation a livelihood.

The climate change in Semarang negatively affects the fishermen in seven kelurahans in this study. In general, the categories of fishermen in the seven kelurahans are estuary fishermen who use boats without an engine and those who use boats with a small, single engine. Hence, the yield of the fishermen is generally not very large. The types of fish caught include mullet, shrimp, kodo fish, milk fish, and crab. The number of fish caught from year to year is declining. During 1980 – 1990s fishermen could catch an average of 4 – 10 kg/ day, but from 2000 onward fishermen can only catch 3 – 5 kg/ day. The reduction of catch is a result of the increase of sea wind intensity and sea tides caused by climate change and fishing location change. The catch timing remains the same, which is in the river area in between 17.00 – 03.00 (West Indonesia Time) or in between 06.00 – 16.00 (West Indonesia Time). The reduction of the number of catch is also caused by practice of some fishermen in using toxins to catch fish or shrimp. The use of toxins hampers the reproductive process of fish. Just like the fish farmers, fishermen in the seven kelurahans also rely on alternative livelihoods to support their economy. These livelihoods include fish farming, rice farming, or labor.

SUMMARY

Climate change that occurs today does not only affect the environment, it also affects social life and the economy of the communities along Semarang's coast. Fish farmers and fishermen are the most vulnerable community groups in facing climate change.

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Study of the Establishment Planning On Community Academy at Tanah Bumbu Regency

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Abstract— This study aimed to explore: 1) The feasibility of Community Academy's establishment based on region and educational potential, and 2) The form of academic management that can be applied to Community Academy. This study used descriptive approach. The object of this research is the Head of Regional Development Planning Agency, the officer of Education Department at Tanah Bumbu Regency, and related communities. Data collected with in-depth interview, observation, documentation, and Questionnaire techniques. Data analyzed with descriptive techniques. The results showed: 1) The Establishment of Community Academy in Tanah Bumbu need to be realized with several options of skills program: 1)mining, 2)Agriculture, 3)Accounting, 4)Tourism, 5)Health, 6)Automotive and Electronics, and 2) The form of academic management that can be applied possibly can refer to Manufacturing polytechnic of Bandung. Community Academy's establishment schematic options that can be applied are the collaboration with the industry or the cooperation with relevant university.

Keywords — *community academy, vocational education, education management, human and natural resources*

INTRODUCTION

One of the government challenges in building a proper education system is the availability of labor that can be ready for today's job market demand. Currently, there is a real gap that a real gap where the outcomes of higher education (universities) not absorbed by the labor market. This situation can occur as a result of the process of higher education that less prepared to deal with the needs of the labor market demands in term of quality and.

In the Higher Education Act Number 12 Year 2012, more concrete steps and strategic already signaled in dealing with that problems. Education program are oriented towards providing educated personnel with skills' needs through vocational education to make graduates into energy practitioners, to be able to enter the world competition according to their expertise. Vocational education as part of higher education aimed to produce to highest level of expert practitioners who have the ability to utilize science and technology in finding or creating something for the needs and welfare of mankind.

According to the Asian Development Bank (2004), developing countries will not be able to work the basic economic growth if they can provide the availability of

skilled labor force in large numbers (Wan, 2005). Economic growth will move in line with the needs of skilled manpower. Areas which have sufficient human resources will get a bigger chance in strengthening regional economic growth. Strengthening human resources through vocational education is a pretty good choice to be applied, in an attempt to obtain skilled workers and experts in various fields of expertise that can be absorbed by the labor market.

Referring to the principle of lifelong learning, a community-based society is expected to continue to increase the knowledge, competence, expertise, and skills from time to time to improve the quality of life in order to achieve a better life. Specialized and heterogeneous nature will require a higher education model that can meet the diverse needs of the community it is known in some countries as the Community College (CC). Community-based education model in Indonesia is added with an emphasis on the potential of the region and the special needs of the college in the form of Community Academy

One of the mission's strategic plans (Strategic Plan 2010-2014) General Directorate of Higher Education is to realize the availability of higher education with good quality and relevant to the needs of national development and significantly contribute to improving the competitiveness of the nation. A policy to achieve these goals is to develop a short-term vocational education in the form of Community Academy with expansion of employment oriented in the region as well as business and industry.

The importance of the Community Academy is an opportunity that must be considered by the government Tanah Bumbu regency. Tanah Bumbu regency is a region that is included in Corridor 3 of Economic Development in Indonesia. According to the analysis of Excellence and Potential Areas, Tanah Bumbu included in Kalimantan Corridor which is the "Center for Production and Processing of Mines and the National Energy " (Directorate General of Higher Education, 2011).

From the structure of the economy, according to BPS data of Tanah Bumbu regency 2013, the mining and quarrying sector plays an important role which amounted to 44.96%. Coal mining was found in 9 districts with a

total production in 2012 amounted to 21,661,413,936 MT. While mining iron ore with a production number 4,055,975,896 MT. Contribution into the GDP in 2011 amounted to Rp 1,487,980,490,000. Mining and quarrying sector also became the largest contributor to GDP of Tanah Bumbu Regency.

Based on the study that conducted by Regional Development Planning Agency of Tanah Bumbu (2013), the results of the LQ analysis suggesting that the economic potential of the agricultural base, mining and tourism has a value of $LQ > 1$ most often found in 10 districts. Therefore, to optimize the developing process Tanah Bumbu regency need workers with skills and expertise in agriculture, mining and tourism.

Labor requirements in the real sector are closely linked to the number of existing investment in a region. Investment is one of the things that helped encourage the real sector of his life in a region, through these instruments, too, the employment and increased production volumes. According to data from the Regional Investment Agency Tanah Bumbu, in 2011, there are about 37 companies that invest in Tanah Bumbu. Demanded sector by most investors are mining and plantation. Total labor absorption as much as 6,523 people in 2011, which showed an increase of 20.59% from the year 2010 amounted to 5409 people.

The opportunity to increase labor absorption, especially graduates at the high school level is still high. Referring to the statistic data, registered job seekers at Tanah Bumbu who have not been placed under the high school level upwards of 1,022 people from a total of 1,314 job seekers person or as much as 77.78%.

The importance of Community Academy in Tanah Bumbu regency is also supported by the fact that not many educational facilities which equivalent with Diploma or Higher Education in the region. Education facilities located in Tanah Bumbu regency until 2012 include 155 units of kindergarten; 190 units of primary schools; 55 units of secondary schools; 19 units of high schools, and 11 units of vocational schools. Based on the Gross Enrolment Ratio in high school, participation rates Tanah Bumbu regency still in the range below 70% which in 2010 amounted to 62.73%, then in 2011 amounted to 63.84% and in 2012 amounted to 66.95%. These figures show there is big opportunities for this regency Bumbu to improve the quantity and quality of education at a higher level which oriented to the supply of educated and skilled workers through the establishment of Community Academy.

Based on the results of preliminary interview with the Head of Regional Development Planning Agency, Community Academy development in the mining sector became one of the key priorities that need to be realized. The problem that arises is the absence of a feasibility study of the Community Academy's establishment. Therefore, its necessary to start a basic research related to the potential of Community Academy development in Tanah Bumbu regency.

The goal of this research is to to explore: 1) The feasibility of Community Academy's establishment based on regional and educational potential, and 2) The form of academic management that can be applied to Community Academy.

Community Academy according to Law Number 12, 2012 about Higher Education is included in Vocational Education. Meanwhile, according to Education Ministry Regulation Number 48, 2013, Community Academy is a vocational education level diploma one and /or two in one or several branches of science and / or technology-based specific local advantages or to meet special needs. According to General Directorate of Higher Education (2011), the purposes of the existence of the Community Academy are to: 1) develop human resources according to the needs of each area, 2) provides the opportunity for employment in a particular community or specific communities, 3) encourage the growth of Small and Medium Business in the region, and 4) Expanding access to higher education and improving college's Gross Enrollment Rate.

Vocational education is an education that leads students to develop applied skills, adapt to certain occupations and to create job opportunities. Munir (2009) explains that vocational education embraces multi-entry-exit system and multi-oriented meaning cultivation, empowerment, formation of character, and personality, as well as a variety of life skills life skills. Vocational education oriented working skills in accordance with the development of science and applied technology and in accordance with the demands of employment.

A study conducted by the World Bank (2014) describes some of the obstacles, challenges, and recommendations in the development of Community Academy in Indonesia. Some of the obstacles that occur in the development of the Community Academy in Indonesia, such as: Scarcity of Qualified Teachers, Weak Institutional Capacity, and long-term commitment. Some of the challenges faced by governments in developing Community Academy according to the World Bank study (2014) are the challenges of growth and sustainability challenges.

The role of government and policy makers are very important to establish the Community Academy in term of national development. Result of study by Cutright (2014) explained that national development conditions and goals in Uganda, as in many nations, are such that the robust establishment of community colleges could provide many solutions. The model of inquiry proposed would involve the short-term exchange of experts, policy makers, and educators, and the consideration of Western models in local contexts. With relatively modest funding, the plan could be executed in a few months and could yield a plan endorsed by both Ugandan education leaders and experts in the models under consideration.

METHODS

The research approach used in this study was a descriptive approach. The approach chosen in this study

because several considerations, among others: (1) This study is an attempt to find problems related to the development of the Community Academy (2) This study is inductive, meaning that the researchers tried to find the problem based on data and open for further research, especially associated with the establishment of the Community Academy in Tanah Bumbu regency.

The objects of this research include the Head of Regional Development Planning Agency, the officer of Education Board at Tanah Bumbu Regency, and related communities elements (ie, high school students) related to the establishment of Community Academy in Tanah Bumbu regency. Samples are taken in order to obtain primary data from the research object. the main target of high schools students are everyone who plan to continue their education at higher level (such university or polytechnic)

The data collected in this study were grouped into two: main data and supporting data. The main data obtained from informants, ie people who are directly involved in activities as the focus of research. Supporting data sourced from official documents that exist, both derived from BPS, Regional Development Planning Agency, and Education Office of Tanah Bumbu Regency. Data collected with few techniques include In-depth interviews, observation, documentation, and questionnaire. Data analysis techniques are used which descriptive analysis.

RESULTS AND DISCUSSIONS

Overview: The Feasibility of Community Academy's Establishment in Tanah Bumbu Regency Based On Region And Educational Potential Analysis

Community Academy's Establishment basically has to pay attention to various aspects. Some of these aspects include the potential of the region and education. Here's an overview of that potential in Tanah Bumbu regency plan related to the establishment of Community Academy

Region Potential

Geographically, Tanah Bumbu has 10 District includes Kusan Hilir, Sungai Loban, Satui, Kusan Hulu, Batulicin, Batulicin, Simpang Empat, Mantewe, Kuranji and Angsana. Tanah Bumbu regency has an area of 5066.96 km² (506 696 ha), or 13.50% of the total area of South Kalimantan province. Tanah Bumbu infrastructure condition is still growing. Having successfully pioneered the development of road infrastructure of rural axis, in early 2012 began pushed for market infrastructure and improvement of neighborhood streets. In 2013 the government concerned in building infrastructure focuses on agricultural inputs. Development of irrigation facilities also began to be developed in order to process farmers grow crops there are no barriers due to shortage of water (www.tanahbumbukab.go.id)

Based on a study conducted by Indonesian Bank (2012), the role of the mining sector to the creation of value-added areas of Tanah Bumbu most large compared to the role of other sectors. A growth of one percent in the mining sector will be able to contribute about 0.44 percent

of the total economic growth in Tanah Bumbu. The role played by the mining sector can be seen from the performance of the regional economy (economic growth) which shows the trend in line with this sector (tanahbumbukab.bps.go.id). A study conducted by Regional Development Planning Agency of Tanah Bumbu Regency (2013) explains that the mining of coal and iron ore plays an important role as a driver of economic sectors.

Education Potential

Educational potential in this study focused on the potential number of students that can be absorbed to be a candidate for learners at Community Academy. In analyzing this potential can be seen by noting two things include the number of present high school students and the number of job seekers that graduate from high schools.

Based on statistic data, the number of high school and vocational school students in Tanah Bumbu regency in 2013 amounted to 8,888 people. In the next few years this has great potential to be directed to vocational education as student at Community Academy. Within three years, the number of potential learners have as many as 8,888 people if they are not directly geared to the world of work, of course, would be the capital vocational workforce more competent and be a regional asset when they enter the academy after completing the education community on the level of high schools.

Another potential in the short term that can be directed to enter the Community Academy is the number of job seekers who have not been placed in particular those who have completed education at high school level. Data of 2014 shows that the number of high school graduates who have been registered as job seekers in 2013 in Tanah Bumbu regency reached 2,357 or as much as 62.32% of the total registered job seekers in all age groups. This figure increased by 175% compared to the year 2012 which amounted to only 857 people. If the high school graduates are also directed to continue to pursue a higher education in this case Community Academy, of course, this potential will also strengthen the need for Community Academy's establishment in Tanah Bumbu regency.

Based on study and discussions with the parties concerned, the following table explains the framework of that potential related to the feasibility of Community Academy's establishment in Tanah Bumbu regency, especially in the aspect of Human Resources and Natural Resources:

TABLE 1. SWOT ANALYSIS: THE FEASIBILITY OF COMMUNITY ACADEMY'S ESTABLISHMENT IN TANAH BUMBU IN THE ASPECT OF HUMAN AND NATURAL RESOURCES

| Aspect | Strength | Weakness | Opportunity | Challenge |
|-----------------|---|----------------------------|--------------------------------|--|
| Human Resources | The high amount of productive worker based on age | The low level of education | Big opportunity of work chance | Competition with visitor in term of salary, skills, and work ethic |
| | | The low | The high | The |

| | | | | |
|-------------------|--|---|------------------------------------|--|
| | | level of work ethic | diversification of job opportunity | existence of temporary worker |
| | | The low accessibility of IT | The amount of potential investor | The limitation of work chance in several position |
| | | The low level of worker's competence and skills | | |
| Natural Resources | The richness of natural resources especially in mining sectors (such as coal and iron) | Have potential to be conflict subject | The increase of revenue | How to manage this resources to create job opportunities |
| | | Coal sector getting less productive | To decrease the poverty rate | |
| | | The amount of unproductive area is big | | |
| | | | | |

Source: Compiled from discussion with research objects

The results of Regional Development Planning Agency study (2013) showed some potential of vocational school development based on potential areas development-based (LQ analysis) in Tanah Bumbu regency. Results of this study can also be used as one of the basic reference in the development of alternative types of Community Academy in Tanah Bumbu regency. The results of the study of this potential can be seen in the following table:

TABLE 2. THE POTENTIAL OF COMMUNITY ACADEMY'S DEVELOPMENT BASED ON VOCATIONAL HIGH SCHOOL'S POTENTIAL AT TANAH BUMBU REGENCY

| No | District | Field of Business | Criteria | Vocational School Needs | Vocational School Potential that Can be Develop | Potential of Community Academy Skills Program |
|----|----------------|----------------------------------|----------|----------------------------|---|--|
| 1 | Kusan Hilir | Agriculture | Base | Agriculture | 2 nd Priority | 1. Agriculture 2. Mining 3. Accounting 4. Tourism 5. Health 6. Automotive and Electronica |
| 2 | Sungei Loban | Agriculture | Base | Agriculture | 3 rd Priority | |
| 3 | Sapri | Mining | Base | Mining | 1 st Priority | |
| | | Accounting | Base | Accounting | | |
| | | Trading, Restaurant and Hotel | Base | Tourism Health | | |
| | | Transportation and Communication | Base | Automotive and Electronica | | |
| 4 | Angsana | Agriculture | Base | | | |
| | | Transportation and Communication | Base | | | |
| 5 | Kusan Hulu | Agriculture | Base | | | |
| | | Mining | Base | | | |
| 6 | Kuranji | Transportation and Communication | Base | | | |
| | | Agriculture | Base | | | |
| 7 | Batulicin | Mining | Base | | | |
| | | Trading, Restaurant and Hotel | Base | | | |
| | | Transportation and Communication | Base | | | |
| 8 | Simpang Empat | Mining | Base | | | |
| | | Trading, Restaurant and Hotel | Base | | | |
| | | Transportation and Communication | Base | | | |
| 9 | Karang Buntang | Agriculture | Base | Agriculture | 4 th Priority | |
| 10 | Mantawa | Transportation and Communication | Base | Automotive and Electronica | 5 th Priority | |
| | | Agriculture | Base | Agriculture | | |
| | | Betambangan & Penggalan | Base | Mining | | |
| | | Transportation and Communication | Base | Accounting | | |

Source: Regional Development Planning Agency Tanah Bumbu Regency (2013)

From Table 2 and the previous description, it can be concluded that the establishment of the Community Academy in Tanah Bumbu need immediate action in referring to the magnitude of the potential of the region and the existing educational. The types of skills that can be developed at Community Academy in Tanah Bumbu Regency could refer to the Table 2

The Form of Academic Management That Can Be Applied to Community Academy

Type of Potential Kind of Community Academy

Based on the results of the discussion, the kind of Community Academy that has real potential to set in Tanah Bumbu regency is Community Academy in the Manufacturing Sector. The main reason is the region potential that rich with mining in particular are currently growing is iron ore. Labor requirements in the manufacturing sector itself increasingly widespread. While up to now, the manpower requirements cannot be met by the people of Tanah Bumbu, because they do not have the proper qualifications to work in this sector.

The opportunities of Community Academy's establishment in the field of manufacturing industry in Tanah Bumbu regency is basically one of the steps being taken to support the development of industry in Tanah Bumbu regency. One of the legal basis could be a strong base is with the issuance of the Industrial Ministry Regulation No. 170 / M-IND / PER / 12/2012 about The Map Development Guide Core Competence Industry of Tanah Bumbu Regency. Based on the consideration of situation and potential analysis of regional economic

conditions and the potential for development of the next five years as well as its association with the supporting industry, related industries and industries in other districts and provinces, Tanah Bumbu determine Manufacturing-Based Iron Steel and its by-products (fly ash) as competence core industries.

Community Academy development plans in manufacturing itself would support for the realization of the strategy of increasing the capability of Human Resources in the relevant industrial sector in Tanah Bumbu regency. In addition, the development Community Academy is the starting point of the implementation of the main points of the medium-term action plan that has been made regarding the development of Tanah Bumbu as Industrial Development Area-Based Iron Steel and its By-Products in the coming years.

Based on discussions with the Head of Regional Development Planning Agency, the officer of Education Departement, it states that Tanah Bumbu has pioneered the establishment of Community Academy in Manufacturing. It is addressed to the commitment of the local government that has provided scholarships to 15 high school graduates to study at the Manufacturing Polytechnic in Bandung. Graduate candidates are scheduled to be prospective workers who will become a lecturer at the Community Academy when it established later.

The Curriculum

Robertson (2014) explained that the goal of internationalization of higher education is to prepare students with the knowledge, skills, and attitudes to be competent global citizens of the 21st century. Related to Community Academy, the design of the curriculum and study program to be aimed at the establishment of the Manufacturing Community Academy in Tanah Bumbu will temporarily adjust to those in the Manufacturing Polytechnic of Bandung. The study program is planned to be set up as follows:

1. Manufacturing Engineering
2. Mechanical Design Manufacturing
3. Metal Casting Techniques
4. Manufacturing Automation and Mechatronics Engineering

Learning Systems

Based on discussions and interviews with stakeholders, organized learning system when the Community Academy will be developed, it will adjust the learning process refers to the curriculum Manufacturing Polytechnic Bandung. Recruitment of students from the local area with the learning process that meets the standards that can be set by the role universities are expected to maintain the quality of graduates to be used by the wearer. The curriculum at the Community Academy will be built to develop production units with the concept of Production Based Education (JCE); a concept in which the things learned in college, based on the problems that arise in the field of production

(corporate partner). This is an application of the concept of teaching industry as it is now being promoted by the government.

In term of quality teaching resources, based on the results of discussions is planned to recruit teacher candidates from relevant vocational or technical colleges. It is indispensable therefore teachers should have sufficient work experience to qualify. In this case, they planned to take the teaching staff of universities in South Kalimantan that are relevant, a lecturer from the Polytechnic Manufacturing Bandung itself, and experienced personnel from the industrial world as a form of resource sharing.

Related to funding subject, Tanah Bumbu regency government has begun to provide a commitment to building and supporting facilities, although until now still in the stage of feasibility analysis. For the problem of governance and quality assurance of course have to comply with the standards of quality assurance, as was done by National Accreditation Board as an institution of higher education quality assurance accreditation in Indonesia. There are two forms of the design scheme of the establishment of the Community College that can be applied in Tanah Bumbu regency namely:

1. Community Academy Collaboration with Industry

Community colleges form of this collaboration is to do collaborations with the industrial companies that will be users for graduates; in this case PT Krakatau is currently managing the iron ore industry in Tanah Bumbu regency.

2. Community Academy in Form of Higher Education

The second form is through the establishment of the Higher Education Academy in cooperation with the Community's industry and universities.

Community Academy: Student Perspective

In the framework of the Community Academy's establishment, one of the first steps that must be done is to explore the interest and appreciation in the community related to the presence of Tanah Bumbu Community Academy. In order to search the interest and appreciation of the community, the research team distributed questionnaires that focus on two aspects: 1) socialization of the Academy of Community and 2) Interests on Community Academy.

Charlotte Buehtar in Murdiyatmoko (2007) explains that socialization is a process that helps individuals to learn and adapt on how the way of life and way of thinking group that can play a role and function within the group. Boode (1991) describes the socialization is a process that must be passed by an individual to acquire the values and knowledge of the group, and learn about the social role of the position in the group. Stein (1997) mentions that socialization is the process of transforming the norms and values prevailing in the society, both to one another and to future generations. According to Mochtar Mas'oeed and Mac Colin Andrews (2001), socialization requires a means, among others: family, school, social groups, work, and mass media.

Socialization process requires communication. Communication must contain a minimum of similarity of meaning between the two parties involved (Effendy, 1997).

Based on survey, it can be concluded that the knowledge of high school students about Community Academy in Tanah Bumbu regency still minimal. They still do not understand about the concept and significance of the Community Academy as a pathway of vocational education after completing high school. Community Academy have not been socialized properly for people, especially for high school students who will be the candidate of students in these vocational education.

Afib (2012) suggested several factors that lead to low interest of the students continue their education to university level high, among others: lack of student interest for education in colleges, lack of expectation of yourself to become more advanced and to obtain a better job, economic conditions of poor parents or even inadequate, non-fulfillment of the requirements set desired college, people who are less supportive environment. Related to interest on Community Academy, it can be concluded that basically high school students in Tanah Bumbu regency has interest and a positive perception to continue their education to a higher level. Making of higher education for them is quite significant to improve the competence of making it easier to get a job than just graduated from high school. However, most still consider the financial ability of parents and the individual is a major problem that may limit them to continue their education to a higher level is.

Recommendation

Based on the results of the survey in Tanah Bumbu, it found that most people do not yet know about the Community Academy. The existence itself after further explored got quite a positive response from the local community but the problems of personal financial capability becomes a major limiting factor in the continuing education to this level.

In this case, one of the policies that must be taken by the local government are as soon as possible to disseminate more widely about plans for the establishment of Community Academy in Tanah Bumbu regency to the public, either through formal socialization to schools, or plunge into the community, especially to areas targeted region.

Opportunities of scholarships through various channels and sources of funding for prospective students also need to be assessed. The goal is that the existence of Community Academy will actually be exploited to increase higher education participation rates in Tanah Bumbu regency. In the long term will lead to the goal of improving the competence of human resources to meet the skilled labor world or the world of business and industry.

Feasibility study needs to be done particularly with concern to physical planning and financing Community

Academy to be established in Tanah Bumbu regency. It should also be budgeted for the provision of technical assistance to identify the skills and competencies required by industry, business and local communities; Industry collaboration for teachers to be able to work in the industry and for industrial staff to work in educational institutions; assistance in developing a relevant curriculum; and help to develop institutional capacity, as well as help to develop training and certified qualification for experienced industry workers to become teacher at Community Academy

The government should start budgeted funds for the feasibility study area is either in the framework of the provision of land, other supporting facilities, as well as cultural and social potential of labor and cost analysis in a more holistic, so that an assessment regarding the establishment of this Community Academy could be immediately to be realized.

CONCLUSIONS

Some conclusions from this study are:

- a. The Establishment of Community Academy in Tanah Bumbu need to be realized with several options of skills program: a)mining, b)Agriculture, c)Accounting, d)Tourism, e)Health, f)Automotive and Electronics.
- b. The form of academic management that can be applied possibly can refer to Manufacturing polytechnic of Bandung. Community Academy's establishment schematic options that can be applied are the collaboration with the industry or the cooperation with relevant university.

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Medicinal Plants in Semarang State University

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Abstract—Back to nature concept develop follow the increasing of modern drug cost and side effect. Many people believe that traditional therapies give advantage more than modern drug, that are safe and cheap. Medicinal plant, one of traditional therapy, were used thousand years ago and exist until now. Many people prefer medicinal plant more than modern drug. Semarang State University occupies a high land area of 105 Ha. Cold temperature, fertile soil and large land is an ideal condition of medicinal plant growth. The potential of campus as source of medicinal plant were explored to get the kind of plant. A survey conducted to identified the medicinal plant in Semarang State University campus. The survey found 172 species of medicinal plants growth in all faculty. It consist trees, shrubs, bushes, herbaeus, liana, and bryoids. Suggested to explore the medicinal effect of plants and find scientific reason for using it.

Keywords—medicinal plant, traditional theurapeutic, Semarang State University campus

INTRODUCTION

Back to nature therapetic concept develop follow the increasing of modern drug cost, that too expensive for unfortune peoples. The people prefer used medicinal plant for many, i.e *Psidium guajava* leaf were used to treat diarrhea (1,2); *Apium graveolens L* for hypertension (3,4); garlic for hyperlipidemia; and etc. These fact showed the great potential to develop medicinal plant for theurapetic agents.

Semarang State University occupies in a high land about 259 metres above sea level. This areas had cold temperature and enough sunshine. The campus lies in the Sekaran village covered about 105 ha. A fertile soil layer arranged the land given an advantage for growing of many kind of plants. Many species of plants potentially as medicine growth and covered the campus area need to identify. The study purpose to identify the species of medicinal plant in Semarang State University campus.

METHOD

Study Design

The study was located in the centre Semarang State University campus, Sekaran village. A survey conducted to identified the morphology and taxonomy of medicinal plant which found in Semarang State University area.

Classification of Plant

All data of plant species collected and classified based on characteristic of morphology. There were six categories included tree, shrub, bush, herbaceous, liana and bryopsida.

1. Tree, a woody plant having one erect parenial stem (trunk) at least three inches in diameters at a point 4-1/2 feet above the ground, a definitely formed crown of foliage, and a mature height of at least 13 feet
2. Shrub, a small to medium-sized woody plant. It is distinguished from a tree by its multiple stems and shorter height, usually under 6 m (20 ft) tall. Shrub can be large and high, the branched not far from the surface of ground.
3. Bushes, a small, low shrubs, generally less than 2 m (6.6 ft) tall, such as lavender, periwinkle and most small garden varieties of roses
4. Herbaceous, a plants usually is wet, which are dry, stems, and its overall plant can not erect above the ground / water
5. Liana, the term more widely used class for vines and hanging plants. Liana were characterized with woody stems and not strong enough to support all parts of plant.
6. Bryopsida consist of moss, ferns, and fungus. The size is divided by high vegetation. The shape and size of leaves there is a large, wide, medium, and small (needles and grasses) and mix

RESULT

Two months survey founded 172 species of medicinal plant growth in campus areas. Medicinal plants in Semarang State University were found in eight faculties. The most number of species were found in Mathematic and Natural Science Faculty, and the fewest in Law Faculty.

The Species of Medicinal Plant

Medicinal plants in Semarang State University consist tree, shrub, bush, herbaceous, liana and bryoid. The most category were herbaceous, and the fewest were bryoid (table 1).

DISCUSSION

The environment influences existency of species in the world. The difference of climate, edaphic and biotic factors leads the difference species (7,8,9). Climatic factors included temperature, sunshine and season influence the number of species. Climate variables are most important in predicting distribution of plant at regional scale, particularly for trees (10).

Edaphic factors are defined as ecological influences properties of the soil brought about by its physical and chemical characteristic. Edaphic factors are depend on soil, gas and water content in it. The differences of these factors often as major cause of the change on vegetation in the same area. Therefore, edaphic factors has important role for the distribution of plants in area (10) . Soil is a place to grow and development of plants. Air, water, minerals, and organic matter (living and non-living) are the basic *ingredients of soils*. Fertility of soil are the main factors that influences the spread or distribution of the plant (11). The parameters of soil fertility, among others, are the content of humus or organic matter, soil elements, soil texture, and water content in the soil pores. Soil provides air to the roots and affects rate of growth of trees, yield of trees and natural regeneration.

Mathematic and Natural Science Faculty occupies the second place in wide area after Sport Science Faculty, but the the most number of species found there. It were caused by the difference use of land. Most of the lands in Sport Science Faculty were used for sport field, i.e tennis court, athletic track, swimming pool or volleyball court. Biology education garden are the most wide in Mathematic and Natural Science Faculty which had most of medicinal plants species.

CONCLUSSION

Semarang State University had a great potency as source of medicinal plants. This potency were caused by geographic and edaphic factors. High land, cold temperature and fertile soil give and advantage for grow and development of plants. A large number of medicinal plant species growing well, which cover tree, shrub, bush, herbaceous, liana and bryoid.

TABLE I. MEDICINAL PLANTS IN SEMARANG STATE UNIVERSITY CLASSIFIED BASE ON MORPHOLOGY

| Categories | The number of Species |
|------------|-----------------------|
| Tree | 33 |
| Shrub | 37 |

| Categories | The number of Species |
|------------|-----------------------|
| Bush | 19 |
| Herbaceous | 68 |
| Liana | 11 |
| bryoid | 4 |

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Generation of Conservation Based on Green Socioentrepreneurship Education In Order To Achieve Demographic Dividend as Sustainable Solutions of The Independent Indonesia

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Abstract — In the year of 2020 to 2030 Indonesia will benefit by getting demographic bonus. This is the momentum that should be optimized to encourage the economic growth of Indonesia much higher and to avoid Indonesia trapped in the middle income countries (*middle income trap*). The relatively fast growth, inadequate job field and the availability of economic resources in an irrational proportion led to low per capita income and structural poverty causes that shackle such a chain poverty, "the poor give birth the new poor . While the education sector has produced many outputs in very large numbers anyway, and these numbers cannot be perverted in the availability of jobs. Indonesia as an agricultural and maritime country is unable to maximize its wealth as the living source. The exploitation of Natural Resources and the conversion of agricultural land as residential and industrial affairs do not provide a sustainable solution in responding the economic challenges. Economic activity tends to override the ecological side and temporary that it is not prospective to the sustainability of livelihoods. Therefore a new breakthrough in the field of urgent conducted in the most fundamental thing in order to achieve national independence that is entrepreneurship education based on the environmentally-friendly society which known as the *Green Socio-entrepreneurship*. Education becomes a real investment for the future by means of the environmental conservation values through society empowerment in entrepreneurship for sustainable solutions. This paper is based on the observation, research and review of the literature from several sources which are relevant to the theme that is raised by the discussed issues. This study aimed to describe the optimization of a demographic bonus through social entrepreneurship based on social value and formulate the concept of learning ideas design which is integrated, structured and sustainable.

Keywords—*Conservation, Education, Green Socio-entrepreneurship*

INTRODUCTION

Indonesia in the nearest future is expected to have a period where the number of the productive age is more than the non-productive age. Based on data from BPS (December, 2014) it accurately take into account that in 2030 Indonesia will get a top bonus of working productive age up to 68.1% which is called the demographic dividend. At this time Indonesia enjoys Demographic Dividend caused by the dependency ratio (dependency rate) decreased up to 50%, as well as moves towards opening windows of opportunity when the dependency ratio is at its lowest level. The previous initial increase of the working productive age in 2020 amounted to 67.7% and increased in 2025 up to 67.9%.

The development of human capital which includes education is very important to be done to manage the demographic bonus and refrain it from demographic disaster. Seeing the condition in the field which is collected from BPS data (August, 2014) indicates that the population in the aged of 15 years and over who work according to the highest educational level who were attained is still dominated by the primary school graduates down as many as 54.2 million people with a percentage of 49.40%. if it is compared with workers who have a relatively high level of education of course this proportion is still very small and still far from the expectation. The low access of the people to education is pointed out as the cause of the emergence of various social problems, such as unemployment, poverty, and the level of excessive urbanization, as well as social conflict in the various forms of violence as the result of unemployment. Things that should be prioritized in fixing social problems in order to welcome the demographic bonus is by empowering children who are dropping out of school and connecting their expectations to reach a better future. One of the main solution is through entrepreneurship in line with the ecological balance and local wisdom. In terms of the problem, peoples' education which is called 'marginal groups' is not just an economical and geographical question, but because of the low quality and the educational relevance which are implemented with the environment, potential, needs, and interests of children (Sukardi, 2014). Besides in PP 32 Year 2013 regarding the amendment of Regulation No. 19 Year 2005 on National Education Standards (Kemdikbud, 2013), explicitly mandates the importance of the developing education which is relevant to the needs of children in accordance with local potential. Meanwhile local potential in Indonesia is always in contact with the wealth of natural resources and the environment, but the form of community economic development activities are not always in line with ecological and ignore the values of environmental conservation. Education is the main capital as the basis for productive working age management, community-based entrepreneurship education and the environment is one of the main answers to the global challenges. Conservation generation are printed out in order to realize the ideals of the demographic bonus that occurred between the economic and ecological sustainability. Therefore a breakthrough by using

the concept of conservation and social development is urgent to be done in order to respond the challenges of demographic

The objectives of the Writing

1. To explain the educational issues on "marginal groups"
2. To explain the concept of social entrepreneurship based on the conservation and the environment as a breakthrough in order to manage the demographic bonus on 'marginal groups'

METHODS

The method used in this paper is descriptive qualitative and review of literature by: a) exploring the social literature to find out a theory that explains the phenomenon of human resources quality, b) Following the development of research / writing in the field of population and self-employment opportunities based on the environment, and c) Utilizing the secondary data collected in the literature. The data is simplified into an easier form to be read and interpreted that become an is easy information to be understood.

LITERATURE REVIEW

In the thought of social reconstruction requires entrepreneurship education which is interconnected with social problems in the society that gives birth a Socio-entrepreneurship. This theory was born from the Pragmatic and Marxism ideas (Weinberg, 2012: 481 & Collin, 1997: 65) that puts reality as a social construction which is created by the individual to the social world around them (Berger & Luckmann, 1990: xv) .Berger (1994: 3) expressly stated that the society and the environment as a human product so that it becomes a source of knowledge in dealing with social problems. In education, this theory was developed by Harold Rugg, George S. Counts, and Theodore Brameld (McNeil, 2006: 38) who gave birth to the great tradition in the field of psychology by Vygotsky's theory of social constructivism (Suparno, 1997: 43 & Schunk, 2012: 337).

The view of this theory is that a child and his knowledge as well as new concepts are acquired must be able to identify and solve social problems, such as unemployment due to the lack of education access. Thus, entrepreneurship education is directed to improve the children living conditions. In accordance with the existing potential in the community in order to improve the economy without prejudice to the ecology. The resulting model was born to answer these problems by using the theory of social reconstruction as a back support. This theory puts children, knowledge and new concepts are acquired must be able to identify and solve social problems in where children are (McNeil, 2006: 38 In Sukardi, 2014: 403).

DISCUSSION

Up to the end of 2015 this demographic bonus issue is still interesting to be discussed. Demographics in the year of 2030 has always faced with 2 choices, as expected demographic dividend of Indonesian government or the most avoided demographic disaster. The shadows of demographic disaster in question include: low education levels, lack of employment, unemployment, poor social effects, loss of momentum to accumulate savings / benefits, until the end of poverty. If the labor force is not equipped with a good education and skills, not in school, less healthy, is not prepared field work, and the amount of family savings are not enough, then the chances of the bonus will be the opposite condition. The development of human capital which includes education is very important to be done to manage the demographic bonus and abstain from demographic disaster

In the fact of education level on a national scale which is compiled by BPS in 2013 was still dominated by primary school graduates, with details: Elementary schools and people who do not endure all formal education as much as 52.02 million, Junior level as much as 20.46 million, 17.88 million of Senior High School, Vocational High School 9.99 million while the diploma and degree each of 2.92 million and 7.57 million. The level of education in Indonesia can be said pyramid-shaped, more and more narrow and tapered upwards in terms of getting up getting fewer amount. The quality in reaching demographic dividend should be pursued, one of which is the handling of dropouts. Social problems posed by children who are not in school or dropping out of school is a real problem, which in the view of the theory of social reconstruction that the condition can be resolved through a flexible process in accordance with the encountered conditions.

Entrepreneurial education model based on local typical skill-based environment generated can not be separated from the theoretical building social reconstruction. Some of the principles are implemented, such as the model developed based on the real problems faced by children (bad skills, unemployment, poverty), entrepreneurial matter content should be developed based on the potential in the environment around the children, the learning is done in interactively, dialoguesee, participative, and cooperative. The implication is that the society and policy makers must provide alternative education, especially in societies which are categorized as marginal as expected in education for all in 5 years ago or 2015 MDG targets

Map of Development Concept

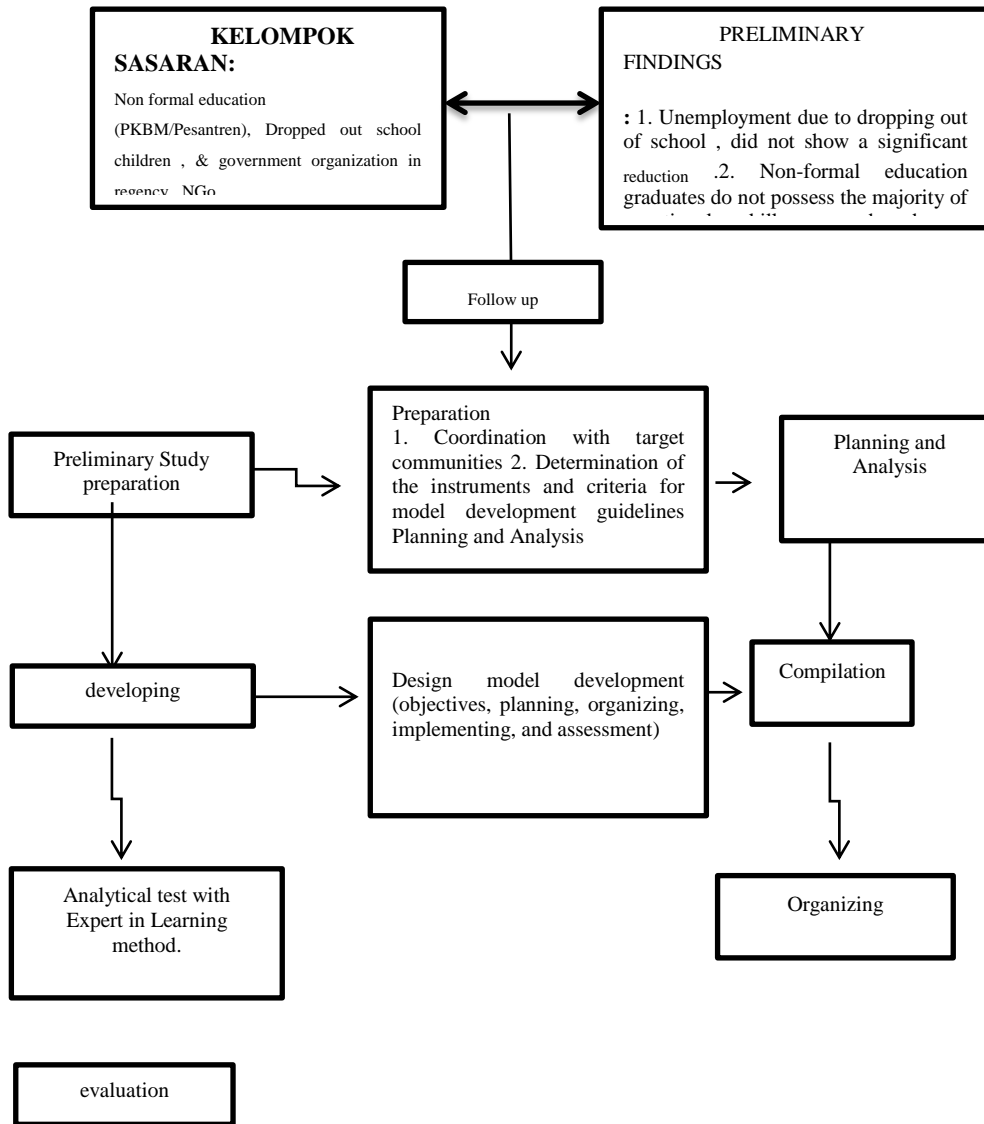


Illustration process of the development project

The chronology development in marginalized communities should be appropriately on target people according to the preliminary findings. This idea is aimed at people who take non-formal education in order to have vocational skills. the first step is a preliminary study to coordinate with the communities targeted and appropriate planning by analyzing the implementation plan. The next Chronology is developing a set design study model then structured systematically thus creating a community organizing. The last is Analytical test and evaluation. general overview of the implementation must be in accordance with the application of learning models.

First, the model was developed based on the potential and needs of children. Exploiting local potential around children is the principal and most important capital in the educational process (Kemendikbud, 2008: 5). Of course not all of the potential local relevant to entrepreneurship education, because entrepreneurship is an innovative, act in uncertainty and introduce products to the market, determine the location, create and utilize resources, and manage the business to compete and win market (Wennekers & Thurik, 1999, in Sukardi 2014). Besides products based on local knowledge that could potentially damage the environment can not be categorized as sustainable entrepreneurship, because the value of environmental conservation always develop a

network of symbiotic mutualism between humans and the nature.

Second, learning outcomes as a key output of this development model directed at establishment of the child skills in producing / local skills. Lack of vocational skills which implies the emergence of other social problems is urgent and actual problems faced by children out of school in marginal communities.

Third, this model uses group learning, rather than formal classes as in formal educational institutions and non-formal. Study group was chosen to facilitate the child do the sharing, exchange of information and cooperation to help each other, and learn freely without pressure

Fourth, focus on aspects of the model components in direct contact with the entrepreneurial learning, such as learning objectives, syllabus, teaching materials (modules), learning procedures, and other supporting devices. The emphasis on these aspects because of the meaning of education lies in the learning process, in particular the quality of learning. Although in some aspects, this model has the advantage, but also has some limitations. limitations are, the indicators used in each stage and component models are still not complete so should be identified through further study or other studies. And it is possible revisions and modifications to the idea.

CONCLUSION

One of efforts in realizing the demographic dividend is the handling of dropouts. Social problems caused by children who do not go to school or dropping out of school is

a real problem, but such conditions can be resolved through a process which is flexible according to encountered conditions. Handling of dropouts can be done through formal education-based on entrepreneurial environment in the embodiment of social conservation. With the first step (1) a preliminary study in the coordination with the targeted society and appropriate planning by analyzing the implementasi plans. (2) developing the set design study model which is then arranged systematically (3) Creating an organizing society (4) Test analytical and, (5) Evaluating the sustainability.

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Strategies for Increasing The Competitiveness of Manufacturing Industry in Semarang Regency, Central Java Province to Face Asean Economic Community

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Abstract — This research was aimed to analyze and formulate strategies for improving the competitiveness of the manufacturing industry in Semarang Regency, Central Java Province to face the ASEAN Economic Community (AEC) in 2015. This study used a SWOT analysis. The results showed that there are four strategies that can be applied, among others SO strategies that optimize the use of local raw materials and the use of appropriate technologies, WO strategies that improve production efficiency and quality of education, ST strategy is to improve the quality of products and ensure the supply of raw materials is continuous, and WT strategy is mapped out means favorable logistics and provide incentives to industry that increasing the proportion of local raw materials. Sara is provided as well as the government and industry players should immediately improve the competitiveness of the industry, especially the increase in the emphasis on quality.

Keywords— *strategy, competitiveness, industrial, manufacturing, SWOT, Semarang Regency*

INTRODUCTION

Enforcement AEC at the end of 2015 to challenge for economic agents in Indonesia. According to the World Economic Forum (2014: 1) and the United Nations Industrial Development Organization (2010: 1) competitiveness of Indonesia both globally and industry is still inferior to other ASEAN countries. Even at the local level, the industrial sector in Central Java province developed that have the potential for decreased performance.

Semarang Regency is an area of industrial agglomeration in Central Java province. Its strategic location, has good access to the sea, land and air makes a lot of investors who set up industries in the region. Industry became the dominant sector and become a top priority of economic development without neglecting development in other sectors. The industrial sector is classified into a large industry, small and medium industry and household Industry (home industry).

Small and medium industrial enterprises amounted to 1.481, and is able to absorb labor force 12.352 people with an average of ± 8 workers. Categories of large industrial company was in Semarang Regency in the year 2013 as many as 185 company, and is able to absorb the labor force as much as 72 135 workers with the average worker ± 390 . The magnitude of the potential processing

industry in Semarang Regency strategic studies need to be done to develop the industrial sector in order improve the community economy. However, referring to the analysis results Input Output Semarang Regency (Fafurida, 2010) found that although the Semarang Regency is an area of industrial agglomeration but in fact the industrial sector is not the leading sectors. That is because the industrial sector does not have backward linkage with sector input providers and has no forward linkage with other sectors of the output. The competitiveness of the industrial sector in several developing countries including Indonesia are relatively low. Although the trade balance surplus experienced a growth performance, but it turns out from some of the performance indicators trade competitiveness in some industrial commodities have low competitiveness. (Oktavilia S, 2013)

Applicability AEC is a challenge and an opportunity for the industrial sector at Regency of Semarang. AEC benefits would be obtained if the industry is able to compete, especially when the target product is the regional market. Therefore, it is important to formulate a strategy to increase the competitiveness of the industry in the entire region of Central Java Province, which is a solution to the industry in the province of Central Java is able to compete at the time of the implementation of the AEC at the end of 2015. The aim of this study is to formulate a strategy to improve industrial competitiveness featured at Regency of Semarang, Central Java province to face the AEC in 2015.

LITERATURE REVIEW

The theory of competitive advantage

Comparative advantage theory first proposed by David Ricardo in 1917. In theory, Ricardo proved that if there are two countries that trade with each other and each country concentrate to export goods to the country has a comparative advantage, the two countries will be lucky. A commodity has a comparative advantage for a country or region where the commodity in the region is superior relative to other commodities in the region. According to John Stuart Mill, a country has a comparative advantage if the country produced and then exporting a commodity which has the comparative advantage of the total of a commodity that can be produced more cheaply and importing commodities which have a comparative disadvantage that the commodities which when generated itself requires high costs (Krugman and Obstfeld, 2000).

The theory of competitiveness

Michael E. Porter in his book, *The Competitive Advantage of Nations*, 1990, suggests a direct correlation between the two factors of production, natural resources are abundant and cheap human resources, which is owned by a country that is utilized as a competitive advantage in international trade. However, many countries have a number of workers who actually has a very large international trade competitiveness backward. As well as relatively low wage level, it is strongly correlated with low motivation to work hard and excel. Porter said that the final result strongly supports the government's role in improving the competitiveness in addition to the factors of production available. (Halwani, 2005: 36)

Porter in Model Diamond, explained that a country's national level can achieve a competitive advantage if it meets four requirements are interlinked and form the four corner points of the points called 'diamond', which is as follows: (1) The state of the factors of production, such as labor skilled labor or infrastructure; (2) The state of demand and quality demand in the country for certain industrial products; (3) The existence of related and supporting industries internationally competitive and (4) The strategy of the company itself and the structure and system of competition among companies.

Dong-Sung Cho (2003: 177), complete Porter Diamond Model. Cho shows how an industry can maintain international competitiveness during the decisive fourth there, but the theory is mainly explained economies in the developed world. Thus, the model needs to be modified to be applicable to developing countries or underdeveloped because of the country should be able to create international competitiveness without always having one of the four determinants. Model Cho, set nine determinants of competitiveness, namely four physical determinants of international competitiveness, the resources granted, the business environment, related and supporting industries, as well as domestic demand. In addition to physical factors, there are also four human factors namely workers, politicians and bureaucrats, entrepreneurs and professional managers and engineers. While the events of external opportunities become factors ninth.

RESEARCH METHODS

This study uses primary data and secondary data in the form of information about the strengths, weaknesses, opportunities and threats for increasing the competitiveness of the manufacturing industry in the Semarang Regency, Central Java Province. Collecting data in this study using literature searches and interviews. The literature search method used to collect data that is secondary and interview methods used to collect the data that is primary.

This study uses a SWOT analysis (Strengths, Weakness, Opportunities, and Threats) analysis is to identify the various factors systematically to formulate the company's strategy. This analysis is based on the logic that maximizes strength and Opportunities, but

simultaneously to minimize Weaknesses and Threats. The process of strategic planning using SWOT analysis includes several stages, which determine the strategic factors internal to know the strengths and weaknesses, determine the strategic factors external to know the opportunities and threats, the last exploit all such information in quantitative models of strategy formulation. (Rangkuti, 2009: 18).

FIGURE 1. SWOT MATRIX

| | | |
|--|--|--|
| IFAS | STRENGTHS (S) ▪ Define 5-10 factors internal strength | WEAKNESS (W) ▪ Define 5-10 factors internal weaknesses |
| EFAS | STRATEGY S-O Create a strategy of using force to take advantage of opportunities | STRATEGY W-O Creating strategies that minimize weaknesses to exploit opportunities |
| OPPORTUNITIES (O) ▪ Define 5-10 Factors external opportunities | STRATEGY S-T Creating a strategy to address the threat to use force | STRATEGY W-T Creating strategies that minimize weaknesses and avoid threats |
| THREATS (T) ▪ Define 5-10 Factors external threats | | |

Source: Rangkuti (2009: 31)

RESULTS AND DISCUSSION

Identification of internal and external factors

Before the strategy drafted, need to know first internal factors and external factors in increasing the competitiveness of the seed industry. By knowing the internal and external factors, it will be faster in developing strategies to achieve desired goals or objectives.

1. Internal factors

Internal factors are factors supporting or inhibiting increase industrial competitiveness seed originating from within the industry. Internal factors can be controlled by the industry because it comes from within the industry itself. These factors consist of strengths and weaknesses.

A. Strength

Factors to be a force in improving the competitiveness of the manufacturing industry in Semarang Regency to face the AEC in 2015 include:

- Support the banking financial institutions and non-bank on the course of production.

- Development of road infrastructure in Central and plan cross-Java toll road construction.
- The quality of products is guaranteed by ISO.
- Licensing Services through One Stop Services that facilitate the permitting fast, precise, inexpensive and transparent.
- A conducive business climate
- The entry of new industry opportunities still open
- Local agricultural products and other primary sectors overflow that can be used as a source of industrial raw materials
- Incentives from the government in the form of tax reductions or rebates of up to 40%, especially for the textile industry and textile products that would restructure the engine
- There is a human resource training institutions ready to work from public and private
- There is a certificate that guarantees the legality of timber that Timber Legality Verification Certificate
- Semarang Regency has the largest wood-based industry, which is the focus of industrial policy at the provincial level
- Availability of electrical energy is low so that the power supply in the entire region of Central Java and Yogyakarta is very limited.
- There was an over supplied in the chain of production due to the use of imported raw materials.
- Upstream industry which produces raw materials a little seed industry
- The existence of industrial areas is still lacking to support ease of entry of investment.
- The quality of human resources is still relatively low

2. External factors

External factors are factors supporting or inhibiting an increase in the competitiveness of the manufacturing industry in Semarang Regency who come from outside the industry. External factors can't be controlled by the industry, because it comes from outside the industry and generally unpredictable. These factors consist of opportunities and threats.

A. Opportunities

Factors to be an opportunity to increase the competitiveness of manufacturing industry in Semarang Regency to face the AEC in 2015 include:

- Infrastructure to Port of Tanjung Emas is still bad.
- The cost is expensive because of the circulation container logistics is too slow and the length of time processing of documents
- Higher logistics costs in Indonesia, which accounts for about 18-22 percent of the production costs
- The increase in energy tariffs (electricity, fuel, etc.) which have an impact on the rising costs of industrial operations
- There is a gap between research institutions with industry so that research results can't be implemented in the industry.
- The dependence of imported raw materials and auxiliary materials that support the course of production
- It is not yet clear regulations concerning water management for the private sector with the repeal of Act No. 7 of 2014 on water resources that cause confusion, especially industrial raw material water
- Industrial productivity is relatively low and mostly using low technology
- The market share with a wider opening of access easier trade between the member countries of ASEAN
- There is no tariff barriers
- Export online services that facilitate export transactions
- Reference laboratories for food and beverage products in the ASEAN level to test the quality of food and beverage products that will be traded in ASEAN
- Procurement of exhibition events both domestically and abroad
- There is a log export ban
- The advanced technology that can improve the efficiency and productivity of the industry
- The potential of the raw material wood and non-wood that has not been utilized optimally
- Construction of a new industrial estate that is in Demak, Grobogan, and Kendal, which can accelerate the industry in Semarang Regency.
- Accelerated development of infrastructure projects and the integrated natural gas distribution.

B. Threats

The factors that constitute threats in improving the competitiveness of the manufacturing industry in Semarang Regency facing the AEC in 2015 include:

- The number of competitors increases because there are no trade barriers.
- Quality of products from competing countries equal even better than local products
- Prices of products of other countries more competitive because it does not rely on imported raw materials
- The cost of logistics other ASEAN countries cheaper.
- The quality standards implemented high export destination countries
- The issue of environmental damage caused by illegal logging and pollution.
- Workers from ASEAN countries are more competent
- The presumption world that the national industry using raw materials, especially illegal timber
- People who prefer imported products rather than local products

The strategy for improving the competitiveness of the manufacturing industry in Semarang Regency.

Strategies to increase competitiveness formulated based on factors that have been identified. The strategy formulated by considering the result of the interaction between internal factors and external factors that have been identified by using SWOT. Here is the formulation of a strategy that is generated in this study:

1. Strategies S-O

S-O strategy is a strategy that was formulated based on the strength of the manufacturing industry in Semarang Regency competitiveness to seize opportunities that exist. The strategies include:

- Carry out a production process that meets the standards and the use of quality raw materials in order to ensure the quality of food and beverage products in order to pass on all the laboratory tests at the ASEAN level. There are six reference laboratories namely ASEAN Food Reference Laboratories (AFRL) for pesticide residue testing, AFRL for mycotoxin testing, AFRL for residue testing of veterinary products, AFRL for heavy metal test, AFRL to test material containing genetic engineering, and AFRL for microbiological testing. The two laboratories are still proposed the AFRL for food additives and AFRL for food contact materials.
- Improve services Integrated Licensing Services to facilitate the entry of new industries. Such efforts

can be taken to encourage the entire service licenses and non-permits to meet ISO standards and equitable licensing services to the border area.

- Utilize online media to maximize exports. Use of the ASEAN Single Window facility and the National Single Window to simplify the maintenance process and the licensing of customs and expenditures so that the performance of the traffic of goods between ASEAN countries more quickly.
- Promotion to reach the market through a variety of media interest and participation in any exhibition held both at home and abroad.
- Ensure the supply of products by maintaining and improving the productivity of machines and manpower, continuity of supply of raw material, ensuring the continuity and the fulfillment of other essential inputs.
- Improved industrial cooperation with labor recruitment agencies. It is aimed at the fulfillment of qualified labor because it already has the skills.
- Optimizing the use of raw materials of wood and non-wood to make furniture more creative. The use of raw materials of wood and non-wood varied followed by a variety of innovation and creativity are able to produce new products and quality.
- The use of appropriate technology, in accordance with the conditions and objectives of the industry. The existence of advanced technologies must be accompanied by human resources competent and tailored to target long-term development of the industry.

2. Strategies S-O

W-O strategy is the formulation of a strategy to minimize the weaknesses of the seed industry in Central Java province to seize the opportunities that exist. The strategies include:

- Repair and improvement of port infrastructure to attract new investors and distributes its products through the port.
- Shorten the chain of distribution of products and the improvement of distribution channels. For example, the waiting time at the port, the container circulation and processing of documents in order to be accelerated so as to reduce costs.
- Improving production efficiency by optimizing the use of energy. This can be done by setting the sort order for the engine in accordance chain production process, inspection of the machine regularly to avoid wasteful of fuel, restructuring obsolete machines, and improving the quality of labor.

- Issuing regulations quickly and clearly to facilitate industrial operations.
- Improving the quality of education to prepare workers who are reliable and on-demand market. This can be done to improve the quality of teachers, curriculum improvement that adjusts employment conditions, and adjustments competency standards with market demand.

3. Strategy S-T

S-T strategies formulated by the strength of the manufacturing industry in Semarang Regency to address the threats. The strategies include:

- Improving the quality of products using quality raw material, improving the quality of human resources, the use of appropriate technology, as well as the fulfillment of existing quality standards.
- Conducting research and development so that local agricultural products able to qualify as an industrial raw material.
- Enhancing partnerships between farmers' groups with industry so that farmers are able to meet the raw material in accordance with industrial criteria.
- Development of production capacity through product diversification through the use of raw materials that are both varied and innovation.
- Restructuring obsolete machines to increase productivity by utilizing government incentives
- Ensuring the implementation of the Timber Legality Verification System and thoroughly on all wood-based industries so that the legality of the timber can be accounted for.
- The more intensive socialization in the community through a variety of media socialization for more love domestic products
- Ensuring continuous supply of raw materials with attention to environmental sustainability that is by doing selective cutting of timber and replant the new plant as a replacement of trees felled.

4. Strategy S-T

WT strategy formulated by minimizing the weaknesses of the manufacturing industry in Semarang regency and avoid threats. The strategies include:

- Mapping the logistic means to benefit both in terms of time, cost, and accuracy of distribution. Selection of transportation mode adjusted with the aim to minimize logistics costs.
- Studying the implementation of logistics systems cheaper carried out in several countries, such as Thailand state. The Thai government take it to conduct training on the perpetrators of logistics

service providers and improve their operations in order to meet international standards.

- Provide incentives for investors who want to set up import-substitution industries in the form of tax reduction or exemption, granting discounts for the purchase of machinery, and other incentives that support the industry that investors are interested in making available the upstream industry.
- Provide incentives for industries that want to increase the proportion of local raw materials that industry is not always dependent on imported raw materials and local products can be absorbed properly.
- Provide incentives for industries that want to innovate in science and technology-based industries that innovations made in accordance with the results of research that has been done.
- Conduct training of workers to be more productive through training on a regular basis, especially for new workers.

CONCLUSION

Implementation of strategies to improve the competitiveness of the manufacturing industry in the district of Semarang, Central Java province in order to face the AEC in 2015, among others, the first strategy is SO namely the optimization of the use of local raw materials to make products that are more creative and use appropriate technologies in accordance with the conditions and objectives of the industry , Second, WO strategies that increase production efficiency in order to optimal energy usage as well as improve the quality of human resources that are reliable and on-demand market. Third, ST strategy in the form of improving product quality and ensure a continuous supply of raw materials with regard to environmental sustainability. Fourth, WT strategy be mapped favorable logistics facilities and provide incentives for industries that want to increase the proportion of local raw materials

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Determinants and Impact of Performance to Achieve a Sustainable Competitive Advantage on SMEs Industrial Crafts Goods and Arts in Indonesia

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Abstract — Implementation of the ASEAN Economic Community (AEC) which will be implemented by the end of 2015, making SMEs in Indonesia will face the challenge and the opportunity, including SMEs in Industrial Craft Goods and arts. Vision of the development of SMEs industrial crafts goods and arts is made craft products and art as craft products base of the world. To achieve this vision, the policy development of the craft industry and art items geared to the challenges of globalization of trade, able to anticipate market developments are rapidly changing tastes, as well as developing the ability of a strong product competitiveness in the international market. The government set the priority distribution of craft industry and art which refers to the core competencies and in the regions, and to encourage quality improvement, creation and innovation design and art crafts. Although economically SMEs have a significant contribution to economic growth, but in general the condition of SMEs is not yet fully able to take part in global competition intensifies, because the majority of SMEs in Indonesia are weak in mastering technology and marketing strategies. Another problem is the low quality of management and limited resources with low quality, resulting in weak business networks, the limited ability of market penetration and market diversification, economies of scale is too small that it is difficult to reduce the cost, the profit margin is very small, and yet have a competitive advantage. Based enterprise resource management is one alternative solution for SMEs, because it can create a special competence and provide strategic choice to achieve sustainable competitive advantage. To create competitive advantage, the necessary human resources that have a reliable entrepreneurial orientation to face the internal and external factors of the company, in the form of management of these factors into the right business strategy for the company. The right business strategy with market orientation and learning orientation as well as the ability to align themselves with the dynamics of the environment has the potential to improve performance (in this case the performance marketing) and to achieve sustainable competitive advantage. This research aims to develop an empirical model to analyze the effect of the determinant of the performance marketing performance marketing to achieve a sustainable competitive advantage in SMEs and craft industry Art Goods in Indonesia. Determinant of the performance of marketing covering internal variables such as entrepreneurial orientation, market orientation and learning orientation; external variables such as the dynamics of the environment; and mediating variables, namely the capability of marketing and competitive strategy. The population in this study are all SMEs listed on SMESCO-Indonesia, the sample unit is the enterprise / SME. The method used is quantitative, with stratified random sampling technique. Methods of data collection is done by distributing questionnaires. Analysis of causality between variables using structural equation modeling. Specific outcomes that will result from this study is the draft dissertation and publications in international journals. The resulting outcome is expected to contribute useful for SME managers and inputs for the government

in determining the direction and development of appropriate policies for SMEs industrial crafts goods and arts in Indonesia to penetrate the export market and high competitiveness in the global market.

Keywords— *Market Orientation, Entrepreneurship Orientation, Learning Orientation, Capability Marketing, Business Strategy, Marketing Performance, Sustainable Competitive Advantages, Craft Industry and Art Goods, MEA*

INTRODUCTION

From the 55 million SMEs in Indonesia, there are 75 thousand SMEs (BPS, 2013). With the number of entrepreneurs, Indonesia controls about 25% of the potential market growth of small and medium entrepreneurs in ASEAN. However, the value of Indonesia's trade with ASEAN in terms of exports from Indonesia to ASEAN (40.6%) and from ASEAN to Indonesia (53.9%), the difference still seems quite far (Ministry of Commerce, 2014).

Comparison of number / value of exports is based on the scale of business (Wignaraja, 2012) indicates that the value of exports carried Large Enterprises country Indonesia (91%), was the highest among ASEAN countries, followed by Vietnam (83%), Malaysia (72%), the Philippines (67%) and Thailand (65%). On the other hand, the export of Indonesian SMEs undertaken only 9% and is the lowest compared to all other ASEAN countries (Thailand the highest 35%, Philippines 33%, Malaysia 28% and Vietnam 17%).

Although economically SMEs have a significant contribution to economic growth, for instance contribution subsector craft industries in 2013 ranks 3rd of 15 sub-sectors of creative industries to value the achievements of a contribution of 15% (Data Distribution 15 Subsector Creative Economy in Gross Value Added (NTB) In 2013, Source: BPS, 2013), but in general the condition of SMEs is not yet fully able to take part in global competition intensifies, because the majority of SMEs in Indonesia are weak in mastering technology and marketing strategies. Another problem is the low quality of management and limited resources with low quality, resulting in weak business networks, the limited ability of market penetration and market diversification, economies of scale is too small that it

is difficult to reduce the cost, the profit margin is very small, and yet have a competitive advantage.

BPS (2014) indicates that the potential of the SME market in Indonesia in 2014 is worth about 7.7 trillion, this market continues to grow by 12% from year to year. The potential estimated in 2015 to around Rp. 8.2 trillion. While the total SME market in ASEAN reached USD 2.5 billion. However, although in terms of quantity, the number of SMEs more than large businesses (LB), was the value of exports carried / SMEs are still far below the value of exports LB. The export value of Indonesian SMEs are in the lowest rank (9%), the highest are Thailand (35%), followed by the Philippines (33%), Malaysia (28%) and Vietnam (17%). The factors are that cause the low value of exports of Indonesian SMEs, the main issues of this study.

As it has been known that the development of SMEs have always faced an attempt to answer two key issues. First, the SMEs as a competitive sector for export oriented so that its development is very selective in certain sectors. Secondly, said job creation efforts to tackle the problem of poverty. The dual orientation requires the introduction of targets and selection of appropriate policy instruments.

This phenomenon shows that SMEs remains to be aided by a variety of government support in the form of institutional services, financing services as well as full support for open global markets. In addition the owners / managers of SMEs have to try harder to reach a position as SMEs are superior in terms of products and institutionally.

Based enterprise resource management (resources-based view or RBV) is an alternative solution for SMEs, because through the management was able to create a special competence and provide strategic choice to achieve sustainable competitive advantage (Barney, 2001). Conditions increasingly competitive business environment in the regional context requires small businesses to leverage resources in an innovative and proactive in order to win the competition.

Identify any variables that influence the performance of the SME Marketing Crafts and Art Goods Industry, and the influence of marketing performance to achieve a sustainable competitive advantage becomes important SME to do. There is still much research organizational perspectives orientation strategy consists of market orientation, entrepreneurial orientation, learning orientation jointly (Herath and Rosli, 2013), aligned with the dynamics of the environment (Sudhiarka, Ubud, Eka, and Armanu, 2012) to achieve business performance high through capability marketing (Vorhies, and Morgan 2005; Theodosiou, 2012; Halim, Djumilah H., Solimun and Djumahir. 2012) and competitive strategy (Rosnawintang, Ubud, Armanu, and Mintarti, 2012) which applied SMEs. Furthermore, how to achieve sustainable competitive advantage through performance marketing (Prakosa, 2005).

SIGNIFICANCE OF STUDY

In particular reality of the existence of the development of SMEs Crafts and Art Goods in Indonesia, including Batik and Craft is an actual picture of the business activities of SMEs in the process of achieving a competitive advantage that is relatively complex.

Research gaps in the research to be conducted based on previous studies, among others, 1). That the discovery of variables influence the market orientation, entrepreneurial orientation, learning orientation, environmental dynamics, kapabilitas marketing and competitive strategy against the performance still gives different results. It is estimated that a different result is related to the constructs used to measure the variables, and analysis tools are used, it is an opportunity to develop the existing construct with reference to the literature that develop constructs that had been used, as well as considering the use of different analytical tools. 2) Although there has been some empirical studies that document the relationship business environment, strategies and performance of the company, which supports the theory that emphasizes contingency alignment of strategy with the business environment as a determinant of corporate performance, but in Indonesia such studies are rarely carried out. 3) Few studies have examined the achievement of sustainable competitive advantage through performance marketing, including in Indonesia.

This research benefits for SMEs is to develop a model of marketing performance and sustainable competitive advantage that can provide guidance on entrepreneurship development for SME owners or leaders, especially batik and craft in Indonesia. For the Government, especially the Ministry of Industry and Ministry of Cooperation of SMEs, the development of this model can provide guidance on the development of entrepreneurship, especially in the handicraft industry and art. And is expected to be developed in other clusters of SMEs for the empowerment and development of SMEs nationwide.

OBJECTIVE OF STUDY

This research aims to develop a theoretical model and model empirical, because theoretical models will be confirmed using empirical data, to analyze the effect of marketing performance and determinants of performance marketing (variable market orientation, entrepreneurial orientation, learning orientation, the dynamics of the environment as well as the capability of marketing and competitive strategy) to sustainable competitive advantage, particularly for SMEs and craft industry art goods in Indonesia.

THEORITICAL FRAMEWORK

Approach to the theory of Resource Based View (RBV) under which pioneered by Barney (1991) states that 1) a competitive advantage to be gained if the strategy applied to create value for the company at this time or in the short term can not be applied by competitors or potential competitors, 2) competitive advantage can be sustained (sustained

competitive advantage) if a competitor difficult to replicate the excellence of a company. RBV identified four characteristics that Valueable, Rareness, In imitable and non

substituable (Vrin) necessary for resources to generate sustainable competitive advantage (Figure 1).

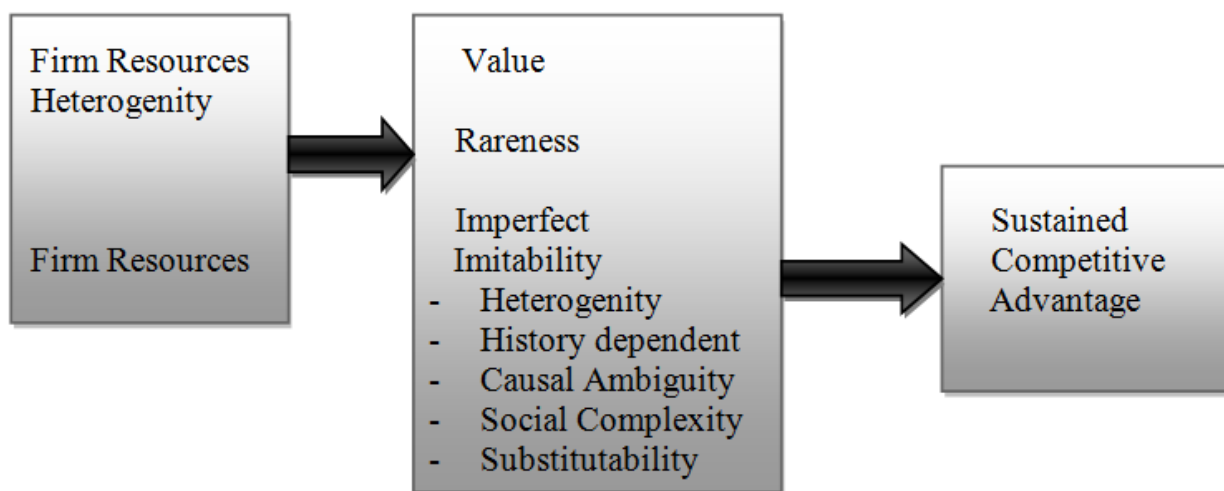


Figure 1. Basic Model RBV (source: Barney, 1991)

While the approach of Contingency Theory in relation environment-strategy-performance of Beal (2000) and Covin and Slevin (1989) show that companies are able to align strategy or indicate the level of suitability is high with the business environment will be able to generate performance businesses better than the less successful companies align strategy with its business environment.

Sustainable Competitive Advantage according to Day and Wensley (1988) are forms of the strategy to assist the company in maintaining its viability. Opinion was supported by Ferdinand (2003) which states that in a competitive market, the ability of the company resulting in performance, particularly financial performance, highly dependent on the degree of competitive advantage. To perpetuate its existence, the company's competitive advantage should also be sustainable (sustainable) because basically the company wants to perpetuate its existence. Sustainable competitive advantage is the company's strategy to reach its final destination, the performance of which generate high profits. This means that sustainable competitive advantage is not an end, but a means to achieve the ultimate goal of the company, namely high performance. However, in some studies it was found that that sustainable competitive advantage can be achieved through marketing performance (Prakosa, 2005).

Based on RBV theory, Barney (1991) proposed a formal definition that is closer to the definition of sustainable competitive advantage that is often used today, the advantages are achieved continuously by implementing strategies to achieve unique values that are not owned by a competitor. Further said that the company is said to have a sustainable competitive advantage if the company is able to create value at that time is not being done either by

competitors or potential competitors are not able to mimic the advantages of this strategy. According to Day and Wensley (1988) the company's resources have the potential competitive advantage if it has four attributes, namely: 1. Scarcity 2. Value 3. inimitable 4. It can not be replaced. In addition, factors that could affect the company's efforts in order to create competitive advantage is the capability and Superior Resources.

The company's performance measures or execution of tasks that can be measured and also a construct that is commonly used to measure the impact of the company's strategy. Performance of the company consists of several components, such as financial performance, marketing performance, the performance of information technology, and others. Marketing performance is the result achieved by the company in meeting consumer expectations (Vorhies and Harker, 2000), which can be measured by customer satisfaction, Delivery of Value, Effectiveness Program Marketing, and New Product Success.

Capability Marketing is the company's ability to perform a variety of marketing functions, which can be measured by six indicators: Market Research, Channel / Distribution, Pricing, Product Development .Promosi / Communications marketing, and marketing management (Vorhies and Harker, 2000).

Competitive strategies according to Porter (1980) basically can be grouped into three generic strategies: 1) a thorough cost advantage strategy, 2) Differentiation Strategy 3) Strategy Focus. Business strategy can not only be applied in the enterprise with a large scale. Small businesses should also have even implement business strategies. Many studies and articles concerning the implementation of a business strategy in small business. The general conclusion which

found that a lack of knowledge management strategy is a serious obstacle for small business owners.

Business environment is examined, focusing on the dynamics of the environment is conceived as a rapidly changing environment and discontinuous on market demand, competitors, technology and regulation, so that often the information is inaccurate or unavailable, and identified the existence of 1) the uncertainty of the environment and, 2) the intensity of competition high (Hashim, Wafa and Solomon, 2001). Research results Hashim et al (2001) showed that Porter's 3 generic strategies relevant for measuring the performance of SMEs in Malaysia, there is a relationship between business strategy and performance are moderated by the environment, this means that the company implement a business strategy based on the environment encountered.

Variable strategic orientation consisting of market orientation, learning orientation and entrepreneurial orientation of which are defined as follows. Market orientation according to Narver and Slater (1990) is a concept of orientation that focuses on value creation - a high value for the consumer. Market orientation as a single-dimensional construct consisting of three components of behavior, namely the orientation of customer (customer orientation), the orientation of the competitors (competitors orientation) coordination between intra-company functions (inter functional coordination).

Learning orientation according Sinkula et al (1997) is a series of organizational values that affect the tendency of companies to create and use knowledge. Learning orientation is the degree of the company's emphasis on the value of learning for the sake of long-term benefit, as measured by a commitment to learning, shared vision and openness of thought. Orientation learning can be conceptualized as an effort to increase organizational values that affect the possibility of the company to create and exploit knowledge. Learning orientation affects the satisfaction level of the organization to the theory used, and then the level of the learning process that is proactive.

Entrepreneurial orientation can be a way to see how the company's management can uncover and exploit the opportunities that exist, and it seems a lot of scientists who agree with Miller (1983) that the orientation of this kind is formed by three dimensions, namely the ability to innovate (innovativeness), proactive (proactivity) and a tendency to take risks (propensity for risk taking). Wiklund and Shepherd (2003) states that with a through investigation of the orientation of entrepreneurial companies, can explain the presence of managerial processes that enable companies to reach a position that is superior to its competitors, because the entrepreneurial orientation facilitates the actions of the company to act on early signs coming from internal and external environment.

The relationship between the entrepreneurial orientation and determinants are still investigated in several studies. Several factors determine entrepreneurial orientation

originating from the external environment in which the company operates as well as from the organizational variables (Covin & Slevin, 1991).

Hult et al (2004) which examines the strategic orientation with a sustainable competitive advantage discover that the interrelationship between the different strategic orientations provide a sustainable competitive advantage for organizations

Relationship marketing performance with a sustainable competitive advantage has been studied by Prakosa (2005), the results show that there are positive influence of marketing performance for sustainable competitive advantage. In this case, the competitive advantage with regard to how companies select and actually can implement generic strategies into practice in order to make the company more valuable. Other studies answer the factors that can enhance product innovation to generate optimal marketing performance that will achieve sustainable competitive advantage in terms of market orientation which includes indicators of customer orientation, competitor orientation and coordination across functions

Previous Day and Wensley (1988) stated that there are two foothold in achieving competitive advantage, the advantage of resources and advantages of the position. Measurement of competitive advantage in research Day and Wensley (1988) stated that there are two foothold in achieving competitive advantage, the first is the primacy of resources consisting of excellence expertise and excellence in raw materials, then the second is excellence position consisting of excellence relatively low cost and excellence value for customers.

Other studies related to the variables that will be examined include research Rosnawintang, Ubud, Armanu, and Mintarti (2012), shows that the performance improvement is done directly through the effectiveness of market orientation indirectly through the proper application of competitive strategy. Environmental dynamics reinforce the accuracy of the application of competitive strategy to improve performance. The effectiveness of market orientation which is done through customer orientation with a competitive strategy through product differentiation has improved performance.

Other researchers Sudhiarka, Ubud, Eka, and Armanu (2012), found that strategic resources, entrepreneurial orientation, and the dynamics of the environment is an important basis for implementing the right strategy to compete with. The key to success in achieving business performance is determined by strategic resources and the competitive strategy of direct and indirect effects of strategic resources, entrepreneurial orientation, entrepreneurial orientation and dynamics of the environment through the mediation of competitive strategy.

METHODOLOGY

This research is a survey which aims to test the hypothesis and to explain the role of performance and determinants of performance (including market orientation, entrepreneurial orientation, environmental dynamics, marketing capabilities and competitive strategy) on the sustainable competitive advantage of SMEs. The population is determined by the researchers is the population of SME Industrial Arts and Crafts and export-oriented goods listed on the Small & Medium Enterprises and Cooperatives (SMESCO-Indonesia). At SMESCO Indonesia 676 registered SMEs, from 34 provinces. Of the population will be sampled with stratified random sampling technique based business scale proportionately.

Data collection is done by distributing questionnaires to the respondents. Respondents are the owners / managers of SMEs that / those who have the authority to take decisions. According to Hair et al (1995) the number of samples that are ideal for SEM is between 100-200 so that the minimum sample size is as much as 5-10 observations for each indicator. The number of samples that both must meet two criteria: accuracy and precision. Accurate sample is not biased. While precision is the sampling error (sampling error) is low.

Problems of this research is including research problems associative (correlational and causal). Scale measurement techniques used in this research is the Likert Summated Rating (LSR) to 5 scale for measuring the variables that are perceived.

Tests conducted research instrument in the form of test validity and reliability testing carried out on the measuring instrument to be used: (1) Testing and trials scale measurements on a number of respondents, (2) Preparing the data tabulation table, (3) Calculate the correlation score of each item score with a total score of variables to test the validity and interpret the results (using product moment correlation). Item scores were invalid should be discarded.

(4) Calculate the value of alpha (see Cronbach Alpha value).

The statistical analysis used in this research is descriptive and inferential statistical analysis. Descriptive statistical analysis intended to summarize data and presenting the results peringkasan such data. Prior to inferential statistical analysis (inductive) will first test statistical assumptions, among others Normality Test and Test Linearity.

The analysis technique used in this research is Structural Equation Model (SEM) which is operated through LISREL, AMOS or PLS, a program structural equation modeling will use in this study is consistent with the framework research model, with the justification that there is more than one the dependent variable and there are interrelationships between multiple dependent variables with several independent variables that need to be analyzed at the same time (simultaneously). In other words, because the use of SEM is

a set of statistical techniques allow measurement of a relatively complex set of relationships simultaneously. Modeling research through SEM allows a researcher to answer research questions that are regressive and dimensional, which measures what the dimension of a concept (Ferdinand, 2006). SEM can also identify the dimensions of a concept or construct and at the same time SEM can also measure the degree of influence or relationship factors will be identified dimensions.

Model Framework Research

Based on the above research gap, so in this research development research model (figure 1) of several previous studies related to the variable orientation strategies (market orientation, entrepreneurial orientation and learning orientation) by adding variable environmental dynamics as external factors and mediating variables, namely the capability of marketing and business strategies that will mediate the three dimensions of the strategic orientation with marketing performance of SMEs, as well as adding the variable estimated sustainable competitive advantage can be achieved through marketing performance (Prakosa, 2005).

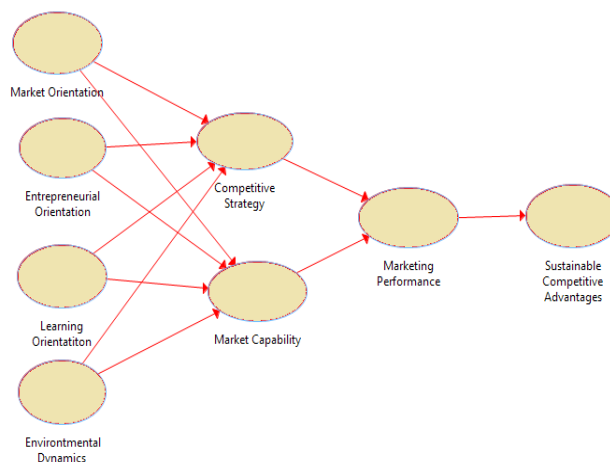


Figure 2. Framework Research Model

RESULTS AND DISCUSSION

This research was carried out and wait respondents either through online questionnaires and questionnaires sent by certified mail with a SASE. In addition, researchers involved enumerators to help guide the questionnaires directly at the workshop SMEs or at exhibitions and seminars SMEs in the Greater Jakarta area, followed by the owners / managers of SMEs are being sampled in this study. Until now only collected a number of questionnaires filled out by respondents that can only be used for the purposes of validity and reliability testing of the questionnaire research that has been made. Calculations for validity and reliability tests performed with SPSS version 17.0. Validity Test results are presented in Table 1.

TABEL 1. VALIDITY TEST RESULTS

| Konstruk/ Variabel Laten | Item | R Hitung | Keterangan | Konstruk/ Variabel Laten | I tem | R Hitung | Keterangan |
|--------------------------------------|------|-------------|------------|--------------------------------|-------------|-------------|------------|
| 1. Market Orientation | 1 | 0.627* * | valid | 6. Marketing Capability | 6 2 | 0.6 58** | valid |
| | 2 | 0.599* * | valid | | 6 3 | 0.7 78** | valid |
| | 3 | 0.518* * | valid | | 6 4 | 0.5 62** | valid |
| | 4 | 0.759* * | valid | | 6 5 | 0.1 51 | not valid |
| | 5 | 0.698* * | valid | | 6 6 | 0.8 11** | valid |
| | 6 | 0.697* * | valid | | 6 7 | 0.5 85** | valid |
| | 17 | 0.654* * | valid | | 6 8 | 0.4 43** | valid |
| | 8 | 0.762* * | valid | | 6 9 | 0.6 46** | valid |
| | 9 | 0.893* * | valid | | 7 0 | 0.7 77** | valid |
| 2.Entrepre neurial Orientation | 10 | 0.473* * | valid | 7 1 | 0.7 55** | valid | |
| | 11 | 0.270 | not valid | 7 2 | 0.7 93** | valid | |
| | 12 | 0.684* * | valid | 7 3 | 0.6 50** | valid | |
| | 13 | 0.662* * | valid | 7 4 | 0.8 88** | valid | |
| | 14 | 0.350 | not valid | 7 5 | 0.9 55** | valid | |
| | 15 | 0.844* * | valid | 7 6 | 0.8 17** | valid | |
| | 16 | 0.568* * | valid | 7 7 | 0.6 39** | valid | |
| | 17 | 0.648* * | valid | 7 8 | 0.8 50** | valid | |
| | 18 | 0.645* * | valid | 7 9 | 0.7 53** | valid | |
| 3. Learning Orientation | 19 | 0.540* * | valid | 8 0 | 0.7 86** | valid | |
| | 20 | 0.623* * | valid | 8 1 | 0.7 45** | valid | |
| | 21 | 0.257 | not valid | 8 2 | 0.9 82** | valid | |
| | 22 | 0.555* * | valid | 8 3 | 0.9 66** | valid | |
| | 23 | 0.759* * | valid | 8 4 | 0.9 83** | valid | |

| | | | | | | | | |
|------------------------------|----|-------------|-----------|-----------------------------|----|-----------|-----|-------|
| | 24 | 0.690* * | valid | | 5 | 8 42** | 0.9 | valid |
| | 25 | 0.773* * | valid | | 6 | 8 50** | 0.9 | valid |
| | 26 | 0.753* * | valid | | 7 | 8 74** | 0.8 | valid |
| | 27 | 0.571* * | valid | | 8 | 8 71** | 0.9 | valid |
| | 28 | 0.609* * | valid | | 9 | 8 82** | 0.9 | valid |
| | 29 | 0.792* * | valid | | 0 | 9 82** | 0.9 | valid |
| | 30 | 0.792* * | valid | | 1 | 9 73** | 0.9 | valid |
| | 31 | 0.691* * | valid | | 2 | 9 94** | 0.8 | valid |
| | 32 | 0.619* * | valid | | 3 | 9 82** | 0.9 | valid |
| | 33 | 0.711* * | valid | | 4 | 9 88** | 0.8 | valid |
| | 34 | 0.689* * | valid | | 5 | 9 95** | 0.8 | valid |
| 4. Dinamika Lingkungan | 35 | 0.479* * | valid | | 6 | 9 86** | 0.8 | valid |
| | 36 | 0.815* * | valid | | 7 | 9 28** | 0.9 | valid |
| | 37 | 0.140 | not valid | | 8 | 9 82** | 0.9 | valid |
| | 38 | 0.047 | not valid | | 9 | 9 82** | 0.9 | valid |
| | 39 | 0.347 | not valid | | 00 | 1 66** | 0.9 | valid |
| | 40 | 0.279 | not valid | | 01 | 1 70** | 0.9 | valid |
| | 41 | 0.433* * | valid | | 02 | 1 17** | 0.8 | valid |
| | 42 | 0.503* * | valid | 7. Marketing Performance | 03 | 1 42** | 0.7 | valid |
| | 43 | 0.695* * | valid | | 04 | 1 41** | 0.9 | valid |
| | 44 | 0.309 | valid | | 05 | 1 95** | 0.6 | valid |
| | 45 | 0.132 | valid | | 06 | 1 88** | 0.8 | valid |
| | 46 | 0.605* * | valid | | 07 | 1 18** | 0.8 | valid |
| | 47 | 0.557* * | valid | | 08 | 1 72** | 0.9 | valid |
| | 48 | 0.363* * | not valid | | 09 | 1 43** | 0.9 | valid |
| | 49 | 0.493* * | not valid | | 10 | 1 72** | 0.9 | valid |

| | | | | | | | |
|----------------------|----|--------|-----------|--|----|---------|-------|
| | 50 | 0.255 | not valid | | 11 | 0.840** | valid |
| | 51 | 0.792* | valid | | 12 | 0.819** | valid |
| 5. Strategi Bersaing | 52 | 0.296 | not valid | | 13 | 0.840** | valid |
| | 53 | 0.540* | valid | | 14 | 0.972** | valid |
| | 54 | 0.358 | not valid | | 15 | 0.581** | valid |
| | 55 | 0.847* | valid | 8. Sustainable Competitive Advanatages | 16 | 0.517** | valid |
| | 56 | 0.681* | valid | | 17 | 0.761** | valid |
| | 57 | 0.550* | valid | | 18 | 0.693** | valid |
| | 58 | 0.815* | valid | | 19 | 0.910** | valid |
| | 59 | 0.644* | valid | | 20 | 0.877** | valid |
| | 60 | 0.825* | valid | | 21 | 0.771** | valid |
| | 61 | 0.539* | valid | | 22 | 0.806** | valid |

Note: *Correlation is significant at the 0:05 level (2-tailed)/r value calculated above r value table when $\alpha = 0:05$
 **Correlation is significant at the 0:01 level (2-tailed)/r value calculated above r value table when $\alpha = 0:01$
 R value tables when $n = 30$, $\alpha = 0:05 = 0.374$ and r value tables when $n = 30$, $\alpha = 0:01 = 0.478$

This research uses questionnaire data as the primary data, so that the necessary steps test questions (questionnaire) to determine whether the question is proper or not to be used to measure constructs / variables in question. This test is used to measure the authenticity and validity of a question item. Criteria for the decision is to compare the value of Corrected Item - Total Correlation compared with r table with the level of $\alpha = 0.05$ and $0:01$ (default of SPSS). Decision criteria is when the value of Corrected Item - Total Correlation bigger than r table then a decent indicator (valid) and vice versa (Ghozali, 2005).

Based on the test results the validity of the 122 the questions of the eight variables of the study, conducted by the variables, a few grains or item question Invalid namely items 11 and 14 (variable orientation Entrepreneurship), item 21 (Learning Orientation Variable), an items 37,38,39,40,44,45,50 (Environmental Dynamics variable), and the items number 52,54,65 (Competitive Strategy variable). This indicates that the item or items that are not valid questions can not be used to measure constructs / variables studied, and must be removed from the list of questions.

The next test is a test instrument that is related to the problem of reliability accuracy or reliability of a construct / latent variable, reliability testing through alpha coefficient values are compared with the value of 0.60. Construct or

latent variabel said to be reliable if the variable has a value of alpha above 0.60, and vice versa (Ghozali, 2005). Test Reliability research was conducted on eight research variables by eliminating grains question invalid. There are 13 the questions that are not valid and are not included in the reliability testing. Thus the reliability testing done for each construct / latent variables that have been omitted items the question invalid. The total is only as much as 109 items tested, the reliability test results for each constructs or latent variables are presented in Table 2.

TABLE 2. RELIABILITY TEST RESULTS

| Construct / Latent Variables | Cronbach's Alpha | Number of Item | Description |
|------------------------------|------------------|----------------|-------------|
| Market Orientation | 0.919 | 9 | Reliable |
| Entrepreneurship Orientation | 0.775 | 7 | Reliable |
| Learning Orientation | 0.919 | 15 | Reliable |
| Environmental Dynamics | 0.759 | 10 | Reliable |
| Competitive Strategy | 0.886 | 11 | Reliable |
| Market Capability | 0.990 | 37 | Reliable |

| | | | |
|------------------------------------|-------|----|----------|
| Market Performance | 0.969 | 12 | Reliable |
| Sustainable Competitive-Advantages | 0.880 | 8 | Reliable |

Table 1 shows that all the coefficient alpha (Cronbach's alpha) for each construct / latent variables were tested turned out to have a value above 0.60, so it can be explained that the research variables (constructs) in the form of variables Market Orientation, Orientation Entrepreneurship, Orientation Learning, Environmental Dynamics, Competitive Strategy, Marketing Capability, Performance Marketing and Sustainable Competitive Advantages are reliable or have a high reliability, so as to have the precision or reliability to be used as variables (constructs) in a study. From the results of the reliability test will be followed by the next stage of data analysis by using item question in accordance with the results of this reliability test.

The questionnaire has been distributed in the form of a letter deployment survey, spread via e-mail (online questionnaire), telephone interview, and interviews (in the SME workshop, where exhibitions, seminars / surgical SMEs). If the questionnaire responses of the respondents have been in and meet certain amount eligible for further data analysis, the researchers will conduct the following activities: (1) Perform a descriptive analysis to provide a full picture of demographic profile of the respondents that the research sample (2) Classical Assumption Test includes Normality Test, Test Linearity and some other test required (3) Conduct inference analysis will be conducted to test the hypothesis that the model fit was obtained using SEM analysis techniques. Suitability models were evaluated through a review of the various criteria Goodness-of-Fi. The first action is to evaluate whether the data used to meet the assumptions of SEM are: (1) The sample size according to the needs for testing using SEM (100-200 samples), (2) normality and linearity requirements are met, (3) There is no Outliers and (4) Multikolinearity and Singularity.

CONCLUSION

Tentative conclusions obtained from this study is that of 122 grains / 8 question items that represent the variables, there are 13 items / item question invalid. Thus only the remaining 109 items / the questions are considered valid to measure constructs studied. Reliability test results of the research variables (constructs) in the form of variables Market Orientation, Entrepreneurship Orientation, Learning Orientation, Environmental Dynamics, Competitive Strategy, Marketing Capability, Marketing Performance and Sustainable Competitive Advantages shows that eight of these variables is reliable or has a high reliability , so as to have the precision or reliability to be used as variables (constructs) in a study. From the results of the reliability test will be followed by the next stage of data analysis by using

item question in accordance with the results of this reliability test.

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Ecopreneurship Mini Market as the First Step in Creating International Inorganic Waste Management Centre Based on Entrepreneurship in Indonesia

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Abstract — In 2013 the number of Indonesian population reached more than 230 million inhabitants. With the increasing of population from year to year. The household consumption accounted for the largest share of Indonesia's GDP, 55.8 percent and continued to grow significantly. Public consumption such as foods, drinks, and others had increased inorganic waste in the community. However, there is no effective solutions for managing an existing inorganic waste in our environment. Ecopreneurship mini market is one of the solutions that engage less educated people able to utilize inorganic rubbish surrounding environment through a system of effective and efficient management of the spirit of the movement of 5R (Reduce, Reuse, and Recycle, Repair, and Replace). In Ecopreneurship mini market there are at least 3P + K, which means: (1) training, (2) processing, (3) Marketing, (4) Cooperation. The main purpose of this paper are to determine, assess, and as a solution to problems caused by inorganic waste in society. The data used from data of final rubbish processing (TPA) from Department of Cleaness and Landscaping and data of small and medium enterprises from Department of Cooperatives and SMEs of Semarang city in period 2010 – 2014. Therefore, the implementation of ecopreneurship mini market as pilot project to establish the international inorganic waste management centre based on entrepreneurship in Indonesia. Finally, less educated people easier to promote their product and income distribution of the community go hand in hand with greener environment will be achieved.

Keywords— *marketing, inorganic waste management, entrepreneurship.*

INTRODUCTION

Total population of Indonesian in 2013 reached more than 230 million inhabitants and will grow up year to year (CBS, 2013). It caused some social problems in society especially

matter of adding the volume of waste in Environment. There are two kind of rubbish namely organic and inorganic waste. At present, a system managed by temporary shelter (TPS) to the final processing (TPA) is not effective because it only gather some waste without choosing the productive rubbish. So that, it needs the appropriate place to overcome those matters. According to the Law No. 18 in 2008 on Waste Management and Government Regulation No. 81 in 2012 mention that we have to change previous paradigm namely the paradigm of a gather-carry-throw waste into the processing relies on the efficiency of waste reduction and processing waste that has a high sales value. Activity of waste reduction means that all levels of society, including government, business and society conduct the restriction of waste stack, recycling, and reuse of waste or better known as the Reduce, Reuse and Recycle (3R) through the efforts of intelligent, efficient and programmed. Meanwhile, inorganic waste processing business has to manage waste inorganic understanding in society in order to be processed as a work that has a high value, such as plastic, bottles, cans, and others. Over the past two years, the rate of consumption level of Indonesian people has increased in percentage of 0.94 percent on food products and beverages (Central Bureau of Statistics, 2013). This is evidenced by the increasing volume of waste in landfills while up in landfills. The waste came from household garbage, industrial and garbage from the market. In addition, the lack of people skills in sorting waste into one of the causes accumulation of garbage in the final disposal. Therefore, it needs an effective waste management mechanism. Inorganic waste management requires effective media so that the goods produced from the waste can provide financial benefits for the people and environments (Isti Sudjandar, 2009)

Picture 1. Rubbish in urban's environment



Source: Greenlifestyle.or.id

Ecopreneurship mini market is an excellent media to reduce inorganic waste in society environment. Unlike mini market in general that sells household products that will add to the amount of garbage, such as: food, beverages, etc. Ecopreneurship mini market will give the new model is to sell product produced by rubbish that has high value and to persuade community to promote the movement of reduce, reuse and recycle as the program of the Ministry of Environment. Therefore, the ecopreneurship mini market will provide facilities for the whole community to develop his ability to manage the inorganic waste into some products, such as plastic, bottles and others. Through training on it that will be provided by the artist to the public, then the program will provide more skills to manage garbage effectively, so that the resulting work can compete with the products issued by other companies. In addition, through ecopreneurship mini market, it will be easier to promote some products produced by rubbish. Because Ecopreneurship mini market public revenue will increase. With some skill training provided it would reduce the number of unemployment to society who had lower education. Skills training will be given in order to give some train to select, process, and promote products of inorganic waste so that people will get better skills.

FORMULATION OF THE PROBLEM

Based on the background that has been presented, the issues to be raised in the writing of this paper is:

1.2.1. How does the implementation strategy Ecopreneurship mini market as the first step in creating an international waste management center based entrepreneurship in Indonesia?

LITERATURE REVIEW

2.1. Entrepreneurship

Entrepreneurship by Peter F. Drucker (1959) is the ability to create something new and different through creative thinking and innovative actions for the creation of opportunities. Innovation is the ability to apply creativity in order to solve problems and find opportunities or doing new thing while creativity is the ability to develop ideas and new ways to solve problems and find opportunities or new thinking think (Suryana, 2006). In general, the benefits of entrepreneurship is the mental attitude and spirit that is always active, creative, empowered, and understated in trying to increase revenue in its business activity or acts. Someone who has an entrepreneurial spirit and attitude always dissatisfied with what he had accomplished. While the entrepreneur is someone who has the ability to use and combine resources such as financial, material, labor, skills to produce products, production processes, business, and organization of new business (Marzuki Usman, 1997: 3). With the entrepreneurial person will much benefit so used to life in the community. Some of the benefits of entrepreneurship that can be obtained include: (1) provide the opportunity and the freedom to control yourself, (2) changes, (3) provide the opportunity to achieve their potential fully, (4) gain, (5) provide opportunities to acquire recognition from the community for his efforts (Suryana: 2006).

2.2. Marketing

Marketing is a social process which is individuals and groups obtain what they need and want by creating, offering, and freely exchanging products of value with others (Philip Kotler: 2010). In the marketing there are several aspects that must be fulfilled by marketer so that marketing proces can take place smoothly, those aspects are 4P means: (1) products, (2) price, (3) place, and (4) promotion, (5) people, (6) proces, (7) physical evidence. In order to promote of goods or services can be run well prior marketer must conduct market research that aims to determine such things sas: (1) number of inhabitants, (2) competition, (3) consumer tastes, (4) location, and others. Market research is very important because the manufacturers of goods or services should really know the overall market conditions so that marketing can be done on target. Moreover, in marketing a marketer have to do the marketing strategy. The marketing strategy is a fundamental statement about the impact expected to be achieved in terms of demand on the target market is determined. Some marketing strategies are: (1)

positioning, (2) segmentation, and (3) targeting (Armstrong and Kotler, 2010: 37).

2.3. Inorganic Waste Management

Etmologically, the management comes from the old French language, the meaning of art *menegement* implement and regulate or manage the word, which means to take care of, managing, implementing, and managing. In general, management is a field of science (science) that seeks systematically to understand why and how people work together to achieve goals effectively and efficiently and make the system work together is more beneficial to humanity (Luther Gulick: 1930). Meanwhile, according to Griffin (2004), the management is a process of planning, organizing, coordinating, and controlling resources to achieve the target (goals) effectively and efficiently. Inorganic waste is waste generated from non-biological materials either sinterik product and process technology results processing of mineral or natural resources and can not be broken down by nature. For example: plastic bottles, plastic bags, cans, and others. Unlike the organic waste decomposes in the soil capable so as to be used directly by humans as organic fertilizers, inorganic waste requiring special handling by humans to create added value for themselves.

METHODE OF RESEARCH

4.1 Writing Approach

The approach used is a qualitative descriptive. In the selection of this approach is expected to give a thorough overview of the state or certain symptoms in the object of study. In this case I tried to make picture Ecopreneurship Mini Market as a step in creating the International Preliminary Management Inorganic waste-based entrepreneurship in Indonesia.

4.2 Literature

The data used are primary data and secondary data. Primary data includes interviews and discussions on the topic of writing about Ecopreneurship Mini Market as a step in creating the International Preliminary Management Inorganic waste-based entrepreneurship in Indonesia. As for the secondary data through a literature review data sourced from Semarang city garbage in the development of services and environment data life SMEs from the data service SMEs. Other data taken from national journals, scientific articles, books on Management of litter method, Green Economy, Entrepreneurship and some Internet sites such as the Ministry of Environment, the Central Statistics Agency (BPS) associated with the discussion.

4.3 Method of collecting data

Data collection method used is the collection of primary data through interview method as well as a discussion on the

topic of writing. As for the secondary data through a literature review sourced from international journals, national journals, scientific articles and several books on the management of waste management.

4.4 Preparation Procedure Writing

The steps were performed in the writing of this paper is as (1) discover and formulate a problem, (2) finding and selecting sources of literature data that is relevant, (3) analyze existing data to address issues, (4) to formulate alternative solutions problems, (5) draw conclusions and recommend suggestions.

RESULTS

Ecopreneurship Mini Market is an excellent media for the community to address the problem of inorganic waste in the community through the shorting system, grouping, management inorganic waste into high value's product, and promote product as effective as possible. With the mini market ecopreneurship community will be increasingly easier to manage waste through movement 3R (Reduce, reuse, and recycle) that will help the community in creating a clean and healthy environment. Not only as a forum in creating environmental health through effective waste management, but ecopreneurship minimarket is also used as a medium for people to develop entrepreneurship from inorganic rubbish. Entrepreneurship in society would mean easier in marketing handicrafts. They generate from inorganic waste, because through ecopreneurship mini market handicrafts produced by the society will be more easily marketed to the customer. Until now, the craft community of residual materials including inorganic waste does not have a wide market. This is because society remain difficult to find the strategic place to promote their handicraft product to the consumers. Not only it, for society who do not have the capacity to manage inorganic waste into handicrafts they are only throwing it into landfills.

However, if people are able to manage the inorganic waste into goods handicrafts, the public will gain profits from the craft. In addition, ecopreneurship mini market can be used to give extraincome for society especially for some people who has low education. Therefore, the main purpose of ecopreneurship mini market is to people with low education and income are able to obtain additional income by utilizing inorganic rubbish, because until now there are society who are not able to manage inorganic rubbish in their environment. Not only as the media to manage inorganic media effectively, ecopreneurship minimarket also can reduce the unemployment rate in the community because they have activities namely produce handicrafts. Therefore, at least there are some activities provided by society such as: (1) community skills training, (2) effective marketing, and (3) cooperation.

4.1. Inorganic waste processing training to the community

In order to make sure that the product from rubbish will make interesting to the costumers, it needs high skill of society to produce it. So in Ecopreneurship mini market they will be trained by some crafts artist how to make good crafts so that they will change useless thing such rubbish as material to make handcraft. Its training will be guided directly by the artist handcraft so that the society can make good product and suitable to promote to the consumers. There are many kind of handcraft such as painting, miniature toys, shoe, bags, hat and others. There are some training will be given by some artist, namely:

4.1.1 Skill's training to sort rubbish

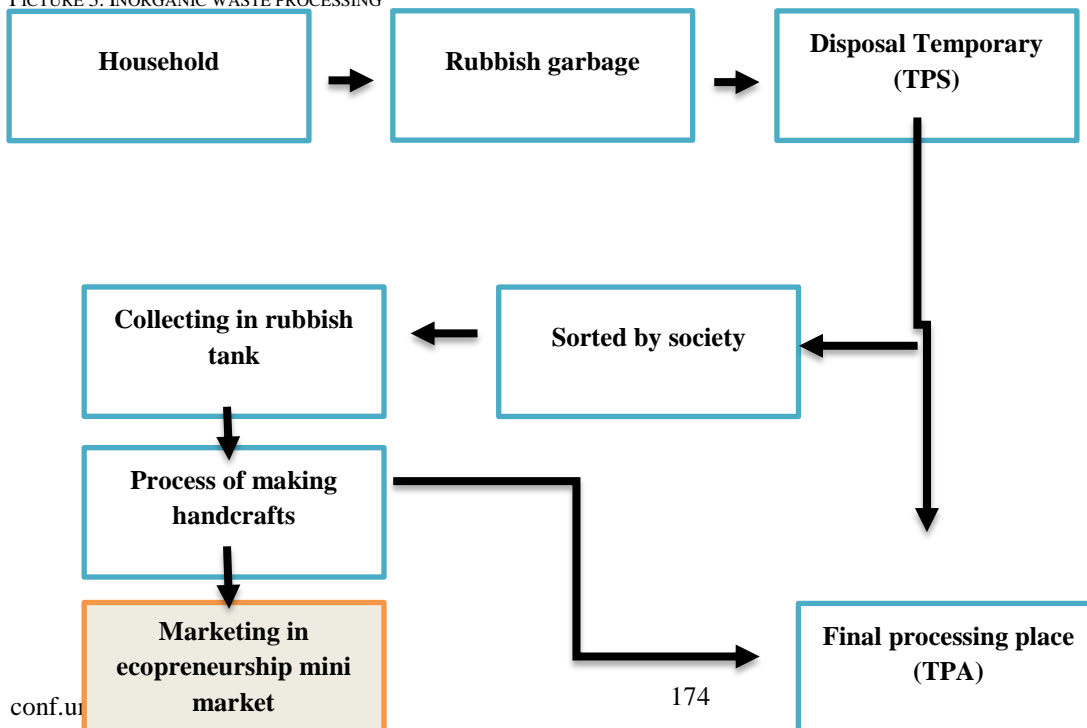
Many inorganic waste within the community that have not been managed by society such as plastic, bottles, cans, leftover detergent, etc. so that the trash is still a lot deposited in landfills both TPS and TPA. It will be better if the rubbish that is in the temporary location (TPS) can be sorted maximally by the society before entering to the final processing places (TPA). However, there are still a lot of inorganic waste that can still be processed directly moved to landfill, this is because there are many people who have not been able to sort inorganic waste are in temporary shelters (TPS), because most of people do not know the usefulness of inorganic waste to be craft. So that, it needs artists who are able to guide people to sort of inorganic waste at the polling station before being disposed of in inorganic waste treatment facility. It is to find viable materials for making handicrafts from waste inorganic. Inorganic waste which has been sorted in the temporary location will be collected in inorganic waste treatment facility that has been prepared so that the craftsmen

will be easier to create a work of art. After they sorted the rubbish from TPS, they will easier to make some product he want such as bags, accessories, and others. Therefore, at the next stage community will be used to sort the waste in the environment and in temporary shelter (TPS).

4.1.2 Skill's training for making handicrafts

Inorganic waste which has been separated from Disposal Temporary (TPS) to inorganic waste tank that has been provided will be processed into handcraft. The society will use a selective materials to make some handicrafts. It is intended that the public will be easier to make crafts based on existing materials. The artist will directly teach all society to make some handcraft such as paintings, accessories, bags, and sandals, and other crafts. The Artists will teach them how to make handcraft based inorganic waste that has been collected by the community or separate materials based on the type of craft that will be created. Inorganic waste processing is made based on the type that will be created by the society so that there is some place or room to make crafts. The training was carried out for 3 months with the goal of the community will be able to create a craft that will be promoted in ecopreneurship mini market. Skills training activity is very beneficial for the people, especially people who lived in urban city which has big rubbish volume such as Jakarta, Bandung, Semarang, etc. because of it, the community will be trained to see the opportunities that exist in the their environment. Most people in the city have not been able to take advantage of existing waste, so the waste is still a lot in the neighborhood. With the skills provided through ecopreneurship the society will get media to develop their entrepreneurship

PICTURE 3. INORGANIC WASTE PROCESSING



4.2. Marketing on Ecopreneurship Mini Market

The Ecopreneurship mini market only sell products made by inorganic waste. As we know the mini market we have known such as: Indomart, Alfamart, Seven Eleven and others that sell the household need that can cause of inorganic waste community environment. It's so different with ecopreneurship mini market which would reduce the waste that has been generated by the public over the use of consumer goods. This concept as the pilot project to establish inorganic waste management center in Indonesia. Since ecopreneurship mini market society will be easier to manage inorganic waste without fear of his belongings were not sold, because they will pay too much money to make crafts. In eco mini market, there are several booths to showcase the crafts to the costumers so they will easier to choose the product he want to buy. There are some marketing strategy to promote product, such as:

4.2.1. Provide a high value product

The products produced by the community as a craftsman is guaranteed to be excellent and able to compete with products from other materials or similar products from other producer. Despite the product made by rubbish but it will be compete because the society has trained by artist so they are able for making good product. Therefore, the expectations of this concept is their products also can compete with the foreign product.

4.2.2. Strategic place

One of the beneficial of ecopreneurship mini market is that the costumers will be easier to choose the product. This concept will establish surrounding the environment so that most of society will know the concept like this.

4.2.3. Affordable price

As many goods produced by several manufacturers, they will determine the cost of their product based on operating costs that consist of fixed costs and variable costs, as well as ecopreneurship minimarket. However, because the craft products produced from inorganic waste so the producer will determine the cost by the high value of the products.

4.2.4. An Effective and effective promotion

The promotion on all types of goods is done in order to recognized by consumers. In order to make sure that the product of it will be known large by the costumers it will involves the internal or external role namely the government role. The Government is required to participate in promoting handicrafts abroad so that the interesting of buyers from outside so they will buy a lot of product as well as to increasing product export. This is will give some benefit for the government in order to increase the government's GDP. Not only the government, but the community should also be involved in promoting ecopreneurship mini market through several existing media such as Facebook, Twitter, Instagram or other social media so that the handicraft products of ecopreneurship mini market can be known by the people

around the world. Therefore, the marketing in ecopreneurship mini market will interest to the consumers, especially consumers can directly see how to create handcraft in the manufacture of garbage. Moreover, with the mini market ecopreneurship consumers will be easier to buy craft products from artisans, because during this time of handicraft products produced by society is not widely known, because there is no proper place for exhibiting the crafts they made. Therefore, through this concept all the handicrafts from inorganic waste which has been created by society will be marketed centrally, namely in Ecopreneurship mini market. Moreover, the centralized marketing community as producers and consumers will be helped in developing the handicraft products of inorganic waste that can compete handicraft products from other materials, and the society will be more aware that the inorganic waste that had been on leave in the neighborhood has economic value and will add to their revenue, and public environmental hygiene will be maintained.

PICTURE 4. SOME HANDCRAFT MADE BY SOCIETY





Source: Greenlifestyle.or.id

4.2.5 Cooperation with Government and Private

As many company, ecopreneurship mini market also conduct some cooperation with the other parties in order to support establishment of waste management center in Indonesia.. The main objective of the development ecopreneurship is to invite people to do movement 3R namely Reduce, Reuse, Recycle which aims to foster a sense of love and caring for the environment in the surrounding community. In addition, other objective is to foster the entrepreneurial spirit of society, especially people with lower education to be able to utilize inorganic garbage in the neighborhood who had been on leave without any effective and efficient treatment. Therefore, it would involved many stakeholders to carry on cooperation, including:

a. Government

The Government through the Ministry of the Environment and the Ministry of SMEs should be forefront in realizing this concept. One of the most important role in this regard is the provision of funds used to finance the construction of ecopreneurship mini market, because in practice the development of ecopreneurship mini market requires substantial fund, such as: (1) building a mini market, (2) to give honorariums to the artists who have trained people to make handicrafts, (3) the role of government to promote products both in domestic and overseas (exports), and (4) the government should appeal to the society to conduct 3R through ecopreneurship training at ecopreneurship mini market.

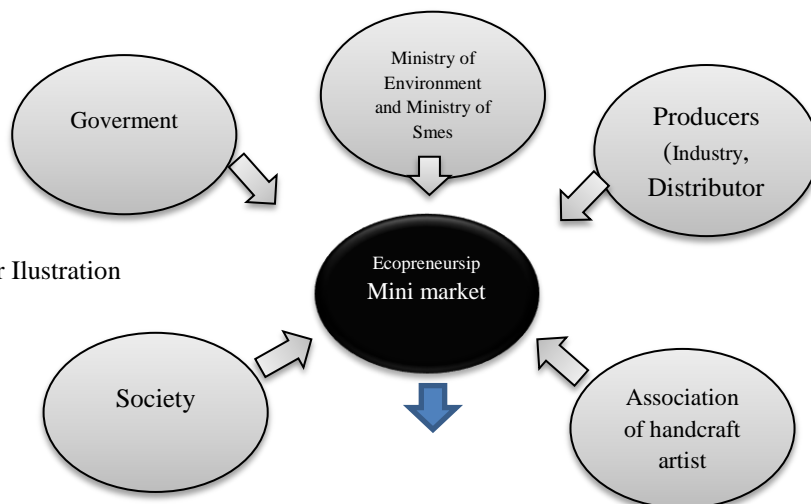
b. Producers (Industry, Ditrributor, and Retailers)

We know that the company will produced many households product and it cause many inorganic rubbish such as: cans, bottles, leftover detergent, and others. Therefore, in term of reducing the rubbish that will be conducted by ecopreneurship mini market those companies have to support the implementation of ecopreneurship mini market. The companies must provide funds by Corporate Social Responsibility (CSR) to establish ecopreneurship mini market, since each company has the obligation to pay a fund of 1% is used for development in the social community. Therefore, if every manufacturer of consumer goods and household willing to meet its obligations towards CSR fund, it would be possible if ecopreneurship mini market will be easy to realize.

c. Citizens

The role of society to implemented this concept is very important. The community must pay attention and concern for the environment such as: to support the movement of 3R through ecopreneurship mini market so that community environment will be cleaner and management inorganic waste can be managed effectively and efficiently.

PICTURE 5. IMPLEMENTATAION GROOVE OF ECOPRENEURSHIP MINI MARKET



Sources: Writter Illustration

CONCLUSION

The increasing of Indonesian people from year to year can causing the level consumption of a consumable goods such increased. This is causing the volume of inorganic waste in communities also increased. However, until now there has been no effective solutions to deal with the problems caused by the accumulation of inorganic waste. Therefore, the concept of Ecopreneurship Mini Market is expected to address the issue of inorganic waste effectively. Ecopreneurship mini market is a medium for less educated people to manage inorganic waste into high-value handicrafts, it can help the promotion of handcraft made by society to the costumers. It provide many training skill to the society to make a good craft such as: (1) skill's training and processing to the inorganic waste, (2) effective marketing, and (3) cooperation with several parties such as governments, manufacturers (industry, distributors, and retailers), and society.

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Community based education to improve quality of life: Case study of Muatan Lokal in Indonesia

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INTRODUCTION

In this article, the author suggests the high potential for community based education to improve quality of life. The uniqueness and challenges of Muatan Lokal (“local curriculum”), a community based education system in Indonesia, are discussed with reference to both successful and problematic cases. The uniqueness, reality and challenges of PLKJ (A study of Life and Environment Education Subject in Jakarta) are then examined as a big-city case study through textbook analysis along with qualitative and quantitative research (classroom observation, questionnaire survey, and group interview). The author concludes with considerations and suggestions for future practice to ensure better quality of life from the perspectives of sustainable local and global development.

The community based education aims to develop the capacity of students to improve their quality of life through comprehensive humanistic education that based on children’s real life, the local past (history, traditional culture), present (issues, the way of living) and future (community future plan). We find its benefit in two aspects: a pedagogical aspect, and a sustainable local development aspect. The former helps students to easily understand academic content by using materials relevant to their real lives; they thus feel they are gaining useful and meaningful knowledge and skills through practical/empirical study. The latter helps students to realize the importance of sustainable local development in improvement of their lives, and how they can contribute to it through study of the connections between local and larger areas, combining local identity (attachment, sense of responsibility, positive vision for the future) with well-balanced larger identities (regional, national, global, and others), improving their competency (critical thinking, systemic thinking, building partnership, participation).

Community based education has a long history, from John Dewey to “Community Education” in England and the U.S.A. in the 1920’s, to the U.S.A.’s “Service Learning” in the 1960’s, to the “participatory research” and “problem-posing education” based on the principles of Paulo Freire (implemented in the 1970’s not only in developing countries but also in European countries). Japan specifically also has a long history of community based education. The co-curriculum movement and Hometown education were introduced in the 1920’s. After World War Two, a “local education plan” was developed in several local communities, and the new “Social Studies” subject was introduced with the objective of

encouraging students to identify and solve problems in their community. “Community based education” in the 1970’s was intended to allow teachers to share specific community problems (e.g., air pollution, negative lifestyles, or changing values). “The Period of Integrated Study,” started in 1998, has also been implemented as a community based curriculum in many schools.

Uniqueness and challenges of Muatan Lokal in Indonesia

The school curriculum in Indonesia prior to 1994 aimed for “cultivation of national identity,” “unity in diversity,” and “national development.” To improve the quality of education, the Indonesian government changed this policy to one of decentralized education including community based education: Muatan Lokal, implemented since 1994; a school-based education system, implemented in 2003; and Kuliah Kerja Nyata (Social Practical learning) at the university level.

Muatan Lokal, a course of study included in the curriculum since 1994, is noteworthy for its relation to local issues. The policy’s distinctive character lies in the discretion it gives to provincial administrators, allowing them to create a curriculum appropriate for different local needs and conditions. Muatan Lokal is unique in that each province or even each school teaches different subjects concerning local history, culture, and industry.

Here, we focus on the treatment of the “local” as a key issue unity in Indonesia from the political, social, cultural, and economic perspectives. How is the specific content of the local curriculum selected from among the diverse demands of teaching history, culture, local issues, and future planning to the many majority and minority ethnic and religious groups? Through field work in several provinces, the author identified some successful and problematic cases (Nakaya, 1995).

Successful cases include the following: “Traditional Craft” in West Java, which fosters pride in students and parents for their small home industry, and also improves students’ skills through development of the curriculum and successful involvement of parents in teaching; and “Tourism” in West Kalimantan, which decreases discrimination against the Dayak minority by focusing on their unique characteristics, which are of interest to tourists.

Problematic cases included the following: “Minangkabau World” in West Sumatra, a compulsory subject on majority ethnic group culture that made minority students feel inferior or worthless; and “Sunda

Language” in West Java, a compulsory subject imposing a burden on immigrants and students from other ethnic groups. Problems such as these are gradually being addressed, however, because since 2006 each school has had the authority to decide its own school curriculum. In the case of West Sumatra, a school in the Mentawai Islands (a minority ethnic group area) would previously have been forced to teach “Minangkabau World,” but as of 2006 has had the freedom to develop and substitute a subject of their own choosing instead.

Uniqueness and challenges of PLKJ in Jakarta

Although some provinces do include local community problems as part of Muatan Lokal, these problems are not given a great deal of emphasis. The capital city of Jakarta, on the other hand, considers such issues fundamental, and has taught them as compulsory topics from the elementary to the senior high school level. A textbook (Soebroto, et al., 1995) and sub-textbook (Ni Ketut Seni Ariati, 2010) analysis identified the following positive points. The curriculum includes history, ethnic group culture, real issues currently facing local communities due to urbanization and industrialization (i.e., floods, fires, garbage disposal, and drug abuse), as well as an image of “beautiful city Jakarta”; it also addresses solutions to those problems and methods that both administrators and citizens can take to build the “beautiful city Jakarta” (i.e., city planning, establishment of parks, and individual discipline). At this point, it can be said that PLKJ has potential to foster “good citizens” who respect local governance and have good understanding of their civic duty.

Nevertheless, the system is weak in fostering self-oriented critical and creative thinking ability and active social participation. It lacks information about the people sacrificed under the development of Jakarta (i.e., child labor, bad labor environment, gender inequality, ethnic minority). It also lacks activities or opportunities for students to independently practice thinking deeply about the complex roots of problems, the linkages with the students’ own present and future life, and global perspectives of issues.

The reality of PLKJ

The first research activity was conducted in January and February 1999 (Nakaya, 2004), and the second in December 2014, in one public junior high school in Jakarta Selatan. The first research activity investigated how PLKJ had been implemented in the school. The principal, assistant principal, PLKJ teachers, students, and parents were asked to respond to questionnaires. In addition, a two-week observation of the PLKJ teaching-learning process was conducted. The second research activity investigated how PLKJ is evaluated by students, parents, and teachers; subjects were asked to respond to questionnaires, and group discussion was conducted with PLKJ teachers.

In 1999, the process of teaching and learning was as follows. The time allocation for PLKJ was two hours per week. Teachers tried to deepen students’ understanding through group discussion, but their skill for explanation and facilitation was still low, and students felt as though it were busywork, and they were just following the process without deep discussion. Teachers conveyed recent news from newspaper regarding the garbage problems in Jakarta, but only in the context of blaming citizens’ thoughtlessness and guiding students to change their minds and attitudes. There was no opportunity for students to discuss freely and find solutions themselves with rich resource.

Students’ perception of this process, shown in the results of a questionnaire, is illustrated as follows. Based on the responses (80 out of 90), PLKJ was ranked 9th out of 11 subjects in importance. 45% of students answered that PLKJ was “very useful,” and 53% answered that it was “useful.” Parents (74 out of 90) ranked the PLKJ 7th in importance. 27% of parents answered that it was “very useful,” and 67% that it was “useful.” Some parents indicated their reasons for this answer as: “theoretically, they can know about their community,” “they can be informed of the good and evil in daily life.”

The survey in 2014 found, based on the students’ responses (69 out of 90), that PLKJ was ranked lowest in importance. Only 1.4% of students answered that PLKJ was “very useful,” while 52.2% answered that it was “useful.” Parents (30 out of 60) also ranked PLKJ lowest of all subjects. Only 13.3% of parents answered “very useful,” and 36.7% answered “useful.” Both students and parents evaluated PLKJ much lower than before.

The reasons for this change can be considered in terms of the students’ and parents’ hopes and values. Regarding preferred future work location, most students responded “foreign country” (42.0%), followed by “inside Indonesia” (34.8%), and “Jakarta” (20%). In response to a multiple-answer question concerning the reason for their selection of a job in the future, 68.1% of students answered that “contribution to family” was a “very important” reason. This was followed by “own interest” (66.7%), “contribution to nation” (56.5%), and “contribution to Jakarta” (40.6%). When asked if they liked Jakarta, 36.6% of students answered “I like very much” (51.5% responded “I like it”). The reason for liking Jakarta given most by students was “I have family here” (75.0%). This was followed by “I have friends” (72.1%). Answers involving “local activities” (14.7%), “I am emotionally attached” (29.0%), “history” (36.8%), and “traditional culture” (33.8%) were lower. From these results, it appears that students are interested in going abroad rather than remaining in Jakarta because of low attachment.

When asked where parents hoped their children would work, the most common answer was “inside the nation” (63.3%). This was followed “foreign country” (20%) and “inside Java” (16.7%). No parents hoped that their child

would work in “Jakarta” (0%). When asked what they hoped their children would learn in school, 80% of parents answered that “competency for global era” was “very important”; this was followed by “manners” (76.7%), “knowledge for examinations” (73.3%), “friendship” (70%), “morals” and “national attachment” (66.7%), “Pancasila” (63.3%), “local attachment” (50%), and “traditional culture” (40%). Parents did not indicate a belief that their children had a responsibility to develop Jakarta.

Teachers (12 responses, one representative from every subject) evaluated PLKJ as “very useful” (26.73%) and “useful” (46.7%), but this range is not high in comparison with other subjects. Regarding important topics to be taught in school, the same as the parents’ tendency. 100% of teachers hoped that their students would work “inside the nation.” From these results, we conclude that teachers believe students should contribute to the nation, but not to Jakarta specifically; and that teachers do not consider PLKJ the foundation for global competency and national contribution.

The teachers’ perspective was understood further through a group interview with three PLKJ teachers. Their primary reason for teaching PLKJ was fulfillment of teaching requirements, not their own personal specialty in the area. Nevertheless, they indicated that they were willing and highly motivated to teach the subject well. They pointed out, however, that other teachers and parents do not realize the subject’s importance. They also recognize that students enjoy PLKJ, because students have reported that PLKJ material is easy to understand. Regarding the curriculum of PLKJ, the teachers felt that the materials should be kept up to date. They were not aware of any specific differences in PLKJ between 1994 and 2006, but felt that the teaching methods were considerably better on account of improved professionalism in recent years.

From this discussion, the author found that teachers do not arrange the textbook, despite implementation of the new 2006 curriculum (the school-based curriculum). Although the 2006 curriculum emphasizes competency-based study, teachers still do not provide students with opportunities to consider issues in the textbook as personal challenges, to reflect human dignity critically, or to create new community development projects; they simply teach the material as students are expected to “understand” it.

CONCLUSION

As shown above, students have considerable interest in work abroad, but their parents and teachers hope that

they will work within the country (not in Jakarta specifically). The students’ local attachment and sense of contribution responsibility is relatively low. These factors may affect their needs concerning PLKJ. In fact, considering the tremendous overpopulation of Jakarta, taking a job abroad is a good choice for those in the younger generation in terms of individual economic success (it is also indirectly positive for the nation); another good choice is development work in other districts. This does not mean that students do not need to know about Jakarta, however. Without local attachment, students are at high risk of identity crisis in big cities. Various senses of identity and a good balance between them are indirectly necessary for preservation of psychological health (Tabata et al., 2012). Furthermore, without experience in self-motivated contribution to their own community based on local identity and responsibility, students will not be able to effectively contribute in other places either.

PLKJ has high potential to convey to students the image of “beautiful city Jakarta” as a future community goal; it also has high potential to convey to students they are one of the member to develop it, helping them to realize their responsibility as good citizens and providing them with the essential knowledge and critical thinking, skills required for sustainable development. To effectively do this, the curriculum should be improved with the objective of connecting students to Jakarta with clear steps and maps of the city’s past, present, and future, and it should give students the chance to search for their own roles in the process as local community members. It will be the fundamental competency for them to get quality of life anywhere.

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Serotonine as Biomarker of Lead Contamination in Brass Craftsmen

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Abstract : Chronical exposure of lead in brass craftsmen's working environment gives rise to neurotoxic effect. One of the manifestations of neurotoxic effect can be found in the form of neurotransmitter disruption, one of which is serotonin specific enzyme. The aim of this research is to study the role of serotonin as biomarker of lead contamination in brass craftsmen. This research used observational analytic design along with cross sectional study. Observed samples are collected from 55 brass craftsmen in the age of 17-70 years old that had been working at least two years as craftsmen. These craftsmen are also elementary school graduates. Independent variable of this research was lead level in workers' blood and serotonin was used as dependent variable. Collected data were analyzed using regression analysis, probit analysis, and risk analysis. The result showed that there were highly negative regression between lead level escalation and serotonin decrease. Serotonin decrease starts from lead level in blood 34,159 µg/dl with prevalence ratio of 2,000[95%(1,500-7,997)].

The conclusion of this research is serotonin can be used as biomarker of lead contamination in brass craftsmen.

Keyword : biomarker, serotonin, lead, brass craftsmen

INTRODUCTION

Most of chemical pollution in environment occur due to human activities. According to Mason [1], environmental pollution is defined as the entry of substance or energy into the environment by humans that endangers humans' health, natural resources, and ecological system. Pollution is also said to cause structural damage in infrastructure and disruption in legal utilization of environment. Pollution can induce physical or mental health disorder. One of the most common pollutant found in the environment is lead (Pb=Plumbum). Lead is also known to cause physical and mental disorder. Pollution of the substance comes from several fields, for example mining, iron works, and waste recycle industry. According to Anies [2], lead gives rise to certain toxic effects upon digestive, neural, and excretion system. In neural system, Lead even can cause prominent disorders, including indolence in actions, psychomotoric disorder, aptness disorder, and alteration of personality.

Transportation field has been known for decreasing its consumption of lead by using free lead gasoline, making its position as main contributor of lead pollution shifts to another field. Lead is widely used in

accumulator, wire, paint, soldering tool, and steel industry. Mining and lead melting works become primary pollutant contributor in environment [3, 4]. Tong [5], in Zhang *et al.*, [6], said that lead pollution resulting from mining activities reach $357-857 \times 10^6$ kg/year.

Brass melting activities can be widely found in Juwana, Pati, Central Java. The owners of these industries according to the record are 150 craftsmen. However, only 50 craftsmen that has been still actively working since 2013. Most of the raw material for these industries are obtained from metal waste. Results of chemical composition assay conducted by Supriyanto [7], showed that brass contained 65,493% of copper (Cu), 34,506% of zinc (Zn), and various component including Pb. Lead will settle as powder and smoothly disperse to give smooth surface and repair friction, so that it fulfills the conditions of becoming machine components. Although measured contents of lead in brass is 0,46%, there is a high potential that lead enters the atmosphere during melting and finishing process as smoke, steam, dust, and particles. Since most raw material has low lead level, it is estimated that lead level released into the atmosphere is low. However, chronical exposure of lead towards brass craftsmen needs more attention.

Researches prove that lead is highly strong neurotoxicant. Lead pollution in human blood is known to affect several different parts in brain, for example cerebral cortex, cerebellum, and hippocampus. Brain blood vessel structure might be damaged that give rise to haemorrhage and brain tumor. Oregon Department of Human Services [8], stated that threshold limit value of blood lead level is around 10 µg/dl for children and pregnant women and 25 µg/dl for adults. According to OSHA [9], high-risk workers get higher threshold limit value which is 40 µg/dl. Blood lead level increase will affect neurotransmitter delivery process in synaptic cleft, including serotonergic synaps. Serotonergic synaps has serotonin as its main neurotransmitter [10, 11], Several researches also report that lead intoxication has lowered monoamine neurotransmitter concentration, including serotonin [12]. Serotonin is noted for affecting behavior. It also important in modulating impulsive agent. According to National Institutes of Health US, normal serotonin level in human is 101 – 283 ng/mL [13]

In the central nervous system, serotonin producer neurons is mainly found in middle brain (superior central nucleus and dorsal raphé nucleus), reticular pontine formation (potineraphé nucleus), central inferior and inside the medulla (nucleus raphéobscurus, nucleus

raphémagnus, and nucleus pallidus) [14,15]. Increase of blood lead level above threshold limit value (TLV) causes damage in several brain parts [16,17], which was caused by the damage of serotonin-producing area in the brain [13,11]. Damages can be also resulted from monoamineoxydase A enzyme activation (MAO A) [19]. MAO A is an enzyme that account for monoamine degradation, including serotonin. Decreasing serotonin level is known to cause depression, aggressive trait, excessive anxiety, criminal behavior, and another antisocial traits [20, 13].

A review obtained from various researches concludes that disruption in human adult neural function starts to emerge in lead level of 50 µg/100mL, 35 µg/100mL for peripheral nervous system, and 100 µg/dL for behavioral deviation. In order to avoid neural system disruption caused by chronic exposure of lead, certain early lead detecting methods are required. One of the methods is using blood serotonin as biomarker in lead level rising. Biomarker (biological marker) is defined as measurable biological parameter, such as specific enzyme concentration, specific hormone, and specific gene distribution in a population that account for index in health and physiological tests due to pollutant exposure from environment and its effects. Utilization of blood serotonin level as blood lead level increase in brass craftsmen requires supporting researches.

MATERIALS AND METHODS

This research was an observational analytic study and was conducted by using the cross-sectional method. The samples were 55 brass craftsmen who passed the expected inclusion criteria in Growong Lor village, Juwana District, Pati Regency, Central Java Indonesia. In details, the inclusion criteria are (1) male or female brass craftsmen; (2) aged between 17-70 years old; (3) have been working continuously at brass smelting for the last 2 years; and (4) have passed elementary level of education. In this case, the independent variable was the blood lead level while the dependent variables was serotonin.

Before the blood sampling, the respondents were informed about the objectives of this research and some possible effects as an ethical clearance; they later filled the informed consent as the evidence of their approval. Eight ml blood taken from respondents' vein was accomplished by paramedics.

During the travel from the sampling site, blood samples were stored in a cooler box. The samples were brought to the laboratory of GAKI Medical Faculty of Diponegoro University Semarang, Central Java, Indonesia. A blood sample (8 ml) was divided into two tubes; the first tube contained 5 ml of whole blood mixed with EDTA (Sigma-Aldrich), which would be used to measure blood lead level. The second tube contained 3 ml

of blood without EDTA. Both samples of blood were centrifuged at 1000 rpm for 15 min and followed by serotonin level measurement by extracting blood serum. The blood samples were stored at -20 °C and were later analyzed the level of lead and serotonin.

Blood lead level analysis was based on Atomic Absorption Spectrophotometry method that was started by separating Pb element from blood tissue. Prior to measurement, sample powderizing was performed for 8 h. The Pb ions contained in ashes were simultaneously solved by 0.1 M HCl (Sigma-Aldrich) and 0.1 M HNO₃ (Sigma-Aldrich). The next step was the atomization using graphite furnace. Pb ions reacted to Pb lamp rays. The interaction was in the form of absorbance of atomic radiation, and its amount was checked on AAS monitor. The amount of rays' absorbance was proportional to blood lead level.

The amount of serotonin level was measured using enzyme-linked immunosorbent assay (ELISA) sandwich immunoassay technique. The serotonin level was measured with Serotonin ELISA (RE59121 IBL International GMBH).

Statistical analysis was performed based on regression, risk analysis with prevalence ratio and probit analysis with the use of SPSS 17.0 for Windows.

RESULTS AND DISCUSSION

The Result of blood lead level measurement shows that the average blood lead level respondent is 59.71 ± 20.83 µg/dl with the lowest and highest levels 24.21 µg/dl and 98.60 µg/dl. From all respondents, 44 persons (80%) are proved surpassing the OSHA[9] lead threshold for the worker, which is determined at 40 µg/dl. The result also shows that the average value for serotonin level test from the samples is $63,45 \pm 36,66$ ng/ml. Highest measured serotonin level is 110,402 ng/mL, while the lowest is 17,009 ng/mL. According to National Institutes of Health's US, normal serotonin value is 101-283 ng/mL. Most of samples (48 persons = 87%) have low serotonin level. Only 7 persons who have normal serotonin level. Regression analysis result showed that regression equation for significance level of 5% is $\hat{y} = 147,703 - 1,411x$. According to ANOVA output measurement, the value of F is 95,258 with sig =0.00. This means that hypothesis 0 (H₀) which stated that equation is unlinear or variable x and y have no any relation is disapproved, while alternative hypothesis that stated the equation is linear or there is a relation between variable x and y is approved. So, variable x (blood lead level) has linear relation or affect variable y (blood serotonin level). Affecting value of variable x towards variable y according to R square is 0,643, which means that rising blood lead level in brass craftsmen affects declining of blood serotonin level about 64,3%.

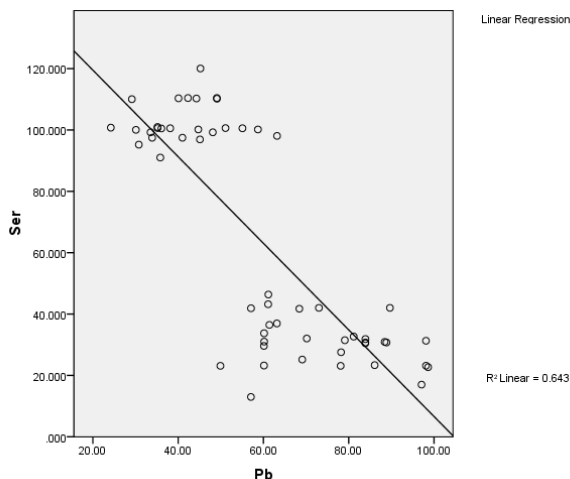


Fig. 1. Linear graphic that depicts linear correlation between blood lead and serotonin levels

Prevalence ratio analysis result toward possibilities of serotonin level abnormality in brass craftsmen which have high blood lead level value is 2,00 [95%(1,500 – 7,997)] with confidential interval doesn't reach 1. It means that blood lead level rising is a risk factor of serotonin level declining. This shows that brass craftsmen which have above threshold blood lead level have prevalence ratio of serotonin level declining twice higher than those who have below threshold blood lead level.

In order to know lowest lead level that cause the declining of serotonin level, is stated by probit value 0,01. Analysis result showed that serotonin level declines from blood lead level of 34,159 µg/dl so that NOEL (no observed effect level) Leadtowards serotonin level declining is stated at blood lead level of < 34,159 µg/dl.

According to statistic analysis result, serotonin level declining is affected by high blood lead level. This also proves to increase the prevalence of serotonin level declining. Naqvi *et al.* [17] identifies that declining in serotonin level is caused by rising of blood lead level. The low serotonin levels, there are two possibilities, first caused by the increase of blood lead levels that cause the increase of MAO A enzyme activity [19]. MAO A enzyme is important for serotonin production, since MAO A account for catalyzing serotonin [21]. Rising in MAO A enzyme activity on person with high blood lead level has an implication in declining of blood serotonin level.

Other possibilities that cause low serotonin level is lead as toxicant cause damage in neural system that synthesize serotonin. It will directly cause declining in serotonin production. Damage of neural system because of lead is stated by Antonio *et al.* [22] Erazi *et al.* [18] Sansar *et al.* [11]. Lead exposure has risen oxidative stress in several brain parts: cortex, hippocampus (middle brain), cerebellum, and medula. Rising oxydative stress is known by declining in superoxide dismutase enzyme activity (SOD), xantin oxidase (XO), and catalase (CAT), also rising the lipid peroxidase (LP) level [23]. Those brain parts are the location of neurons that are in charge

of producing serotonin[15], which are hippocampus in middle brain (superior central nucleus and *dorsal raphé nucleus*), inferior central medula (*nucleus raphéobscurus*, *nucleus raphémagnus* dan *nucleus pallidus*).

According to probit analysis, it is known that lead level of 34, 159 µg/dl has triggered the declining of serotonin level. This level is still below threshold value for brass craftsmen which is 40 µg/dl, determined by OSHA [9]. This result indicates that if measured serotonin level is below threshold value (101 ng/mL), then blood lead level is estimated above or equally the same as 34, 159 µg/dl.

All statistic results showed that utilization of serotonin as blood lead level biomarker is highly possible. This utilization becomes important since serotonin level declining is known to cause behavioral alteration. Several researchers also stated that serotonin is an important neurotransmitter and modulates impulsive aggression [24]. Serotonin is also in charge for development of behavior, anxiety, and bipolar disease [25]. In central neural system, serotonin acts as mood aranger, neurotransmitter excitator and inhibitor depend on activated subtiptpe receptor [26]. Serotonin level decreasing due to chronical lead exposure in brass craftsmen will result in many kinds of antisocial behaviors. Since the effect caused by serotonin level decreasing, detection of blood lead level rising in brass craftsmen using serotonin as biomarker can be scientifically approved.

CONCLUSION

Utilization of blood serotonin level as biomarker in blood lead level escalation due to chronical exposure in working environment of brass craftsmen is highly possible to conduct.

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The Test of the Lethal Effect of Lansium Leaf Extract (*Lansium domesticum* Correa) as the Electric Liquid Vaporizer Insecticide Against *Aedes aegypti*

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Abstract—Controlling the vector of Dengue Hemorrhagic Fever (DHF) is mostly done by people using chemical insecticides. This causes the resistance in vectors of dengue, one of the vectors is *Aedes aegypti* mosquito. Thus, it is necessary to explore an alternative for natural insecticides which are derived from plants. Plants that can be examined to test the mortality effect to the mosquito, such as lansium tree. Lansium leaf extract contains terpenoids and flavonoids which can have the mortality effect on mosquitoes. Lansium leaf extract is used as an electric liquid vaporizer insecticide. The purpose of this study was to determine the lethal effect of lansium leaf extract as the electric liquid vaporizer against *Aedes aegypti*. This is true experimental research, by post test only with control group design in four variations of the extract concentration 10%, 20%, 30%, and 40%, with four times repetitions. The results of Kruskal Wallis test shows that there are differences average of mortality *Aedes aegypti* at various concentrations of lansium extract, with the significance value is p equals to 0.007 (p less than 0.05). The conclusions of this research is lansium leaf extract has mortality effect against *Aedes aegypti* mosquito which is significantly different in each concentration. The researcher recommends that it is necessary to conduct further researches on the method of extraction of insecticides made from lansium leaves and the active ingredient contained in lansium leaves to be developed into an electric liquid vaporizer insecticide.

Keywords—*Aedes aegypti*, Lansium leaves extract, Electric liquid vaporizer

INTRODUCTION

Dengue Haemorrhagic Fever (DHF) is one of public health problem in Indonesia, which is transmitted by *Aedes aegypti* mosquito. The disease causes outbreak with a major mortality among people[1].

Prevention of dengue fever has been carried out, including the manufacture of dengue vaccines. The process of making the vaccine that is still in the research process, thus controlling DHF which is primarily intended to break the cycle of transmission. Breaking the cycle of transmission is done by vector control. However, the dengue vector control in almost all endemic countries and areas have not well targeted, unsustainable, and have not been able to break the cycle of transmission. Chemical control is still the most popular for both dengue control programs and communities. The used of chemical insecticides in a certain period of time will cause vector resistance if the used out of targeted, out of doses, out of time, as made negative impacts on the environment and non-targeted organisms[2].

Indonesia is a country that has abundant natural resources with thrive natures and tropical season. Therefore, it is suitable for the growth of many various plants. There are many plants which have a lot of benefits and efficacious, both in traditional medicine and natural insecticides [3] cited by [4].

One of the developments of plant-based ingredients as natural insecticides is one done by utilizing the plant *Lansium domesticum* Correa, known as langsat or lansium. Previous researches mention that the parts of lansium plant such as seeds, fruit peel, bark, and leaves contain terpenoid compound which is a derivative of essential oils. From these research conducted by [5], [6], mentioned that in the lansium peel, there are several compounds of triterpenoid. While [7], proves that in the lansium seeds contain terpenoid compounds. Then the research of [8] also mentioned that the peel, seeds, and lansium leaf contain terpenoid. On the further research, the bark of lansium tree contains alkaloids, flavonoids, saponins, triterpenoids, steroids, anthocyanins, and quinone [9].

The results of research conducted by [10], mentioned that the methanol extract of the lansium leaves can be used as larvicides and *Aedes aegypti* mosquito repellent. Then [11] proved that the fruit peel extract of *Lansium domesticum* is effective as electric liquid vaporizer insecticide against the *Aedes aegypti* mosquito. The usage of lansium plants done on seeds, fruits, fruit peel, and the bark are for consumption, beauty products, as well as natural medicine. But, lansium leaf is still not widely used in public. Research by [12], cited in a study conducted by [8], proved that lansium leaf extract contains compounds of terpenoids. Terpenoid compound is a derivative of essential oils that can disrupt the nervous system of mosquitoes. Besides terpenoids, in lansium leaf also has flavonoids that can damage the spiracles of insects which causes the death in insects.

METHODOLOGY

This research is a true experimental research in laboratory aimed to determine the lethal effect of the lansium leaf extract as an insecticide against *Aedes aegypti*. This research study method is true experimental design conducted to determine the lethal effect of the lansium leaf extract against *Aedes aegypti*. The study design is post test only control group design. Sample collection for both groups is simple random sampling.

The mosquitoes used in this study is the female *Aedes aegypti* mosquito obtained from Rearing Laboratory in Research and Development Institute of P2B2 Banjarnegara took randomly and then inserted in a paper cup. One paper cup filled with 20 mosquitoes. This study requires 24 paper cups and the overall number of mosquitoes as many as 480.

The method used in this research used 6 different doses for each experiment are 10%, 20%, 30%, 40%, aquadest as negative control and electric mosquito liquid with the active ingredient transfluthrin 12.38 g/l as a positive control, for each experiment performed four repetitions. Measurements on a sample group was not done at the beginning of experiment, but performed 24 hours after experiment by counting the number of dead mosquitoes.

Tools for the extraction of lansium leaf: blender, erlenmeyer, flask, fabric filters, measuring cups, and thermometer. Materials for the extraction of lansium leaf: lansium leaf 3 kgs, aquadest as a solvent and diluent, knives, and trays.

Tools for experiment: hygrometer, papercup, glass chamber, aspirator, rubber, cotton, vaporizer, stopwatch, observation sheets, stationery, soap, wipes, holding cardboard, banana tree, wet towel. Materials for treatment: *Aedes aegypti* mosquito, aquadest, sugar solution.

Preparation of research carried out by preparing the mosquitoes were put into paper cup. Then the lansium leaf extract is diluted using aquadest with concentration of 10%, 20%, 30% and 40%. Start the experiment by heating the vaporizer for 4 hours. Vaporizer and tubes containing extract entered into the glass chamber for 3 minutes, then removed, the mosquito entered to the glass chamber as many as 20. Record number of knockdown mosquito on the observation sheet according to predetermined time period. After observation for 20 minutes, put mosquitoes in papercup using aspirator, and hold for 24 hours.

Data obtained during experiment were analyzed statistically using probit test, data normality test, homogeneity of variance, Kruskal-Wallis test, followed by Post Hoc analysis.

RESULTS AND DISCUSSION

The observation of the percentage of died mosquitoes after being hold for 24 hours is as follows :

| Repetition | Died Mosquitoes | | | | Control positive | Control negative |
|------------|-----------------|--------|--------|--------|------------------|------------------|
| | 10% | 20% | 30% | 40% | | |
| I | 2 | 6 | 12 | 4 | 19 | 0 |
| II | 5 | 7 | 10 | 0 | 17 | 0 |
| III | 5 | 9 | 17 | 2 | 20 | 0 |
| IV | 7 | 7 | 12 | 3 | 20 | 0 |
| Total | 19 | 29 | 51 | 9 | 76 | 0 |
| Average | 4,75 | 7,25 | 12,75 | 2,25 | 19 | 0 |
| Percentage | 23,75% | 36,25% | 63,75% | 11,25% | 95% | 0% |

The observation was done after being hold for 24 hours the time for the knockdown mosquitoes, showed that the average percentage of died mosquitoes in a concentration of 10% is equal to 23.75%, the average percentage of

mosquitoes that die in a concentration of 20% is equal to 36.25%, the average percentage of mosquitoes that die at a concentration of 30% is equal to 63.75%, and the average percentage of mosquitoes that die at a concentration of 40% is 11.25%. The highest average number of died mosquitoes is at a concentration of 30% in the amount of 63.75%. The percentage of dead mosquitoes also shows the lethal effect of each concentration against mosquitoes. Percentage of died *Aedes aegypti* mosquitoes increase of concentration of 10%, 20% and 30%, but decreased the number of dead mosquitoes at a concentration of 40%.

It shows the decreasing in the effectiveness of lansium leaf extract in killing *Aedes aegypti* mosquito at a concentration of 40%. There are several things that can affect natural insecticides bioactive compounds. The toxicity of bioactive compounds generally increases with increasing temperature. Increasing temperature will speed up the interaction of bioactive compounds with a target part or accelerate the formation of the more toxic metabolite. The temperature increase occurred during the extraction progress in the infusion method which requires heating in dissolving the active ingredients in lansium leaf simplicia. Another factor that can influence the effectiveness of plant-based insecticide is sunlight which can cause the active compound decomposes. Natural insecticide active compounds are easily biodegradable when exposed to sunlight, especially in the ultraviolet spectrum. The intensity of sunlight can also indirectly affects the lethal effect of the lansium leaf extract towards the death of insect [13] cited by [14].

The lower the concentration of the extract in killing mosquitoes, the higher activity of active compounds in targeting the insects. This was caused by the lower concentration compounds for lethal insect in the same time pre-defined, 24 hours after holding the *Aedes aegypti* mosquito [15].

The death of the *Aedes aegypti* mosquito was caused by direct contact with the vaporized lansium leaf extract liquid electrical insecticide. This liquid electrical insecticide method has a direct impact on mosquito's respiration. The other active ingredient contained in lansium leaf is terpenoids which is derived from essential oils. Essential oils can interfere with the mosquito's nervous system. Terpenoids which is a derivative of essential oils in lansium leaf extract evaporates when it is heated. According to [16], when the essential oil is heated using a vaporizer, the mosquito will be disturbed by it. The aroma of evaporated scent of essential oils disrupt physiological processes of chemical receptor (chemoreceptor) in the antenna. The physiological process which is then converted into impulses that can be transmitted by the axons nerve to the central nervous (brain). Then, in the brain occurs an integration which impacts the motorics or nerves to the muscles, so that mosquitoes running out.

The other compound contained in lansium leaf is flavonoids that can interfere with the spiracles as respiratory system of insects. The respiratory system of insects found on the body surface. Flavonoids causes nerve paralysis in insects as well as causing damage to the spiracles, so that the insects can not breathe and eventually die [17] cited by [18]. Flavonoids in lansium leaf cause the death of mosquito, because flavonoids are potent inhibitors of the respiratory

system or the respiratory poison for adults insects. Lansium leaf extract which is heated in the vaporizer will release the content of secondary metabolites such as flavonoids. Flavonoids as insect respiratory inhibitor into the respiratory system along with O₂. After flavonoids included in the insect respiratory system, there will be inhibition of the respiratory system [19]. Mosquitoes are contacted with the lansium leaf extract liquid electrical insecticide decreased its flying activity. After that the mosquitoes are knockdown. However, allegations that the chemical compounds contained in the solution of lansium leaf extract that is more concentrated concentration at the concentration of 40% dominantly influence caused by the difference between the molecular weight of bioactive compounds in lansium leaf extract. Differences in the molecular weight of the bioactive compounds which are not synergize in increasing the stability of lansium leaf extract as a natural insecticide and resulted the number of dead mosquitoes at the concentration of 40% were less than the concentration of 30% [11].

CONCLUSION

Lansium leaf extract liquid electrical insecticide has the lethal effect towards *Aedes aegypti* mosquito. The lethal effect on each concentrations are significantly different.

SUGGESTION

This research is still need the next research to get the lansium leaf extract which has higher lethal effect. Higher extraction method that can distill the active ingredients contained in lansium leaf. Additionally, further research should be conducted on the active ingredient contained in lansium leaf along with the characteristics of the substance is developed into an liquid electrical insecticide.

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Behavior Model of Entrepreneurship on Woman Entrepreneur based on Entrepreneurship Intentions and the Level of Internet Adoption on SMEs in West Java

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Abstract— This study aims to produce a model of the behavior of women who are self-employed entrepreneurs in West Java. Entrepreneurship behavior model is equipped with a variable associated with entrepreneurship intentions and the level of internet adoption. Research on entrepreneurial behavior has not been done, including in Indonesia, especially behavioral research in entrepreneurship among women. Meanwhile, the characteristics of self-employed women who tend to have specific criteria and different with men are self-employed. Woman entrepreneur development, especially in SMEs, potentially as the main motor driving the process of women's empowerment and social transformation, which in turn could have a positive impact on poverty reduction. The end result to be achieved from the formation of entrepreneurial behavior model is a model that is expected to provide guidance on entrepreneurship development for women. This is in accordance with the Millennium Development Goals or MDGs, the two of them is about the empowerment of women and reducing extreme poverty up to a certain lower level in 2015. In developing countries in Asia, including Indonesia, the level of development of women entrepreneurship is still low is influenced by many factors, which are directly and indirectly. Some direct determinant factors including economic pressures (financial) and social and cultural background, whereas the factors that influence the indirect government policies and the stability of the domestic economic environment social environment. Throughout the determinant factor has a tendency to interrelated and is one of the dominant factors in influencing a woman's decision or the desire to be an entrepreneur and her ability to survive as an entrepreneur. The phenomenon of the lack of interest in entrepreneurship as well as the limitations of culture, lack of knowledge, lack of access to loans and the lack of access to information, in this case the mastery of ICT, including the Internet, for women entrepreneurship, a central theme of this research. Is the ICT literacy of women, in this case represented by the rate of adoption of the internet by women who are self-employed, and have the intention of doing business entrepreneurship affect behavior? The method used to develop a model of the behavior of female entrepreneurship is a quantitative method with stratified random sampling technique based on the scale of business. Methods of data collection is done by distributing questionnaires. Analysis of causality between variables will be done by using structural equation modeling. This study uses a sample taken from the population woman entrepreneur who registered with the Ministry of Commerce of West Java, which will be represented by the respondent in Bogor, Bandung and Cirebon, as well as a variety of other areas, including in the craft industry center in West Java.

Keywords— *behavior entrepreneurship, woman entrepreneur, entrepreneurship intention, the rate of internet adoption, craft industry SMEs, MDGs*

INTRODUCTION

The women owned businesses are highly increasing in the economies of almost all countries and entrepreneurial potentials of women have gradually been changing with the growing sensitivity to the role and economic status in the society (Perwej, 2012). Skill, knowledge and adaptability in business are the main reasons for women to emerge into business (Subramaniam and Islam, 2014). In Indonesia, since the Asian financial crisis in 1997-1998 the development of women entrepreneurship become important. The attention does not just come from the academic world, but also of policy makers, practitioners, and institutions of the community of non-governmental organizations (NGOs). The increased attention comes from the realization that the creation of women entrepreneurship, particularly in rural areas, will greatly assist the government's efforts so far in the fight against poverty, but it is also very important as a driving force of economic development and social progress in rural areas.

Many research in this area show the close relationship between the development of women as entrepreneurs and the presence or development of small medium enterprises (SMEs). Sinhal (2005) states that the percentage of women entrepreneurs in the country in the region of South Asia, which includes Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka, is still less than 10 percent, the number is certainly very small compared to what has been achieved in the developed countries that percentage is well above 10 percent. Akinbami, et al (2012) show that women have been known in successive generations to be enterprising and it has been recognized that economic growth particularly in developing countries can be stimulated, though requiring catalysts within the economy. One of such catalysts has been identified in entrepreneurship (Romijn, 1989) among women. However, the socio-economic conditions of women who participate actively in the economy of the country, particularly at the grass-roots level, have remained challenging despite implementation of economic (Subramaniam and Islam, 2014).

There is a growing acceptance that appropriate use of information and communications technology (ICT) can lead to improved knowledge and productivity necessary for long-term economic growth and sustainable development. Although ICT has great potential for development, access to ICT is not equal between countries and between different groups within a country, creating the “digital divide”. Gender differences and disparities, for instance, should be considered in policies and programs dealing with development and dissemination of new technologies. As a result, women will benefit more from, and will not be disadvantaged by, technological advances. Farida, et al. (2011) showed that the level of internet anxiety and ability/confidence of the knowledge and skills in the use of the internet (internet self efficacy) influence on the adoption of the Internet among mothers of primary school teachers, whether related to his profession as a teacher or not. Meanwhile, the survey conducted by the International Telecommunication Union (ITU) in 2002 showed that 99% of women surveyed in six different regions feel that ICTs are essential in achieving personal empowerment, entrepreneurial and professional goals.

Aim of this research is analyzing correlation of the behavior of women entrepreneurship with entrepreneurship intentions and internet adoption. Result of this research empirically will provide input the intention of entrepreneurship and adoption of the Internet to conduct entrepreneurship among women entrepreneurship. Outcome of this study was produced a behavioral model of entrepreneurship of women entrepreneurship in West Java which is associated with entrepreneurship intentions and the level of Internet adoption.

SIGNIFICANCE OF STUDY

The role of women in the informal sector, particularly at the grass root level, requires special attention as it has been observed by Soetan (1995). Hence, even within the informal sector, they are confined to micro-enterprise, which include trading and low technology-related occupations. Model the behavior of women entrepreneurship in West Java which is associated with entrepreneurship intentions and the rate of adoption of Internet can provide guidance on entrepreneurship development for women. By knowing the intentions of entrepreneurship and the rate of adoption of the Internet as well as the behavior of female entrepreneurship in the development of knowledge, skills, and greater access to women to start a business will be more focused. In addition, this study will also contribute input for governments and institutions associated with the education and empowerment of women. Not only in West Java but can also be developed for other regions in Indonesia.

OBJECTIVES OF STUDY

The study set out to examine women behaviour towards entrepreneurship intentions and internet adoption. Result of this research empirically will provide input the intention of entrepreneurship and adoption of the Internet to conduct entrepreneurship among women entrepreneurship. Outcome of this study was produced a behavioral model of entrepreneurship of women entrepreneurship in West Java

which is associated with entrepreneurship intentions and the level of Internet adoption. To this end, the specific objectives of the study were to:

- Analyze the relationship and perception of entrepreneurship (which includes the attitude toward the behavior, subjective norms, and perceived behavioral control) influence the entrepreneurial intention.
- Analyze whether the perception of entrepreneurship (which includes the attitude toward the behavior, subjective norms, and perceived behavioral control) influence through entrepreneurship intention to behavior of woman entrepreneur.
- Analyze whether the individual characteristics of the entrepreneur influence the entrepreneurial intention.
- Analyze whether the individual characteristics of entrepreneurs through entrepreneurship intention to influence the behavior of self-employed woman entrepreneur.
- Analyze the relationship and influence the perception of the use of ICT (which includes the Internet self-efficacy and anxiety internet) the level of adoption of the internet by a woman entrepreneur.
- Analyze whether the perception of the use of ICT (which includes the Internet self-efficacy and anxiety internet) through the Internet adoption rate effect on entrepreneurial intentions.
- Analyze whether the rate of adoption of the Internet affected Behavior woman entrepreneur entrepreneurship.
- Analyze whether the rate of internet adoption through entrepreneurship intention to influence behavior is self-employed woman entrepreneur.
- Analyze whether the intention of influencing the behavior of self-employed entrepreneurs woman entrepreneur.

THEORETICAL FRAMEWORK

Theory of Planned Behaviour (TPB) is a further development of the Theory of Reasoned Action (TRA). Ajzen (2008) adding the TPB constructs that does not exist in the TRA, which is perceived behavioral control (perceived behavioral control) is added in. Construct efforts to understand the limitations of the individual in order to perform certain behaviors. In other words, do or not do an intention and behavior is not only determined by the attitude and subjective norms alone, but also the individual's perception of control that can be done which is based on confidence in the controls (control beliefs) is (Ajzen, 2008).

Intention is aspects that drive individual intention to behave like confidence and self-control. Dharmmesta (1998) stated that the factors that influence the intention is the attitude on the action and subjective norms regarding the perception of a person, whether others are considered important will affect behavior. Attitude is said to be a response. individuals who tolerate risk (Zhao et al, 2005) and bold face barriers in the business world has the intention to implement Cromie (2000) explains that a person's self-efficacy beliefs influence on whether or not the goal is

achieved already. Lee, Ho, and Wong (2004) found that self efficacy is a factor that gives the greatest impact to antiseden entrepreneurship in 29 countries. They also found that self-efficacy factor gives a greater influence on the female dibandingkn against men.

According Azjen and Fisbein, (1975) in general, the intention antecedent factors can be expressed via TPB is the belief or attitude behavior, subjective norms and behavioral control. The formation of intention can be explained by TPB, which assumes humans always have a purpose in the act. TPB stated that the intention is a function of three basic determinants, ie behaving attitude, subjective norm, and control behavior. Intention is an important part of the theory of reasoned action (Theory of Reasoned Action or TRA). Intention is a successful predictor of behavior because it bridges the attitudes and behavior. Intention is seen as the closest thing to an individual to perform the behavior, it is thus the intention can be seen as a special case of the belief that the object is always individual and the attribution is always behavior.

There are several factors that influence the entrepreneurial intention of the family environment, education, personal values, age, and gender. Parents will provide cultural style, the house, the view of life and patterns of socialization that will determine the attitude, behavior and the process of education to their children. Support the parents, especially the father is very important in the decision making for career selection. Vidler (in Hirsch and Peters, 1998) found that 725 entrepreneurs surveyed have a father or a parent who is relatively close which also entrepreneurs. Besides the provision of entrepreneurial education package will form the individual to pursue an entrepreneurial career. Formal education gives a better understanding of the entrepreneurial process, challenge it faces the founders of new businesses and the problems that must be overcome in order to success.

The model adopted for the study is Technology Acceptance Model (TAM) TAM is a model developed for assessing the process of technology diffusion. Since our interest is to examine how the women in rural businesses would respond to improved technology introduction, this section therefore examines process, social and other factors influencing the diffusion of technology. According to Wahid (2007), the attributes of technologies that modify the adoption and diffusion process include characteristics of the potential adopters and strategies that contribute to successful technology adoption and integration.

TAM proposes two specific beliefs – perceived ease of use (PEOU) and perceived usefulness (PU) – that determine behavioural intention to use technology. Behavioural intention is a measure of the strength of one's intention to perform a specified behaviour. Perceived usefulness is

defined as 'a prospective user's subjective probability that using a specific technology will increase his or her job performance within an organizational context' (Davis, Bagozi and Warshaw, 1989). Further, the TAM assumes that perceived usefulness will be influenced by ease of use, because, other things being equal, the easier a technology is to use, the more useful it can be. Perceived ease of use refers to 'the degree to which the prospective user expects the target system to be free of effort' (Davis, Bagozi and Warshaw, 1989). By assuming that other variables are constant, the easier a technology is to be used, the higher is its possibility to be adopted by users.

TAM is a research model that is most widely used to investigate the adoption of information technology (Lee, Kozar, and Larsen, 2003) The purpose of TAM is the main model provides a basis for tracking the influence of external factors on the beliefs, attitudes, and goals of users (Davis, 1989).

Eastin and LaRose (2000) defines Internet Self Efficacy (ISE) as a person's belief in her ability to manage and carry out a series of actions for achieving the tertentu. Konsep ISE according to Venkatesh et al, (2003) is considered a person's ability to use technology to complete a task or specific job. According to Lee (2004), a person's beliefs about the knowledge and skills to evaluate the benefits of a technology. Venkatesh et al (2003) explains that the Internet Anxiety (ANX) is an emotional reaction or anxiety that permeated the mind when running events, for example when using a computer.

Farida et al (2011) showed that the adoption of the Internet among mothers of primary school teachers either related to his profession as a teacher as well as not affected the level of anxiety that the internet (internet anxiety) and the ability / confidence of the knowledge and skills in the use of the internet (internet self efficacy). Internet group Adopters tend to show the perception of the impact, ease of use, technical understanding, and social influence higher. While the potential adopters and non adopters tend to show a high level of concern for internet. Pada these studies, the adoption rate of Internet usage is predicted using five variables UTAUT (Unified Theory of Acceptance and Use of Technology) with a predicted level of 58.8% for the three namely scale adopter, potential adopters and non-adopters. In the study indicate that the use of the Internet by respondents were more influenced by colleagues, friends, and other social relationships than by reason of benefits, ease of use, skills, and concerns over the internet.

MODEL FRAMEWORK RESEARCH

Based on the results of previous research then developed an empirical model in this study, as shown in Figure 1.

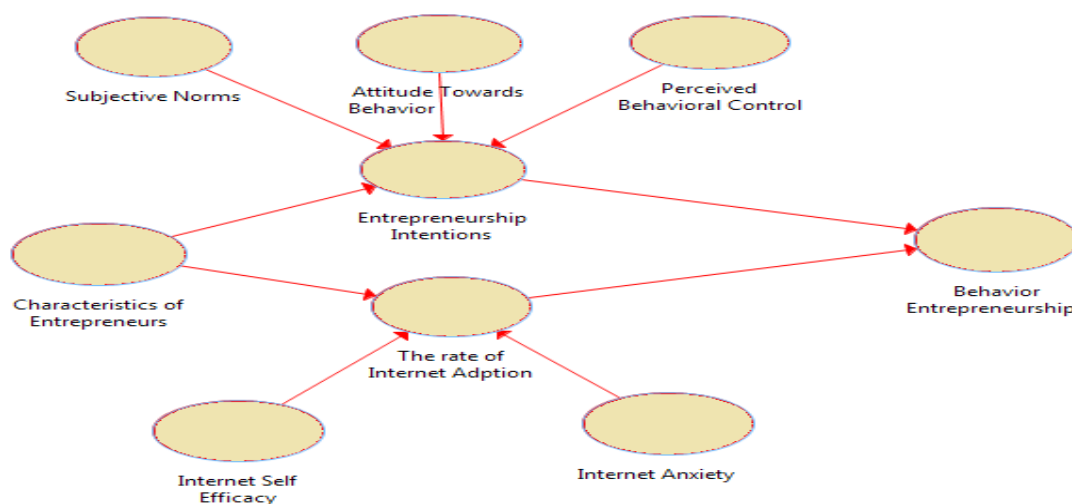


FIGURE 1. MODEL FRAMEWORK RESEARCH

There are 9 variables in this study, namely: characteristics of entrepreneurs, attitude toward behavior, subjective norms, perceived behavioral control, internet self-efficacy, internet anxiety, the adoption rate of internet, entrepreneurship intentions and behavior entrepreneurship. The variable characteristics of entrepreneurs, attitude toward behavior, subjective norms, perceived behavioral control are predictors variable for entrepreneurship intentions. Characteristics of entrepreneurs, internet self-efficacy, and internet anxiety are predictors variable the rate of internet adoption. Variable the rate of internet adoption and entrepreneurship intentions are predictors for behavior entrepreneurship

METHODOLOGY

The factors stated above guided the design of data collection structure. Identification of the factors was done to capture data relevant to explaining the relationship between variables that impact directly on the women behaviour towards technology adoption and their performance. The instruments employed to capture relevant data were pre-visit to study communities, partially structured questionnaire

The population in this research is women who are self-employed / woman entrepreneur who is registered at the regional office of the Department of Cooperatives, and Market in West Java Province, a case study in Region of Bogor, Bandung and Cirebon. Determination of that region, because the concentration of SMEs in West Java, among others, are concentrated in three regions. The population will be sampled with stratified random sampling technique, which stratification method based on the scale of its business, namely the micro, small and medium enterprises. Problems of this research is including research problems associative (correlation and causal). The design of the research is cross-sectional. Technical measurement scale in this research is using the Likert Summated Rating (LSR) five scale for measuring the variables that are perceived.

The research variables include the characteristics of the entrepreneur, attitudes toward the behavior, subjective norm, perceived behavioral control, internet self-efficacy, anxiety internet, internet adoption rate, intention to entrepreneurship, entrepreneurial behavior.

The variable characteristics of the individual entrepreneur, entrepreneurial behavior, subjective norm, perceived behavioral control in entrepreneurship, Internet self-efficacy, anxiety internet, and the adoption rate is a predictor of internet entrepreneurship. Internet self-efficacy and anxiety a predictor of the level of internet adoption. Internet variable is adoption rate predictor variable to variable entrepreneurial intentions and behavior intention.

Data collected from the field survey were collated and analyzed using descriptive statistics of mean and frequency tables and chi-square test as inferential statistical techniques through Statistical Package for Social Science (SPSS) developed by SPSS Inc.

RESULT AND DISCUSSION

This Research has entered the stage of distribution and collection of questionnaires, but until now only collected a number of questionnaires filled out by respondents from Bogor region which can only be used for the purposes of validity and reliability testing for the questionnaires. Questionnaires were distributed to respondents in other areas such as Bandung and Cirebon is still in the stage of gathering. Distributing questionnaires done in several ways, ie come directly to workshops SMEs and help respondents understand and answer the questions on the questionnaires. Another way is to send a letter containing a questionnaire with stamps and envelopes with the reply, but this way is quite long. Another way is to send an email to respondent, if this is done at the request of the respondent, given that not all respondents actively use email. Another way to be taken is to follow the event conducted by the Association of SMEs or

the Department of Cooperatives, and Market under the Province Government.

This research uses the primary data that collecting with questionnaires, so that the necessary steps test questions (questionnaire) to determine whether the question is proper or not. Test to determine viable (valid) and whether or not question the validity of the test was used. This test is used to measure the authenticity and validity of a question item. Criteria for the decision is to compare the value of Corrected Item - Total Correlation compared with the value α r table at a certain level, (default SPSS is α of 0.01 or 0.05). Decision criteria is when the value of Corrected Item - Total Correlation bigger than r table then a decent indicator (valid) and vice versa (Ghozali, 2005).

In this study validity test performed using the 30 respondents, so that the value of r table product moment can be calculated as follows: $df = 30-2 = 28$, $\alpha = 0.05$ r value table product moment = 0.374 or $df = 30-2 = 28$, $\alpha = 0:01$, the value of product moment r table = 0.478. To test the validity of the calculations performed with SPSS version 17.0. Based on that methode, we know that all the indicators (observed) is valid if the value of Corrected Item - Total Correlation > r table (0.374). If the test results show the indicator (item or the questions) is valid, then it indicates that the indicator (observed) is fit for use as an indicator of the construct (latent variable).

Based on the test results the validity of the 30 respondents with 65 the questions of the nine variables to research conducted by the variables, there are a few items or items question invalid are items X11 (variable Subjective Norm), item X16, X17, X18, X21 and X22 (variable the behavior of perceived control), X37 item (variable intention of entrepreneurship), x42 and X43 (variable entrepreneur behaviors), item X49, X50, X53, X55, X56, X57, X58, X59 and X60 (variable characteristics entrepreneur). This indicates that the item or items that are not valid questions cannot be used to measure constructs / variables studied, and must be removed from the list of questions.

The next test instrument reliability test that is test-related problems the accuracy or reliability of a construct/variable. Reliability test in this research carried out with nine variables by excluding grains question invalid. There are 18 items that are not valid questions, so that only as many as 47 items question tested, the reliability test results for each constructs or latent variables describe in table 1.

Table 1. Reliability Test for Questionnaire

| Latent Variable | Cronbach's Alpha | Item | Result |
|-------------------------------------|------------------|------|---------------|
| 1. Attitude towards behavior | 0.919 | 3 | Reliable |
| 2. Subjective norms | 0.490 | 5 | Less Reliable |
| 3. Perceived behavioral control | 0.718 | 7 | Reliable |
| 4. Internet Self Efficacy | 0.856 | 3 | Reliable |
| 5. Internet Anxiety | 0.749 | 3 | Reliable |
| 6. The adoption rate of Internet | 0.457 | 3 | Less Reliable |
| 7. Entrepreneurship Intentions | 0.767 | 3 | Reliable |
| 8. Behavior Entrepreneurship | 0.829 | 4 | Reliable |
| 9. Characteristics of Entrepreneurs | 0.906 | 11 | Reliable |

*n= 30, Item = 47

Table 1. shows that there are variables that coefficient alpha (Cronbach's alpha) is less than 0.60, the variable Subjective Norms and Internet adoption rate. Both of these variables will be explored further, in that it is searching for a

referral relating to the theory and use of these two variables in the studies that have been done to look at the major premise justifying the use of this variable in similar research.

For latent variables other, the value of Cronbach's alpha tested had values above 0.60 so that it can be explained that the research variables (constructs) in the form of a variable is reliable or has a high reliability, so as to have the precision or reliability to be used as a variable (construct) on a research. Variable / construct entrepreneur characteristics, attitude toward the behavior, perceived behavioral control, Internet self-efficacy, anxiety internet, intention entrepreneurship and entrepreneurial behavior otherwise unreliable or have a high reliability. Variables or constructs that have reliable accuracy / reliability to be used as variables (constructs) in a study.

From the results of the reliability test will be followed by the next stage of data analysis by using item question in accordance with the results of this reliability test. Analysis will be continued using analytical techniques Structural Equation Model (SEM). Suitability models were evaluated through a review of the various criteria Goodness-of-Fit. The first step is to evaluate whether the data used to meet the assumptions of SEM such as: sample size, normality and linearity, outliers, multicollinearity and singularity.

The first step in the analysis of SEM is to test the indicators through confirmatory factor analysis conducted on exogenous and endogenous. The second step, conducting an analysis of the full model of Structural Equation Model (Full Model of Structural Equation Model) is useful for hypothesis testing. Inferential statistical testing resumed after the sample size requirement is met, ie as many as 100-200 samples.

If the questionnaire responses of the respondents have been in and meet a certain number that are eligible for data analysis later it will be done: (1) descriptive analysis to provide a full picture demographic profile of the respondents that the research sample, (2) Test Classical Assumptions include Test normality, linearity test and some other tests are required (3) Analysis of inference to test the hypothesis.

CONCLUSION AND RECOMMENDATION

Tentative conclusions obtained from this study cannot answer the fundamental purpose of this study, respondents had to wait for the response to the questionnaire that was distributed in three areas, Bogor, Bandung and Cirebon.

Based on the test results validate the responses of 30 respondents, it can be argued that of 65 grains / question items representing 9 research variables, there are 18 items / item question invalid. Thus only the remaining 47 items / the questions are considered valid to measure constructs studied. Calculation of reliability test performed without including items / egg question invalid.

Reliability test results of the research variables (constructs) which has been omitted items / egg question invalid, indicating that the variable / construct subjective norms and the rate of adoption of internet value reliability is low (the value of Cronbach's alpha, respectively is 0.490 and 0.457), making it less reliable to be used as a variable / construct in this study, but the researchers will explore the major premise that indicates the reliability of these two variables in previous similar studies.

Seven other variables, ie variables / constructs entrepreneur characteristics, attitude toward the behavior, perceived behavioral control, internet self-efficacy, internet anxiety, intention entrepreneurship and entrepreneurial behavior otherwise unreliable or have a high reliability. Variables or constructs that have reliable accuracy / reliability to be used as variables (constructs) in a study. From the results of the reliability test will be followed by the next stage of data analysis by using item (item) question in accordance with the results of this reliability test.

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Opportunity of Free Open Source ERP System as a Competitive Advantage for Small and Medium Enterprise

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Abstract — In today's world, IT is a source of differentiation from competitors. The tendency is to produce more, with the least possible cost and be reactive to the need to continue to change and the requirements of internal and external customers. That is why flexibility, adaptability and cost-cutting is the main reason that drives more and more companies to adopt Open-Source Enterprise Resource Planning (ERP). The main objective of this study was to investigate whether the Open Source ERP system can meet the needs of large organizations and SMEs. The study also attempts to answer the question whether Open-Source ERP vendors offer adequate levels of support to their clients. First, an explanation of research background and the motivation behind it. Then, the research hypothesis is presented. Last, discussion about Open Source concepts, history and advantages of Open Source ERP system. In order to verify research hypothesis, a comprehensive literature review focus on ERP selection criteria of large organizations and SMEs. This review resulted in a number of dimensions that served to build evaluation model. Another component of the evaluation is a "feature" offered from different ERP systems. This model became the principle when evaluating a selected Open Source ERP system. Three Open Source ERP system were chosen being evaluated, namely OpenERP, EpenBravo and Adempiere. Here are answers to the research hypothesis: we can say that the selected of Open Source ERP system offers an adequate level of support to their clients. In addition, they are suitable for SMEs as they can answer all the needs of most SMEs. However, the Open Source ERP which elected has limitation in large organizations: such limitations can be summarized regarding their scalability because there are still doubts the ability of these systems to handle large volumes of users or requests, and their ability to be improved as the cluster model. Other limitations that have an impact on large organizations are the lack of support for the international accounting rules which essential for public business organizations.

Keywords—*Small and medium enterprise, competitive advantage, business applications, information technology*

INTRODUCTION

In today's business world, companies are increasingly looking for flexibility, cost savings and efficiencies to run their business applications. Increased competition has prompted the company to look for new ways to succeed and remain competitive. In today's business environment, the capacity to adapt new technologies is a strategic advantage that acts as an enabler for companies to obtain effectiveness and efficiency to face competition. Enterprise Resource Planning (ERP) is one of the main technologies of a company's IT strategy. A flexible ERP system brings

processes adaptation that support diversification strategy and ensure rapid response to changing business needs. On the other hand, Open Source ERP system brings cost savings compared to proprietary ERP system and generates more requests and makes them more popular.

Proprietary ERP systems such as SAP and Oracle have long led the industry ERP and controls about 40% of the ERP software market, but new players have emerged and seemed to offer capabilities similar to their more established competitors, and most of them open source, such as : Adempiere, Compiere, ERP5, GNU Enterprise, OpenERP, Openbravo, opentaps, WebERP and BlueERP.

Open Source is a software or program where the source code is available for other developers to use, modified and given enhancements. and the product associated revenue streams is shifted toward the auxiliary products such as support, training, documentation, and others.

The use of Open Source has proved itself to enterprises in developed countries. A study conducted by Forrester Research in September 2008 revealed that Open Source is used by an average of 1 in every 5 companies in Europe and North America, and 22% of these companies even have chosen the Open Source model up to 100%. Office applications such as OpenOffice and StarOffice (used by 62% of companies surveyed Open Source) and sms and email products such as Open-Xchange (used by 50% of companies surveyed). Where ERP of all these facts? The results showed that the Open Source ERP is used by 38% of companies surveyed.

It is a fact that large companies still have a preference for proprietary ERP in running and managing their businesses. But the products offered are usually very complex, bloated with features, and too expensive for the majority of medium-sized companies. And customers must continue to pay maintenance costs for proprietary product license.

Definition of SMEs in the EU is: "The category of micro, small and medium enterprises (SMEs), is companies that employ less than 250 persons and which have an annual turnover not exceeding € 50 million euro and / or number of annual balance sheet not exceeding € 43 million". For Indonesia, according to UU No. 20/2008 on SMEs are: productive business unit with assets up to a maximum turnover of Rp. 10 billion and Rp 50 billion per year.

Traditionally, ERP systems are provided for large organizations. SMEs can not afford or have access to them

and somehow to limit themselves with some accounting software and simple sales management and not with the real capabilities of the ERP in adapting to the specific management and production processes. It is clear that there is room for Open Source ERP system and implementation. In recent years, Open Source ERP, such as Compiere, Openbravo and the OpenERP, is appearing in the hope of changing the ERP software industry.

Research Objective

The aim of this study was to evaluate the ability of Open Source ERP system to address the needs of large organizations and SMEs. The following hypotheses were identified:

1. Open Source ERP vendors offer the right level of support for their systems.
2. Currently the Open Source ERP systems suitable for SMEs.
3. Currently the Open Source ERP system suitable for large organizations.

METHODOLOGY

This section describes the methodology used to assess the Open Source ERP system chosen by implementing evaluation as objective as possible. This study is a mix of theoretical and empirical research. The theoretical research focuses on doing a comprehensive review of relevant academic work in order to build a model that will be used as a basis for empirical study for the evaluation including evaluation criteria used during Open Source ERP package assessment where SMEs and large organizations may have different needs to ERP implementation. The literature review focused mainly on discussing the selection criteria of the ERP systems for SME and large organizations. The literature review aims to present the list of "dimensions" which is one of two components of the evaluation model. The other component is a "feature" that is identified by looking at the features offered from the ERP system.

After a theoretical study is completed, the model for evaluating Open Source ERP system is built based on the "dimensions" and "features" that have been identified through literature and the study of its own ERP system. The model serves as the guiding principle of reference when checking the ERP system and gather empirical data. Evaluation systems based on "dimensions" that is done by way of qualitative and performed by searching the documentation published on the vendor website and also to evaluate the system itself after the download and install.

LITERATURE STUDY

Definition of ERP Systems

According to Alshawi (2004), Enterprise Resource Planning (ERP) systems are an effort to create an integrated product that manages most of the operations in a company. The different about ERP systems is that they integrate all the

functions to create a single, integrated system rather than a group of separate standalone application.

Leading companies including SAP, Oracle, and Microsoft are providing proprietary ERP systems. Proprietary ERP system has a license fees and installation costs are high. In this case the Open Source ERP offers an attractive alternative with some arguments supporting this statement: Open Source ERP system offers adoption curve that is accessible and affordable. Companies can download a free system, try, evaluate and run the demo; they allow a reduction in the license fee and certain flexibility is more difficult to be found in proprietary ERP.

Advantages of Open Source ERP System

With Open Source ERP we can expect savings associated with license fees and costs are made visible and clear, transparent from the beginning of the process of integration than proprietary ERP (Valyi, 2008). In addition to cost advantages, a white paper released by Smile (a French company that specializes in implementing Open Source solutions) in 2008, Valyi (2008) noted some of the advantages of Open Source ERP:

- a) Flexibility: the source code itself are made available free of charge and thus open to be modified and developed internally.
- b) Quality: Valyi (2008) argues that the Open Source ERP is distinguished by superior quality to technical challenges.
- c) Ability to adapt to the business environment: for the proprietary ERP vendors, clients are directed to adapting business processes with the opinion that the system they have implemented best business practices. Open Source ERP system offers the possibility to adjust to the environment and business practices they do.
- d) Infrastructure Model in accordance with the SME: proprietary ERP system has a model of expensive infrastructure, charging high integration. Although trying to get in on the SME segment with a new lower-cost solutions such as for example SAP Business One. But according to Valyi (2008), the offers are still limited.
- e) There are no hidden costs: many proprietary ERP vendors attract clients by proposing a package at a price that is acceptable but the system limit for example in terms of number of users.
- f) The possibility of certain developments: proprietary ERP vendors maintain the control over the ensemble of functional modules. Specific development of the system is limited by the system flow
- g) Vendor Independence: by adopting Open Source ERP, client has a strong position to exert pressure on vendor's proactiveness and support of the product can be provided by the "community".
- h) Freedom to upgrade: in adopting Open Source ERP client can choose to upgrade, either alone or with the

THE ERP SYSTEM EVALUATION MODEL

In evaluating Open Source ERP system, a model implemented are including evaluation criteria in considering and assessing the systems package that will be used SMEs or large organizations with probable common needs differences. This model is designed to perform a comprehensive literature review discussing the selection criteria and to look at the features offered by the system.

Literature Study

Hecht (1997) presents six main criteria for the selection and evaluation process: functionality, technical architecture, cost, service and support, system reliability, and vision. According to Siriginidi (2000), from the customer's point of view, a key factor in the selection can include stability, support from vendors, vendor's history, track record of ERP sales last year, and improvements in the ERP package.

Another study conducted by Bernroider and Koch (2001) exploring the differences between SMEs and large organizations ERP selection criteria at Austrian company. The study shows that there is a significant relation on the organization size to the software package selected. The study also revealed that adaptability and flexibility of the software is more highly valued by smaller organizations. Supported by study conducted by Everdingen et al. (2000), Business procedures, flexibility, cost, user introduction to the system and short implementation time, are considered highly important by large organizations and SMEs.

Bernroider and Koch (2001) in Table 1., shows the central European market tends to focus on product characteristics such as functionality and quality of products and services, not on the characteristics of the vendor. Execution speed, product possibilities for interacting with other applications and prices of products and services also considered important selection criteria. Sinta (2000) identified four selection criteria for selecting an ERP system, namely: implementation, integration, adaptability and upgradeability.

TABLE 1 CRITERIA DIFFERENCES FOR DECISION-MAKING BETWEEN SMEs AND LARGE ORGANIZATIONS (ONLY CRITERIA WITH A STRONG CONNECTION TO THE ORGANIZATION SHOWN).

| | Company Size | Very | Important | Rather | Irrelevant |
|--|--------------|-----------|-----------|-------------|------------|
| | | important | | unimportant | |
| Operating system independency | Small/medium | 15.8 | 26.3 | 52.6 | 5.3 |
| | Large | 30.9 | 39.2 | 23.7 | 6.2 |
| Process improvement | Small/medium | 31.6 | 47.4 | 21.1 | 0 |
| | Large | 52 | 40.8 | 6.1 | 1 |
| Market position of vendor | Small/medium | 16.7 | 55.6 | 11.1 | 16.7 |
| | Large | 35.1 | 48.5 | 14.4 | 2.1 |
| Customer and supplier needs | Small/medium | 5.3 | 10.5 | 26.3 | 57.9 |
| | Large | 12.4 | 20.6 | 27.6 | 39.2 |
| Internationality of software | Small/medium | 31.6 | 10.5 | 26.3 | 31.6 |
| | Large | 37.8 | 30.6 | 19.4 | 12.2 |
| Increased organizational flexibility | Small/medium | 31.6 | 42.1 | 21.1 | 5.3 |
| | Large | 39 | 38.8 | 9.2 | 3.1 |
| Increased customer satisfaction | Small/medium | 26.3 | 42.1 | 26.3 | 5.3 |
| | Large | 45.4 | 35.1 | 14.4 | 5.2 |
| Guidelines from a controlling company | Small/medium | 10.5 | 21.1 | 10.5 | 57.9 |
| | Large | 24.2 | 18.9 | 15.8 | 41.1 |
| Adaptability and flexibility of software | Small/medium | 68.4 | 26.3 | 5.3 | 0 |
| | Large | 49.5 | 44.3 | 5.2 | 1 |
| Improved innovation capabilities | Small/medium | 11.8 | 29.4 | 52.9 | 5.9 |
| | Large | 20.6 | 40.2 | 29.9 | 9.3 |
| Short implementation time | Small/medium | 36.8 | 57.9 | 5.3 | 0 |
| | Large | 29.9 | 51.5 | 13.4 | 5.2 |
| Good support | Small/medium | 42.1 | 57.9 | 0 | 0 |
| | Large | 58.8 | 37.1 | 4.1 | 0 |

Notes:

All given values are percentages

Table sort by the absolute Spearman rank correlation coefficient (descending order)

*More highly valued by smaller organizations (negative correlation coefficient)

Source: Bernroider dan Koch (2001).

Verville and Halington (2002) reported that three different types of evaluation of ERP system; the vendor, functional and technical. Vendor evaluation criteria including: the size, reputation, financial stability, long-term survival and vision/direction of the vendor company. Functional criteria including: software features, special functions for front-end interfaces, user recognition and so on. Technical criteria evaluation are the system architecture specification, integration, performance, security and others.

Rao (2000) identifies the criteria for selecting an ERP system for SMEs. This criterion concerns about affordability, vendor's knowledge domain, local support, technical upgradeability and the incorporation of the latest technology. Kumar et al. (2003) identifies the following factors: functionality, cost, service and support, system reliability, compatibility with other systems, ease of customization, the vendors market position, compatibility with the organizational structure, such as parents/center or organization system and cross-module integration. Table 2. shows the results of a review of literature on ERP selection criteria carried out by Baki & Claw (2005).

Shehab et al. (2004) also conducted a comprehensive review and comparison of papers that discuss the selection criteria of the ERP system. The results are summarized in Table 3. is a table taken from studies Shehab et al. (2004).

TABEL 2. ERP SELECTION CRITERIA BY TRAY & CLAW (2005)

| | Rao (2000) | Bernroider and Koch (2001) (more important for the small/large) | Hecht (1997) | Shikarpur (1997) | Verville and Hallingten (2002) | Brewer (2000) | Kumar et al. (2003) |
|--|------------|---|--------------|------------------|--------------------------------|---------------|---------------------|
| Functionality | | | * | * | * | * | * |
| Technical Aspect | * | | * | * | * | * | * |
| Cost | * | */- | * | * | * | * | * |
| Service and support | * | */- | * | * | * | * | * |
| Vision | | | * | | * | | |
| System reliability | | | | * | | * | * |
| Compatibility with other system | | | | | | * | * |
| Ease of customization | | */- | | | | * | * |
| Market position of the vendor | | */- | | | * | | * |
| Better fit with organization stricter | | */- | | | | | * |
| Domain knowledge of the vendor | * | | | | | | |
| References of the vendor fit with parent/allied organization systems | | | | * | | | * |
| Cross module integration | | | | * | * | | * |
| Implementation time | | */- | | | | | |

TABEL 3. ERP SELECTION CRITERIA: COMPARISON OF JOURNALS (SHEBAB ET.AL, 2004)

| Author(s) | Type and field of study | Size of Organisations | Selection factors considered |
|--------------------------------|-------------------------|-----------------------|--|
| Siriginidi (2000) | Theoretical | Large size | Stability and history of ERP supplier Last 12 month track record of ERP sales Implementation support from supplier Improvement in ERP packages including stability of the product and functionality |
| Bernroide and Koch (2001) | Empirical Austrian | Mid and large size | Implementation time Adaptability and flexibility of software Costs Vendor support Team size and structure Market position of vendor Customer and supplier needs |
| Everdingen et al. (2000) | Empirical European | Midsized | Fit with business process Flexibility User-friendliness Costs Scalability Supplier support and training Product functionality and quality Implementation speed Interface with other systems Price Market leadership Corporate image and international orientation |
| Sprott (2000) | Theoretical | Large size | Applicability Integration Adaptability Upgradability |
| Chen (2001) | Theoretical | Large size | Competitive strategy Targeted market segments Customer requirement Mthes of anufacturing environment Characteristics of the manufacturing process Supply chain strategy and available resourceces |
| Rao (2000) | Theoretical | SMEs | Affordability Domain knowledge of suppliers Local support Technical upgradable Incorporation of latest technologies |
| Verville and Hallingten (2002) | Empirical USA | Large size | Vendor evaluation Function and technical aspects of the software |

Organizational Needs

The theory research conducted on 'ERP selection criteria by large organizations and SMEs by far, will be deducted to inspire ERP evaluation model:

For Large Organizations:

- Flexibility and process improvements brought to the organizations should be more than SMEs (such as

increased organizational flexibility, improved processes and increased innovation capabilities)

- Software internationality as well as the needs of customers and vendors
- Stability and vendor's history. It also includes vendor market position today
- Upgradeability and improvements in the ERP package, including the stability and product functionality and the increased of innovation capacity
- Short implementation time
- Good support, including support for implementation
- Integration
- Scalability

For SMEs:

- Adaptability and flexibility of the software. This includes technical upgradeability and incorporation of the latest technology
- Short implementation time
- Lower Costs
- Fit with business procedures
- System Introduction to Users
- Focus on product characteristics such as functionality and products quality and services, not on the characteristics of ERP products vendor
- Integration or possibility to interact with other applications
- Good support from vendors and training
- Vendors domain knowledge

As already mentioned above, some of the needs are both being considered by SMEs and large companies.

Model for Evaluating ERP System

Evaluation about Open Source ERP system selected will be based on a set of dimensions and features. The defined dimensions inspired by the organization needs will be studied and summarized. The feature list compiled by looking at the overall feature offered by a number of different ERP systems. Dimensions and features that make up the evaluation model, presented in Table 4 and 5. In this chapter dimensions and features will be presented and discussed.

Dimension

The dimensions used in the evaluation model are as follows:

Cost

Cost is a consideration factor in the implementation of ERP. (Rao, 2000), and it is important to obtain top management approval (Hecht, 1997). Open Source ERP applications can be downloaded for free. The costs component incurred can be consulting, analysis, implementation, customization, maintenance, training, integration, support and upgrades. Cost is largely influenced by the other dimensions, for example, the degree of fit of the

features available that indicates the amount of customization required (Herzog, 2006).

Support availability

Hecht (1997) found that service and support is an important factor, especially when the cost of development and support can be doubled or more than the initial package. According to Themistocleous (2001), the obstacles arise during and after ERP implementation especially in the field of integration with existing systems, customization, and security. The support including the necessary skilled resources that can customize, support and maintain the system includes infrastructure support, training and documentation and for Open Source ERP can be either local partner or online (Herzog, 2006).

Stability and Maturity

According to Kumar et al. (2003), the reliability of the system is the second most important selection criteria. Herzog, (2006) argues that the system reliability criteria can be seen from the stability of the release of the reference sites listed on the homepage of the project Open Source ERP and availability of business cases documented.

Customization

Ease of customization or adaptation and flexibility are important criteria, especially in the application of specific needs that needed tools for needs adaptation by internal or external companies (Avshalom, 2000).

The functional fit level of features determines the amount of customization required, high functional fit, accelerate implementation and customization costs (Herzog, 2006)

Scalability

ERP system scalability is its ability to continue to function properly when conditions change such as the number of connected users simultaneously or number of transactions per second. Scalability is very dependent on the architecture and similarly on the application server and database technologies used (Herzog, 2006).

Ergonomics and User Interface

The ergonomics and “User Friendly” Interface increase the value of applications, such as navigation between screens, personal control, the system's ability to support multiple languages and others. User friendly determined by the possibility of customization, user acceptance, training costs and operating costs (Herzog, 2006).

Out-of-the-box Features

Out-of-the-box features of Open Source ERP are usually important for SMEs to benefit as many as possible the inherent features of the system to save the budget. Base on that, out-of-the-box feature will be evaluated against the expected important features on ERP systems.

The out-of-the-box that will be evaluated in the Open Source ERP is on Table 4.

TABLE 4. OUT-OF-THE-BOX FEATURES EVALUATION CRITERIA

| | |
|---|---|
| Accounting and Financial Management Capabilities and Budgeting | Support Multiple Currencies and support the currency conversion rate of automatic updates |
| Sales and Point of sales | Production Management |
| Warehouse Management | Procurement Management |
| Business Intelligence | Project Management Capabilities |
| Support for Automatic Update New Tax Rules | Supporting Role Granular and Licensing |
| Support for Complex Entity Structure | Alerts automatically based on custom conditions |
| Web Interface with Ajax | Receive replacement products |
| Support the creation of a custom form fields quickly through the interface | The ability to define multiple custom workflows |
| The ability to specify a custom volume discounts for each customer | The ability to specify a custom invoice schedules for different customers |
| Ability to import product / customer / partner / employee / accounts from xml | The ability to determine the type of flexible products |
| The ability to determine (UOM) | Tracking Goods |
| Transfer Funds and Fund Management | Tracking and Employee Expense Reporting |
| Management of Tax Payments | Load Sheet |
| Asset Management | Document Management System |
| Ability to define custom data display System | Vacation Management HR and Employee Attendance |
| Time and Task Management | Contract Management HR |
| Ability Defining New Custom Database object Through the User Interface | Determining the structure of the Department and Management Structure |
| Interface Management Module | Utilities chat Inbuilt |

Source: research

TABLE 5. DIMENSIONS EVALUATION CRITERIA

| | |
|-------------------------------|------------------------|
| Cost | Support availability |
| Vision | Stability and maturity |
| Customization | Scalability |
| Ergonomics and user interface | |

Source: research

RESULTS AND DISCUSSION

Selected Open Source ERP

At the beginning of the research, literature study has been done to identify and make a preliminary analysis concerning the leading Open Source ERP system. Here is a system that has been identified:

TABLE 7. LEADING OPEN SOURCE ERP SYSTEM

| | |
|----------------|-----------|
| Open ERP | Openbravo |
| ERP5 | Opentaps |
| Compiere | Adempiere |
| WebERP | BlueERP |
| GNU Enterprise | |

Source: research

After preliminary research on each system, it became clear that only a few well-deserved to be seen in more details because they offer a competitive performance. The three systems chosen are OpenERP, Openbravo and Adempiere for in-depth analysis.

The following summarizes the main reason why the remaining system is not selected.

ERP5: The quality and quantity of documentation available is not as satisfactory.

Opentaps: there are some functional problems that arise.

Compiere: Appears to be stable and fully functional. However, Compiere currently does not use a database that is freely available (except from Oracle Express that are not Open Source). Because this study sees Open Source as consideration of a solution, then the Compiere is not selected.

WebERP: Not yet mature enough and do not have the human resources and project management modules.

BlueERP: Lack of documentation available

GNU-Enterprise: less user friendly and can not be used outside the same system chosen. However, based on research, it is clear that the GNU-Enterprise only produces ready solution for organizations that are willing to design a flexible ERP solution for their own

The following is a brief introduction to the three systems evaluated:

Openbravo: Openbravo is a web-based Open Source ERP business solutions is mainly focused for SMEs, released under the Openbravo Public License, based on the Mozilla Public License. The license guarantees public access to the source code and permission to freely modify the source code.

OpenERP: OpenERP is published under the GNU General Public License (GPL). Open ERP is known to be very complete and extremely modular, with 350 available modules. It is based on a strong Model-View-Controller architecture, with a distributed server, flexible workflows, an object database, a dynamic GUI, XMLRPC (Extensible Markup Language - the remote procedure call) interface, and report customization. OpenERP formerly known as TinyERP and now called Odoo.

Adempiere: Adempiere was separated from the Open Source ERP/CRM famous Compiere project on September 1, 2006. The software is licensed under the GNU Free Software License General Public and offer Enterprise Resource Planning, Customer Relationship Management and Supply Chain Management functions.

System Empirical Study: Features

The evaluation of the selected feature set of out-of-the-box will be conducted with logic binary, yes/no is to keep the investigation as objective and positive as possible. Each feature is subjective asses using purely author opinion only. The evaluation results are presented in the following table:

TABLE 6: OUT-OF-THE-BOX FEATURES

| Features | Openbravo | OpenERP | Adempiere |
|---|-----------|---------|-----------|
| Accounting and financial management | V | V | V |
| Project management | V | V | V |
| Sales Management | V | V | V |
| Production management | V | V | V |
| Warehouse management | V | V | V |
| Procurement management | V | V | V |
| Business intelligence | V | V | V |
| Support for complex entity structures | V | V | V |
| Support for automatic updates of new tax rules | X | V | V |
| Supports granular roles and permissions | V | V | V |
| Support multiple currencies and determine its own currency | V | V | V |
| Support the currency conversion rate | V | X | V |
| Support automatic currency conversion rates update | X | V | X |
| Automated alerts based on custom conditions | V | X | V |
| web interface with Ajax | V | V | X |
| Defines several custom workflow | X | V | V |
| Support the creation of a custom form fields through the interface | X | V | X |
| Specify custom categories for customers, suppliers and employees | V | X | V |
| Specify custom categories for products | V | X | V |
| Receive replacement products | V | X | V |
| Determine the type of flexible products | V | V | V |
| Specify custom invoice schedules for different customers | V | V | X |
| Defining a custom payment terms for each customer | V | V | X |
| Specify a custom volume discounts for each customer | V | X | V |
| Determine the categories of custom salary for each employee | V | V | X |
| Unit of Measurement (UOM) for each product / service | V | V | V |
| Importing product / customer / partner / employee / accounts from xml | V | V | X |
| Tracking Goods | V | V | V |
| Expense sheet | V | V | X |
| Employee expenses tracking and reporting | V | V | X |
| Management of tax payments | V | V | V |
| Transfer of funds and fund management | V | V | V |
| Budget management | V | V | V |
| Asset Management | V | V | V |
| Document management | X | V | X |
| Contract Management HR | X | V | V |
| HR employee vacation and Attendance Management | X | V | X |
| Point of Sale | V | V | V |
| Time and Task Management | X | V | X |
| Specify a custom view to display the system data | X | V | X |
| Defining a new custom database objects through the user interface | X | V | X |
| Determining the structure of the department and management structure | X | V | X |
| Module Management interface | X | V | X |
| The inbuilt utility chat | X | X | V |

Source: Test results

Dimension study

Evaluation of the set dimensions will be done in a more qualitative

Openbravo

Cost

For Openbravo, the following cost components have been observed: license fee, customization, and maintenance costs. Regarding license fees, all modules or features of Openbravo is under an Open Source license, but the license is not OSI (Open Systems Interconnection) compliant. Customization may incur some additional costs to Openbravo, because there is a need for development to fit the screen, the logic, the layout of the report and add / adjust the statistical report. Regarding maintenance costs, Openbravo offers a fixed price for maintenance contracts, including limited guarantee bug fixes, migration, and guarantee compatibility of three years.

Support Availability

The first level support for all products Openbravo provided by the Openbravo partner network spread all over the world. Their services include application patches and updates, backup strategies and implementation, the handling of a hardware problem, and end-user support. Openbravo provides a Wiki made available to the community of developers and users. Openbravo forum on Sourceforge.net

shows a very high access activity every day. Wiki provides technical documentation for installing, configuring or developing Openbravo ERP.

Openbravo provides a tool reporting bugs and feature requests in <https://issues.openbravo.com>. [Http://forge.openbravo.com](http://forge.openbravo.com) and collaboration platform that allows third parties to develop projects that are synergistic with Openbravo and blog space reserved for contributors to write and share articles.

For training, Openbravo offers a complete catalog of professional training courses, including training schedule, online, tailor-made and access to detailed training materials and training environment.

Stability and Maturity

One of the criteria that reflect the maturity of the software is gaining a reputation and market position. Openbravo is supported by more than one hundred integrators and success stories, some of which are described in the vendor's website.

Customization

Openbravo GUI supports the provision of non standard "skin". Openbravo platform provides opportunities for community to contribute on the module development in the package, such as language localization and accounting scheme and also add-ons for vertical / industry functionality, and module customization as well.

Openbravo provides several customization tools and options: *Screen design*, Openbravo offers a structure menu that can be edited, added tables, calculations, drawings through configuration. *Object designer*, Openbravo offers the ability to create a new field and a new table. However, Openbravo still limits for example editing workflow on a module.

Scalability

Openbravo is able to run with Oracle database, which offers better performance than PostgreSQL database. This makes Openbravo is suitable for a larger deployment in business areas such as distribution, logistics and manufacturing.

Ergonomics and User Interface

Openbravo and OpenERP offer good ergonomics by offering personalized short cut and relationship between documents. Openbravo can get the highest rating, with a very attractive design and professional. Openbravo in its 2:40 version has implemented all keyboard shortcut (CTRL + S, etc.) on the web interface and providing a tooltip interface on all areas and graphics processing on each screen.

OpenERP

Cost

For OpenERP, the following cost components have been observed: license fee, cost of customization, and maintenance costs. Regarding the license, the entire modules and features of OpenERP community edition is licensed under free open source. Regarding the customization cost, the OpenERP

customization costs is much reduced because there is no need for development to fit the screen, logic, layout of reports and statistical reports. Regarding the maintenance agreement, OpenERP offers a fixed-price maintenance contracts, including warranties, not limited to bug fixes, migration, and guaranteed compatibility five years.

Support Availability

A user forums and mailing lists are available for users to ask for help on general topics such as functional questions, or configuration problems, etc. Developer technical forums and mailing lists available for contributors to ask for help on the resolution of bugs for example.

Regarding documentation, an official Wiki is used for collaborative writing documentation and storing all documentation about OpenERP. OpenERP also provide official bug tracker, forums, IRC channel, wiki for documentation, and official source repository.

Documentation for end users, integrators, developers and communities are made available free of charge at OpenERP website. These documents, in addition to being made available online, also integrated in the system OpenERP also for the contextual help, and connect to any display software that can efficiently help users to work efficiently with the software.

An "OpenERP Book" explains how to install, manage, configure and implement the system and providing guidance and the necessary elements, from the functional point of view, how to efficiently manage a variety of enterprise business processes: accounting, operations, stock and manufacturing, sales and purchasing etc. other documents including:

- a. "Installation manual"
- b. "Developer Book" on how to develop its own module,
- c. "Community Book" provides guidance on how the contributors community and users to set up, how the coding should be done and shows the means of communication for community members. OpenERP also provides online and screencasts free training.

Stability and Maturity

OpenERP has been implemented in various companies in different sectors and more than 45 countries with a large number of implementor offering their services as well as more than 100 documented success stories, many of which can be found on the company's website.

Customization

One of the biggest advantages of Open ERP is built on a robust architecture, Open Object platform. This allows a quick applications customization. Rapid application development methodology, using Python programming language. Open Object Engine allows adjustments such as defining new objects, modify workflows, change the outcome of the action, opening a new window or report, etc. Customization tools and options offered by OpenERP including: technical workflow editor, designer objects, view

and screen designer, report designer, BI reports, customizable actions, customized documentation, modularity, etc. All the features of Open ERP packaged as an independent module and work independently.

Other applications can be easily integrated with OpenERP server and therefore can access the objects and services of OpenERP applications through various Web services standards: XML-RPC, XML-RPC over HTTPS (Hypertext Transfer Protocol Secure), etc.

Scalability

In handling small loads, Open ERP application, required a larger servers than Openbravo application, (minimum RAM > 1GB). And after a certain load levels, Openbravo offers better performance for the same engine capacity. In any case, research shows that OpenERP still presents limited scalability though it improved lately. In early 2008, there were serious doubts about OpenERP's ability to handle large volumes or demand due to the use of high-level abstraction. However, it gets improvements in version 5 of the software but there is no real data concerning improvement measure.

Ergonomics and User Interface

OpenERP User Interface is comfortable and well designed as it is built on Open Object platform that allows developing applications with excellent usability and a very user friendly: Ajax web and rich interfaces, drag and drop, flexible display, dynamic content, a robust fully configured dynamic dashboards and per-user customizable, data filtering, searching, importing and exporting. A template engine is also available to provide a customized template and therefore adapt the look and feel for its corporate identity.

OpenERP also offers integration with Microsoft Office, OpenOffice and Webmail that increase user productivity.

Regarding aspects of internationalization, translation is done on the server side and to a small extent on the client side. OpenERP can be considered to offer a fast learning curve with a lot of companies is able to carry out the integration of the software itself. OpenERP provides a tool-tip in all areas as well as technical documentation on all the tables / objects.

Adempiere

Cost

Adempiere is committed to becoming a fully Open Source system, and are subject to license "real" open source (GPLv2). This system can be used without licensing costs now and in the future. Global communities continue to improve Adempiere.

Support Availability

Adempiere offers their Wiki community to contribute and share their knowledge and domain expertise. Adempiere offers comprehensive documentation, such as, documentation for developers, functional, technical, and user documentation and manual security implementation. The main documents include:

- a. A functional manual aimed at business people who want to learn how to use the system and is intended to explain the context of the application,
- b. User reference manual which offers technical assistance
- c. Adempiere best practices that must be followed for Adempiere development to ensure high quality standards.

For training, Adempiere has a limited training offer and it is to a few articles published on the website and some training seminars in different locations from time to time, mainly provided by Implementor.

Regarding bug support, Adempiere approach is very open to contributions. Vendor could offers bug tracking system, patches, feature requests and technical support.

Regarding partners' availability of, there are a lot partners offering support services to Adempiere system. Adempiere providing IRC chat channels and virtual conference rooms to communicate and share knowledge to members of the community. Adempiere project created Business Development Committee, formed between members with extensive business experience in implementing ERP solutions. The committee's mission is to offer quality services to prospective customers requesting the service. In Adempiere sentence, Business Development Committee can be regarded as the home of a very large virtual consultation.

Stability and Maturity

If we look at the evolution of Adempiere until now, consisted of:

- d. Bugs fixing from version taken from Compiere in 2006 continues to evolve to version 3.7
- e. Several extensions and developments such as mobile and tablet platforms.

Even so, Adempiere is expanding and actively encourage the contribution coming from all over the world. Adempiere show on the website a few success stories of implementation and the testimony of clients and partners. It can be considered a positive sign of maturity of the system.

Customization

Adempiere offers the possibility to adjust with and without development. For customization without development, can be done through Adempiere Application Dictionary (AD). These features allow for rapid customization of applications as the development of their business needs.

Scalability

Adempiere provides the option of use of Oracle database in addition to Postgress and has achieved the status and reputation to have a proven ability to handle large loads specified.

Ergonomics and User Interface

Adempiere offers some tools and tips on how to improve the look and feel. Adempiere integrate JGoodies and Tango

Desktop Project to improve the aesthetics, multi-platform support simplified and micro-appropriate design.

CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS

Although there are similarities between the systems discussed, there are some functional differences that can alter the balance in favor one ERP system to another, focusing to consider the functional modules that they offer (for example: Accounting and financial capability management, project management capabilities, management sales, production management, warehouse management, procurement management, business intelligence, etc.), the type of industry (distribution, service, manufacturing, etc.), and the size of the organization (large vs. SMEs).

Function and Industry Type point of view

The most prominent difference can be seen is in the human resources and project management module, where OpenERP can be considered to have the most complete among the three systems. For web interface, Openbravo have a strong point and can be considered to have reached a high level of maturity regarding production management. Maturity in production management makes Openbravo very appropriate and suitable for the manufacturing sector. Openbravo also have a complicated point of Sale module which makes it suitable for industrial distribution.

Distribution industry needs revolve mainly around a good inventory management system, web services and appropriate pricing policies for interacting with other applications such as e-commerce sales platform (Valyi, 2008). The standard needs in general can be fulfilled by the three ERP. The pricing engine is quite similar among the three. All of them offer good inventory management system by providing visibility not only on the volume of the remaining inventory, but also the inflows and outflows. In distribution industries, sales volume is the main focus and thus the database system becomes an important parameter, especially in its ability to handle large volumes of transaction and still performed well. On this aspect, Openbravo and Adempiere offers a safer option and scalable because they offer the possibility to use the Oracle database.

In the services sector, most of the activities carried out are project bases and the key requirement is to be able to project budget and compare the budget to human resources consumed by the project. As mentioned previously, human resources and project management module is not the strongest point of Openbravo and Adempiere, therefore they can not present the best option for a service company. On the other hand, OpenERP is very mature in this area, making it possible to effectively manage resources, planning, existing demand and other aspects of resource management. Project management is made easier through the use dashboard that offers the project manager to follows up and monitoring of projects kpi. OpenERP has an integrated function of Business Process Management (BPM) workflow that facilitates the handling of complex organizations and brings flexibility and agility to the service organization.

The manufacturing industry most obvious needs is basically about warehouse management, order management and production. All of the three selected Open Source ERP can meet those needs.

Analysis of Organizational Size Considerations

This analysis is intended to respond to the second and third research hypothesis. From the beginning, this study distinguishes two sizes enterprise needs:

For large organizations:

- a. Large organizations appreciate the aspects related to the flexibility and process improvements that should be brought by the ERP software to the organization more than SMEs (such as increased organizational flexibility, improved processes and increased innovation capabilities).
- b. Internationality software as well as the needs of customers and suppliers
- c. Stability and supplier history. This includes vendor market position today
- d. Upgradeability and improvements in the ERP package, including the stability and functionality as well as increased product innovation capabilities.
- e. Short implementation time
- f. Good support, including support for implementation
- g. Integration
- h. Scalability

For SMEs:

- a. Adaptability and flexibility of the software. This includes technical upgradeability and the incorporation of the latest technology
- b. Short implementation time
- c. Lowering costs
- d. Fit with business procedures
- e. User familiarity of the system
- f. Focus on product characteristics such as functionality and quality of products and services, not on the characteristics of ERP products supplier
- g. Integration or in other words the possibility of products to interact with other applications
- h. Good support from suppliers and training
- i. Suppliers Domain knowledge

As can be seen, the needs are divided into two sizes of organizations. Below is the summary of the general ability of the Open Source ERP systems selected meeting these needs:

For large organizations:

- a. The fact that large organizations appreciate the ERP software flexibility in implementation to

organization, it can be said that all three systems can meet these needs.

- b. Regarding software internationality, all three ERPs supports multicurrency and multiple languages. Even there is a gap found in accounting system support. The three Open Source ERP has inbuilt support for accounting principles used in major and developed countries but they do not support the accounting principles in the non-industrial countries. This could be a big problem for large public organizations and international organizations.
- c. In terms of history, stability and market position of vendors, the three open-source ERP vendors relatively do not have a long history, a lot of them are new players whose presence in the market not too long ago.

For SMEs:

- a. Customization and business process fitness: SME will choose an ERP system that can be easily configured and maintained without the need for development skills. The three ERP systems can respond to these needs. Open ERP in particular, which is based on technology that is highly modular and flexible can offer an excellent option for SMEs. It can easily adapt to company's business processes through an integrated BPM module, which does not require a specific development. Similar in Openbravo, but this comes at the expense of certain construction (no BPM included in Openbravo). OpenERP seems to offer the most appropriate choice of the aspect "fit for business process".
- b. Cost: Open Source ERP is intended to be available for organizations with as minimum cost as possible, All three selecter ERP systems practically deliver the same capabilities, which is intended to remain pure Open Source. For example, in the case of OpenERP, an SME have a choice to invest in a hosted solution offered by OpenERP with a very competitive price without needing to invest in implementation, development and maintenance of their servers.
- c. Ergonomics and user friendliness: both Openbravo and OpenERP seem to offer a very good choice in this category, Adempiere also provides a web interface.
- d. Regarding the domain knowledge of the vendor, both OpenERP and Openbravo seems more ready than Adempiere about the need for common among large organizations and SMEs: For upgradeability and improvements consideration in the ERP package, All three systems can meet these needs.

The quality of support provided. Referring to what has been discussed about the dimensions of the support; all three systems offer adequate support to their clients. All three have a highly dynamic community and active to ensure follow up and bug fix support among other aspects.

Regarding scalability, all three systems poses several limitations. There are still some doubts about the ability of the systems to handle large volumes or demand due to high-level abstraction. Regarding integration with other systems, all systems offers the possibility to interface with other applications via web services.

Implications and Suggestions

Open Source ERP seems to have a sustainable growth and general acceptance of the systems, thanks to the efforts of each contributor's community. Maturity in functional modules that they offer can be immediately compared with proprietary ERP system. With the strategy of an open and accessible code, they offer unparalleled flexibility and allow it to be functionally fit with the organization's business processes. This code accessibility facilitates the transfer of knowledge and competence to internal organization's staff, which means quick reaction to dynamic business needs.

This study concludes that all three Open Source ERP systems selected, offer an adequate level of support to their clients. In addition, they are suitable for SMEs for the reasons discussed above. However, choosing an Open Source ERP for large organizations seize limitations that can be summarized in terms of their scalability because there are still doubts about the ability of these systems to handle large volumes of users or requests, and their ability to be upgraded for example using clustering models. Other limitations that have an impact on large organizations are the lack of support for the international accounting principles which will provide a large overhead for international companies.

For further research, we believe that, considering the speed at which the system ERP Open Source evolve in terms of functionality, technology and support, it would make sense to repeat this same study in three to four years to check whether the Open Source ERP has gained the ability required that will make them attractive to large organizations. Other research could be to carry out a survey, or for collecting empirical data, to evaluate the actual utilization and the rate of penetration of Open Source ERP in large organizations and SMEs. Another suggestion is to make a comparative study between the leading Open Source ERP and some are paid.

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Reconceiving franchise business formations paradigms for better business competitiveness

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Abstract — This paper seeks to argue that franchising practitioners need to revisit and apply the basic foundations paradigms in forming strategic alliance and franchise businesses. The theories which are transaction cost theory; resource dependence theory; organisational theory; equity theory; stratified of franchising development factors; resource scarcity theory; and administrative efficiency theory will enable both partners in franchise business arrangements to make better decision making throughout the process of forming franchise business arrangements and managerial decisions in their daily basis operational activities. Furthermore, the paradigms in strategic alliance and franchise business formation will help the franchising practitioners to enhance the businesses' competitiveness. **Design/Methodology/Approach:** this paper proposes a discussion towards model building that illustrates systematic flowing process of theoretical approach in forming strategic alliances and franchise businesses. The paradigms that endows several theories can be a solid foundations in building the model. The model development is based on pertinent literatures on strategic alliance and franchise business management. **Findings:** the paper explains the pertinent of strategic alliance and franchise business formations paradigms. These a paradigms that endows several pertinent theories can be viewed as solid foundations for the franchising practitioners in forming more competitive franchise business arrangements. **Managerial implications:** the paper provides the franchising practitioners with more awareness of hierarchy in forming franchise businesses to improve the competitiveness of the franchise businesses. The paradigms can be a solid base for them to improve their decision making skills by knowing their rights and obligations in franchising relationships. **Value:** the paper reconceives and creates simple approach, which based on the traditional theories of strategic alliance and franchising.

Keywords—*Strategic alliance, franchise business arrangements, competitiveness*

INTRODUCTION

As a form of business-to-business relationship, a franchise arrangement is based on the formation of strategic alliances (Grant & Baden-Fuller, 2003). This form of strategic alliance requires a solid relationship between partners to enable survival in competitive markets (Todeva & Knoke, 2005). The relationship in general will lead to the formation of a successful business format, whose quality is enhanced and maintained for the benefits of both parties, which are franchisors and franchisees (Yu-Ping Wang et al., 2010). Franchise arrangements are characterised by a series of relational exchanges, the success of which is dependent upon managing and maintaining perceived costs and especially benefits amongst party entities (Harmon & Griffiths, 2008). The relationship between parties is in jeopardy if one of the parties does not have a full commitment to bringing the collaboration into a full,

understanding relationship on behalf of the company's success (Wright & Grace, 2011). The relational exchanges between the parties in a franchise arrangement will decide whether the collaboration is going to be a successful or a failure. As one of the strategic alliance formation, franchising is also prone to failure that is why it is really important to maintain the relationships between partners (Elmuti & Kathawala, 2001). There are three factors that can be seen as pertinent to successful partnerships: the ability to control resources, the capability to learn from and exploit the knowledge gathered from a partnership and the skills and competence in managing the partnerships and its resources (Gibbs & Humphries, 2009). That is the reasons why practitioners on franchise business arrangements need to be aware of following paradigms in order to be able to improve the franchise businesses' competitiveness.

Strategic alliances

Tsang (1998) and Hynes and Mollenkopf (1998) point out that strategic alliance is a long-term cooperative arrangement between two or more independent firms that engage in business activities for mutual economic gain to achieve its strategic objectives. Strategic alliance creates strategic value of the firms, as firms form strategic alliance for several strategic reasons, which are to overcome a weakness in the resources available to the firm and also to establish competitive position and neutralise threats (Gibbs & Humphries, 2009; Lowensberg, 2010). Furthermore, by forming strategic alliance a firm can acquire new skills, knowledge, and gain new competences through inter-organisational learning (Tokuda, 2004; Gibbs & Humphries, 2009). Strategic alliances also enables firms in the partnership to generate new customer values by using synergistic combination of previous separate resources, generating new innovative solutions, more distinctive-competitive products and enhance its competitiveness (Gibbs & Humphries, 2009). Besides enhancing the competitiveness, the firm also can form a strategic alliance to increase its efficiency and to avoid market uncertainties and hierarchical rigidities (Todeva & Knoke, 2005).

There are several theories which can be based in establishing strategic alliances. The first is transaction cost theory, which has the basic idea to reduce firms' costs and risks (Hynes & Mollenkopf, 1998; Varey, 2002). In strategic alliances, a firm is able to reduce the risks of price fluctuations, and to benefit from greater negotiating strength. In other word it can be stated that forming strategic alliances is one of the alternative ways used by firms to adapt to the uncertain world (Hynes & Mollenkopf, 1998).

The second is resource dependence theory. Managing the resource dependency is all about reducing environmental uncertainty; a collaboration based on resource dependencies will enable firms to survive over a long-term period of time (Hynes & Mollenkopf, 1998). The third is organisational theory. Organisational theory provides the differentiation between tacit and specific knowledge. These two types of knowledge will always be at the centre of discussion in firms' collaborations such as strategic alliances, because they provide an understanding of transferring knowledge in strategic alliances (Mowery et al., 1996; Hynes & Mollenkopf, 1998). Specific knowledge is quite easy to transfer by using licensing, as opposed to tacit knowledge, which is a knowledge which is implanted in a person. This kind of knowledge can only be transferred by learning alongside the person itself (Hynes & Mollenkopf, 1998; Grant & Baden-Fuller, 2004). Tacit knowledge has a close relation with the culture and philosophy of a business rather than certain specific measurements or guidance (Becerra et al., 2008). In short, the previous theories, which are transaction cost theory, resource dependency theory and organisational theory are the bases for strategic alliances formation.

Franchise business formation as a form of strategic alliance

Pappu and Stratton (2001, p.112) stated that "as a special type of inter-organisational (IOR), franchising systems mirror the same structural and behavioural characteristics that are associated with mainstream organisational relationship such as joint ventures, strategic partnerships, or strategic alliance." In addition, as well as the other forms of collaborations, such as partnerships in supplier-buyer, joint manufacturing, distribution and cross-selling arrangements, franchising is also included as a strategic alliance (Grant & Baden-Fuller, 2004). Franchising is also considered as a cooperative arrangement between two entrepreneurs, which are the franchisor and the franchisee (Hoy & Shane, 1998).

In a franchise business arrangements there are several actions. The franchisor supplies the franchisee not only with a proven model, brand and trademark, but also with the resources for competitive advantage, a certain kind of know-how, and a package of management and skills training and structure, all of which are in exchange for a specific fee (Welsh et al., 2011). Several scholars (Felstead, 1993; Kaufmann & Dant, 1999; Welsh et al., 2011) also added that the franchise arrangements have some points that can enhance competitive advantage such as valuable, scarce and inimitable, and compared to wage and salary employment, the franchise business arrangement offers bigger autonomy of the franchisors and the franchisees.

Dictionary of Marketing defines franchising as "an arrangement whereby an organisation which has developed a successful retail product or service extends to others for a fee the right to engage in the business, provided they agree to follow the established pattern" (Shapiro, 1981 as cited in Vignali et al., 2006, p.13).

In modern business, franchise business arrangements include several pertinent points such as market-testing business package, franchisee self-financing, and also multi-

unit franchisee or corporate franchisee (Hoy & Stanworth, 2003).). Frazer et al. (2012) also emphasised that franchising is a form of relational exchange, in which franchising members are commercially interdependent and manage to create collectively through ongoing negotiation and exchange.

Theoretical foundations of franchising business formation

There are four fundamental paradigms of franchise business formation which are; equality theory; stratified level of franchising development; resource scarcity theory and administrative efficiency theory.

Equity in franchise business arrangements

In practice there is a probability that one party will have a more dominant role in the relationship (Blois, 2009). This dominant role can be in a form of power by one party over the other party in order to influence the other partner to act in a way they would have not done if left to themselves (Thompson, 1956; Emerson, 1962; Crozier, 1963 as cited in Blois, 2009). Therefore, equity in a business-to-business relationship is important to ensure the sustainability of sound relationships between or among partners.

Equity is quite complex in a conceptual perspective; despite this complexity, equity can be defined as a principle where each partner in a relationship expects to gain advantages from a state in relation to its input (Jap, 2001). In franchise arrangements, the perceptions of equity are based on the expectations of parties in the relationship (Grace et al., 2013). The constituents of equity might be argued by scholar (Blois, 2009), thus there exist normative expectations of what constitute correlations between inputs and outcomes in a 'being fair' concept in a partnership (Jap, 2001). A partner's expectations are hugely dependent upon with whom they choose to compare themselves. Equity exists for each partner when they expect to gain benefits from a situation in relation to their inputs (Jap, 2001) and in making a judgment of equity each partner takes into consideration whether or not this ratio of benefits is relative to their inputs or out of balance. They then compare their cost-benefit ratio with relevant others (Blois, 2009). Several scholars stated that in order to build a successful relationship between partners, managers must have a clear understanding of each partner's contributions and goals, beside that those managers also have to rely on a structure that ensures an equitable balance of benefits (Morgan & Hunt, 1994; Blois, 2009). Equity in strategic alliances such as franchising plays a dominant role (Raimondo & Costabile, 2008). If inequity occurs on one of the partner there will be a possibility of dispute (Blois, 2009). Furthermore, dispute such as conflict in a strategic alliance can jeopardize the relationship and furthermore the operations of the company as a whole (Das & Kumar, 2010).

Stratified level of franchising development factors

Stanworth and Curran (1999) emphasised the development of franchise business arrangements from three different levels. These levels are levels are societal level; organisational level and individual level. These scholars, Stanworth and Curran (1999) explained the franchise business arrangement development as follows.

The general theory of franchising which relate to the societal level is described as follows:

- a) In cultural context, when economic individualism is an appreciated means of initiating economic activity such as franchising is of considerable importance.
- b) In economic context, the development and persistence of the franchised business arrangements will be dependent upon the structure of the economy.
- c) In political context, the emergence and survival of the franchised business form depends to a large extent on government policies to small firm.

At organisational level, a general theory of franchising that consists of several propositions as follows:

- a) Franchise organisations seek rapid market penetration through multiple outlets spread over an extensive geographical area.
- b) Franchised organisational form may appears when the linked production and marketing processes associated with the product or service involve strongly divergent or split economies of scale.
- c) Franchised arrangement business form is a relatively permanent and genuine form rather than provisional.
- d) Relationships between franchisors and franchisees contain elements of agreement and disagreement, harmony and disharmony.
- e) Failure rates in franchise business arrangements will be the result of an interaction between factors such as age of franchise business system, quality of franchisees' prior experience, sector, and position in the market. All of these may play a major role in determining failure.

Stanworth and Curran (1999) also pointed out general theory of franchising at individual level, which explained as follows:

- a. The franchised business form will exist in societies where there is a supply of individuals positively committed to economic individualism in the form of small business ownership in which the government policy and regulations permit its expression.
- b. Franchising may also attractive to individuals less fundamentally devoted to economic individualism but who find themselves forced by the wider labour market as a result of economic restructuring.
- c. Franchisees as one of the partner in the franchise business relationship, will not be drawn from risk-averse sections of the population and therefore be distinct from those entering other methods of self-employment.
- d. Franchisee motivation will be more complex than being simply an expression of profit maximisation desires, such as the need on establishing business with a proven trade mark.

- e. Franchisees with zero prior experience of self-employment, things such as independence and autonomy normally act as solid early motivations.
- f. Franchisees are able to make a substantial contribution to an existing franchise system innovation aspects, which can ranging from developing new products or services to pioneering ways of adapting to local conditions.
- g. The franchised business in some ways, realise that the cultural values of independence, autonomy, material rewards, and even creativity, more effectively rather than older forms of economic autonomy pattern such as nineteenth century competitive capitalist economy.

Resource scarcity theory

Based on resource scarcity theory, franchisors exploit franchising as a means to overcome constrains to chain or outlet growth, including the deficiency of trained managers and financial capital (Michael, 2003). These constraints can also be overcome by acquiring pertinent information, usually from the franchisee, on specific locations and the availability of human resources in a particular area which can be necessary in developing and managing a new outlet (Brown, 1998; Michael, 2003). In the real world, franchising has been utilised globally, and it is very common for a foreign company that wants to enter a new market in a certain country to apply this business mechanism. Despite the fact that it has been applied by numerous big and well-known brands, franchising is also applicable for entrepreneurs or individuals who want to establish their business (Pruett & Winter, 2011). Hence, it can be emphasised that franchising is a form of market approach, when a firm which is the franchisor grants another independent business entity the right to run the business in a particular way (Stone & McCall, 2004).

Administrative efficiency theory

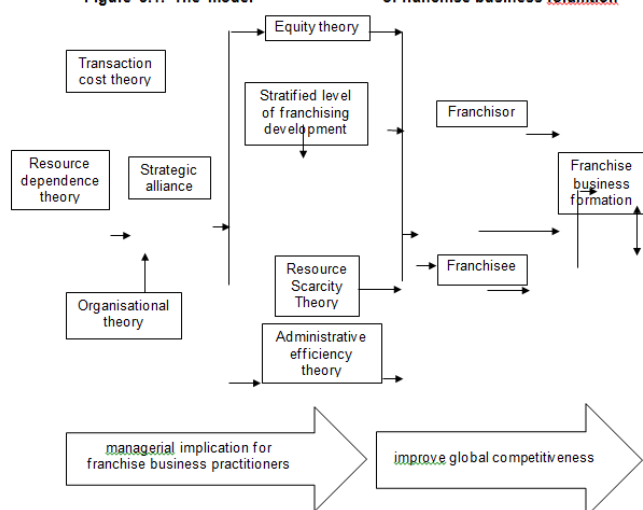
The administrative efficiency theory suggests that firms own the benefits of franchisee motivation and a willingness to share the risks at every stage of franchise development (Lilis et al., 1976 cited in Inma & Debowski, 2006, p.3). The administrative efficiency theory assumes that the growth and expansion strategy of franchise firms would change at each stage of franchise development (Inma & Debowski, 2006). This theory also suggests that franchise firms go through different stages by engaging their best fit strategies to suit their business environment in order to survive in the competitive market (Inma & Debowski, 2006). Furthermore, Lowensberg (2010, p.1099) stated, "...the pertinent alliance issues are detected in time, marketing and other decisions and actions can then be taken before such issues turn into major problems, or trigger crises that jeopardize the partners' and/or the alliance's survival". As a form of strategic alliance, franchising needs to manage several basic steps in order to secure its business survivability. These include legal, marketing, strategic management and risks. The survival of a business is a big issue, and the precautions taken by the parties, which are bounded in an arrangement, remain as a

foundation in keeping a sound relationship between the parties.

The model of franchise business arrangements formation

Figure 5.1. below shows the paradigms that can be a foundations for the franchise business practitioners, i.e. franchisor and franchisee. The franchise business formations has to be based on several paradigms which are transaction cost theory, resource dependence theory and organisational theory to be able to form a strategic alliance. As one of the strategic alliance formation, franchising endows several theories which are equity theory; stratified franchising development; resource scarcity theory; and administrative efficiency theory. These theories provide the franchise business practitioners (franchisor and franchisee) with solid considerations in forming and managing franchise business.

Figure 5.1. The model of franchise business formation



Source: the author

CONCLUSION

The paradigms for strategic alliance creations which are transaction cost theory; resource dependence theory; and organisational theory can be basic solid foundation in forming franchise businesses. These theories enable the practitioners in franchising to enhance the understanding of the franchise business as strategic alliance. Furthermore, the following theories which are equity theory; stratified of franchising development factors; resource scarcity theory; and administrative efficiency theory, enable the franchising practitioners to enhance their managerial abilities. As these theories provide them with comprehensive knowledge to manage their rights and obligations in the franchise business formations. And as a result they can enhance their businesses' competitiveness to compete in growing market, both locally and globally.

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Biological Control of *Oryctes rhinoceros* L. (Coleoptera: Scarabaeidae) with Entomopatogen Nematodes

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Abstract — The Coconut production in Jepara, Central Java decreased due *Oryctes rhinoceros* beetle attack, more than 75% plants attacked. Biological control using the entomopatogen nematodes (EPN) has not been done. The aims of the study was conducting efficacy EPN on *O. rhinoceros* larvae on rainy season in the field condition. Biopesticide (Coleonema) containing EPN used for the test. The study used a randomized block design, four treatments and six replications of Biopesticides doses. The first treatment: 1 package biopesticides containing ten million EPN dissolved in 14 liters of water, second treatment 1 package biopesticides dissolved in 7 liters of water, and third treatment 1 package biopesticides dissolved in 3.5 liters of water. One package contains ten million EPN. The black Pot diameter 32 cm and height 25 cm were used for test sites. One pot was given 5 kg of organic soil, ten third instar larvae and 1 liter water containing EPN for each treatment, total 240 larvae. The pot surface covered with a perforated plastic to protect from animals nuisance. Observation was done every week for 8 weeks. The results showed the death of the larvae occurred at third week (2-5%) to eighth week (100%). The experiments carried out on the high rainfall intensity every day. EPN applications on *O. rhinoceros* larvae during the rainy season is not effective because it takes a long time up to 8 weeks.

Keywords—Entomopathogenic (EPN); *Oryctes rhinoceros*; Biological control

INTRODUCTION

Jepara district is one of the cities in Central Java which is located at the edge of the northern coast of Java Sea, consists of 16 districts. One of them was Jeruk Wangi Village which well-known as a producer of coconut. Coconut production in Jeruk Wangi currently declining due to pests attacked coconut beetle (*Oryctes rhinoceros* L.). Farmers do not control this pest, even though the plant attacked has reached 75%.

Oryctes rhinoceros (Coleoptera: Scarabaeidae) or coconut rhinoceros beetle is one of the most important pest of coconut and oil palm in Indonesia (Mulyono 2007). *O. rhinoceros* adults feed in the crown region of coconut and oil palm. They bore through petiole bases into the central unopened leaves. Damaged fronds show typical triangular cuts. The larvae do not damage crops, but instead grow in dead, decaying trunks and other organic matter.

O. rhinoceros control is often neglected, due to several reasons: 1) the coconut plant is not a major food crop so that less attention, 2) the coconut plant generally has a high stem, so it is difficult to control adult of *O. rhinoceros*. 3) the control of larvae also have difficulties because the larvae live

in the soil and the location of the nest is often outside the plantation. So *O. rhinoceros* attacks often known after the pest population was high. Control efforts often use chemical pesticides by farmers in Indonesia.

To limit larval infestation, growers typically incorporate chemical insecticides. However, there is considerable interest in reducing pesticide inputs because of the risk they pose to humans and the environment and increased resistance in pest populations (Ansari et al. 2008). The use of synthetic insecticides causing the death of the natural enemies. Therefore environmental friendly biological control is needed. The agents of biological control are fungi, nematode, virus and bacteria.

There were entomopathogenic nematodes (EPNs) of the families Steinernematidae and Heterorhabditidae can be applied as biocontrol agents. These EPNs have been successfully used against a wide range of soil-inhabiting pests, including black vine weevil, in potted plants and glasshouse crops.

Nematodes are microscopic, nonsegmented worms that occur naturally in soil all around the world. They are parasitic to insect pests that typically have a larval or pupal stage of life in the soil; however, they have been known to also parasitize above ground stages of adults, nymphs and larvae. Once they are released, the nematodes seek out host insects and enter their prey through body openings, injecting them with lethal bacteria (Acosta 2011)

This research was conducted on a coconut plantation owned by the people in the village of Jeruk Wangi, Jepara Central Java, Indonesia. Due to more than 75% Coconut plants attacked by *O. rhinoceros*. The aims of the study was conducting efficacy EPN on *O. rhinoceros* larvae on rainy season in the field condition.

MATERIAL AND METHODS

Species of Entomopathogenic nematodes was *Heterorhabditis* sp, obtained in the form of commercial (Biopesticides), product by faculty of Agriculture, University of Jember. An aluminum pouch packaging containing 10x10⁶ EPN, the recommended dose of 1 bag dissolved in 14 liters of water.

Prepared 24 black pot diameter 34 cm, height 22 cm, the bottom of the pot there was a hole for discharge of water. Each pot is filled media sawdust mixture of soil and coconut

trees as much as 5 kg / pot. Each pot contains soil media was mixed with one liter of EPN as prescribed.

Preparation for a solution of EPN: EPN squeezed sponge containing water-squeeze in several time, repeated until the clean sponge. There were four treatment doses of EPN (abbreviated N), namely: 1 pouch packaging EPN was dissolved in 3.5 liters of water (N3,5); 1 pouch packaging EPN dissolved in 7 liters of water (N7); 1 pouch packaging EPN dissolved in 14 liters of water (N14).

Control (K) no EPN just water. Each unit pots were given 10 tails of *O.rhinoceros* larvae 3rd instar, larval size 7-10 cm long and weighing 9-11 grams / larvae. Each unit dose treatment was repeated six times, for a total of 24 pots and 240 larvae. Each pot contains 10 larvae watered as much as 1 liter of water containing the appropriate dose EPN.

O.rhinoceros larvae obtained from the nest in palm plantations in Jeruk Wangi village.

After completion of the perforated plastic surface covered pot (netting) is reasonably safe from animals. Pots and placed in the garden shaded plants. Observations conducted once a week for 8 weeks. Dead larvae were observed in the laboratory to ensure die because EPN or not. Data mortality of larvae were analyzed using descriptive charts mortality progress every week.

RESULTS AND DISCUSSION

O.rhinoceros larval mortality due to EPN for eight weeks is presented in Figure 1 as follows.

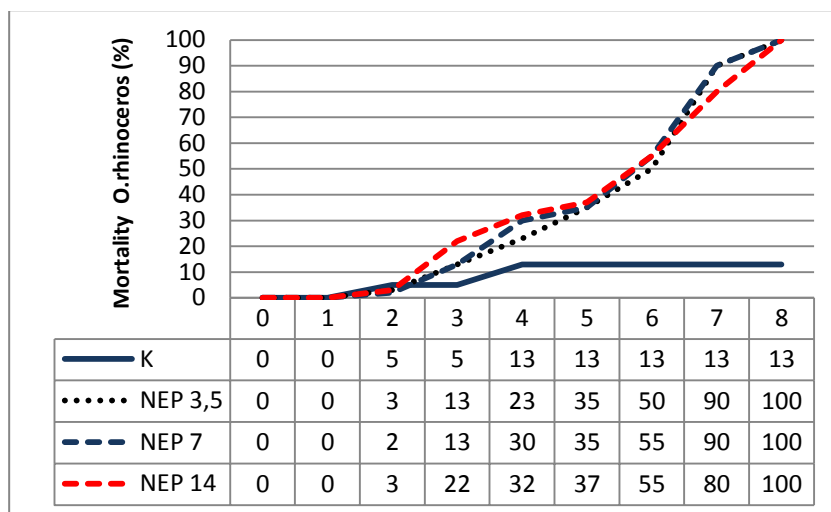


Figure 1. The percentage of *O.rhinoceros* larval mortality due entomopathogenic nematodes (EPN or NEP) treatment: doses of control (K), one package EPN was dissolved in 3.5 liters of water (EPN 3.5); EPN dissolved in 7 liters of water (EPN 7) and EPN dissolved in 7 liters of water (EPN 14). Treatment for eight weeks (average of six replicates).

Figure 1. *O.rhinoceros* larvae died began in the second week (control and treatment). This shows that there were already living microbes before given EPN. This is evident in the control 5% larvae dead, but on 3rd week larval mortality increased. This means that at 2nd – 3rd weeks EPN have infected larvae but not yet dead.

Giving nematodes into soil media, caused percentage of larvae mortality increased. At 7th week the larval mortality increased become (80-90%) while the controls (13%). Giving EPN into soil media increased the natural enemies of insect pests that live in the soil and accelerate death of the larvae (67-77%) (Figure 1).

The data (Figure 1) show that nematodes can kill larvae of the order Coleoptera, it supports the statement Imanandi (2012). However, the mortality of larvae *O.rhinoceros* require a longer time compared with larvae of insects of the order Lepidoptera.

Comparative studies show that nematodes can kill the larvae of *Crocidolomia binotalis* (50.70 hours), *Spodoptera litura* (51.60 hours) (Subagiya 2005).

To kill *O.rhinoceros* larvae with nematodes take a long time, due in this study used 3rd instar which has a hard skin, large larval size. Nematodes will effectively kill the larvae when the larvae enter the body through natural openings, for example through the mouth and holes spiracles. Another possibility is due to weather factors. Application of nematodes in the rainy season was not effective because the nematode dissolve in water before penetrating the larval body. The rains caused the penetration EPN to larvae was fail.

CONCLUSION

Entomopathogen nematodes (EPN) applications on *O.rhinoceros* larvae during the rainy season is not effective because it takes a long time up to 8 weeks until all the larvae die

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Design of Evacuation Maps as A Disaster Preparedness in Trangkil Semarang City

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Abstract — Based on identification result can be seen that in Trangkil is high risk area to get disaster and has not had the emergency response system yet especially on evacuation system. Post-catastrophic landslides in Trangkil make a people who live there develop a division of labor Trangkil disaster response team to tackle the disaster that is going on, but the establishment of a disaster response team personnel are still not complete and it is only made incidentally. Therefore, this research aims is make design of evacuation map, to complete the disaster response team which can be used as guidance for Trangkil community if they want to evacuate themselves when disaster come to this area. This research design is research and development (R & D) with simple design because the research stage only up to the third stage or Main Model Revision of evacuation map, which are constructed by assessment from the key persons in Trangkil area. The research result show that the evacuation map had been developed by the research team through direct observation in the field and interviews with the key persons. Then the initial design which already had been assessed by local community leaders (for 3 people) through interviews process as improvement input of the evacuation map design

Keywords— maps, evacuation, emergency, preparedness.

INTRODUCTION

The evacuation process, especially before the disaster will determine the number of victims and the amount of losses that might occur during catastrophic events. As in the Act of Indonesia number 1, year 1970 Section III Article 3 has been set on the terms of work safety is to prevent, reduce and extinguish fires, prevent and reduce the danger of explosion, as well as provide an opportunity or a way to save themselves at the time of the fire or incident occur.

This evacuation becomes very important because the evacuation process is not easy to do on a community that does not respond to the disaster. As mentioned by Gwynne et al that there are four main factors that determine the performance of the evacuation system, namely: configuration/arrangement of land that existed at the housing, factors environmental conditions, reliability of the evacuation procedures were applied, and the most important is the behavior of its inhabitants. Because of the behavior/nature of the occupants is affected by the physical condition, psikhis and sociological.

Indonesia is a country prone to disasters ranging from fires, earthquakes, bombings, floods, volcanic eruptions, landslides and so forth. The incidence of landslides also occurred in Trangkil Semarang. Wherein based on the identification of potential risks can be seen that in Trangkil which is a disaster-prone areas do not have a disaster response system including an adequate evacuation system

especially evacuation maps that can provide guidance for local residents to evacuate themselves when disaster comes. Post-landslide that occurred in Trangkil only made public Trangkil division of labor set up a disaster response team but the determination of the emergency response team personnel are still not accurate and complete, and the team there is still a very incidental. And do not have a comprehensive design-related emergency response system especially mapmaking evacuation.

Formulation of the problem

Based on this background, it can be formulated the problem in this research is: "How does the design of evacuation maps that can be used as a disaster response efforts in Trangkil Semarang?"

Research purposes

The aim of this study is to develop a map of the evacuation as disaster response efforts in Trangkil Semarang.

Benefits of research

This research could provide theoretical benefits that can enrich the scientific field of Occupational Health and Safety (OHS), particularly at the Semarang State University in the form of related references evacuation systems within the community, especially design of evacuation maps. Moreover, it can provide a practical contribution directly to the public in the form of Semarang Trangkil draft evacuation maps that can be used when the disaster come in that area.

Theoretical Overview

Evacuation is the rescue of the human soul from one room or building to another place safer in emergencies situation. In addition evacuation also be understood as an attempt to rescue the soul in the fire disaster. Evacuation facilities, consisting of:

1) Assembly point

assembly point is a safe place. Personnel who are not directly involved in dealing with emergencies immediately evacuated from the site toward a safe gathering place.

An assembly point should be clearly marked and equipped with communication devices such as: telephone and radio with an emergency control center. This meeting place should be more than one so that workers are

not approaching the scene on the way to the assembly point.

2) Bells/alarm

The Minister of labor regulations No. PER. 02/Men/1983 on the installation of bells/alarms should be installed outside the building and can be heard from the main entrance and close to the indicator panel.

3) Telephone/radio communications

To simplify and accelerate the spread of disaster information can be made through the emergency phone to report a disaster and said location. Thus the reduction efforts can be immediately implemented to reduce huge losses.

4) Directions exit

a. Directions exit should be installed in other places planned for evacuation.

b. Evacuation Plan installed in an area easily visible.

c. Determination driving directions exit must be easily visible, clear and bright from a distance of 20 M.

d. The distance between the two directions exit of at least 15 M and 20 M.

e. High signpost way out 2 meters from the floor.

5) Means of egress

Means of egress must be free of any obstacles that might interfere with the evaluation process.

The most important variables or components that can affect a positive public response during the evacuation process is the condition of the risk area and the actions taken by the local government, because local governments should publish a notice that it is the local evacuation orders and disseminate important information during the evacuation process.

METHODS

This study uses research and development (R & D) model is a process or steps to develop a new product or improve existing products and test the effectiveness of the model. However, this study used very simple research and development (R & D) model because the research phase only until to the third stage. This study consists of three (3) stages of the process, namely: in the first phase of the study do **basic research and information collecting** is observing sites to the drafting of a map or floor plan of evacuation and identify potential or existing resources in the community through the process of observation and interviews, then on the second stage of this research will be conducted **develop preliminary form of the model** is the development of the draft model form Trangkil evacuation maps in Semarang. While in the third phase, namely the **main model revision** form of draft obtained the repair process of assessment of local community leaders who are competent.

Data collection techniques in this study is through direct observation and interviews. Data were collected by the data collection process will be analyzed and used as input for the draft design improvements of Trangkil evacuation maps in Semarang.

RESULTS AND DISCUSSION

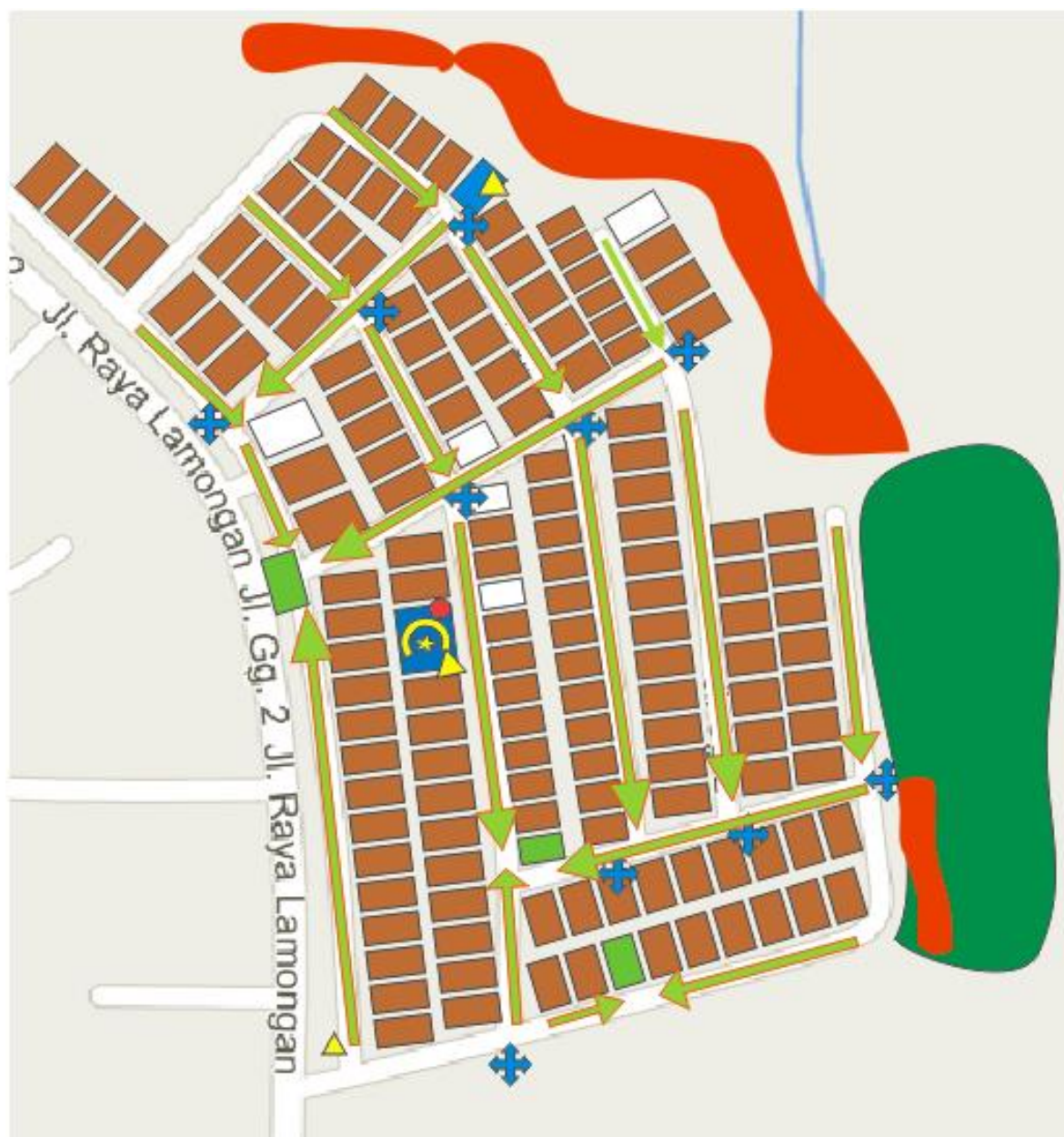
Results from this study are as follows:

General description

According to the research data collection through field observations note that the vast residential area approximately 216 meters long and 212 meters wide. With a total number of homes \pm 121 homes, which is comprised of several families, among others the number of households for RT 2 as much as \pm 50 families (home), as many as 48 families RT 3 and RT 5 as much as \pm 23 households. Trangkil total population in Semarang as much as \pm 497 people, consisting of women (adult) as much as \pm 121 people, male (adult) as much as \pm 121 women (children aged 0-18 years) as much as \pm 130, and men-Eighteen (children aged 0-18 years) as much as \pm 125 people. While the potential dangers of the most prominent and may occur in Trangkil Semarang were: landslides and fire because the area is quite densely populated with houses very close to each other.

The design of evacuation maps Trangkil Semarang.

From these conditions, the researcher's team developed a draft map of evacuation in Trangkil Semarang with the design as follows.



Description :











- | | | | |
|---|---------------------------|---|-------------------------|
|  | : Direction of evacuation |  | : Resiko bahaya longsor |
|  | : Signpost evacuation |  | : green area |
|  | : Assembly point |  | : Home residents |
|  | : Hazard warning center |  | : Vacant land |
|  | : Evacuation Map |  | : Mosque |

Figure 1. The design of evacuation maps Trangkil Semarang.

Equipped with an evacuation plan with design directions as follows below.



Figure 2. The draft directions evacuation Trangkil Semarang.

Of maps designed evacuation can be seen the number of places that have the potential to serve as an assembly point that is as much as three potential areas, with an area where each of ± 92 M2 and the time it takes towards the assembly point $\pm 1-2$ minutes. Meanwhile, if viewed from the means of evacuation is needed installing the evacuation sign, that it can be used to put the sign evacuation route directions are as many as 10 points also needed a bell/alarm disaster marks minimum of 2 bells at two locations of the hardness of at least 6 decibel.

CLOSING

Conclusion

In this study it can be concluded that the design of evacuation maps have been prepared by a team of researchers through direct observation in the field who were consulted and validated with the assessment of local community leaders (by 3 people), through interviews and the results of the assessment put as inputs to make improvement of the design in this study.

Recommendations

In anticipation of possible disasters that may occur in Trangkil Semarang, the advice given in this study are:

- 1) With nongovernmental immediately installing evacuation maps that have been designed, set the assembly points as many as three potential areas as shown in the map, put up 10 points mark the direction of the evacuation of the places which are recommended by maps, installing bells/alarm disaster marks minimum of 2 bells at two locations and the hardness at least 6 decibel, or by mutual agreement utilize the existing potential in the community is by utilizing the "kenthongan" as a bell/alarm in Trangkil Semarang when the appropriate alarms have not been installed yet.
- 2) With nongovernmental complement generated maps with evacuation procedures and establish an emergency response team as an operational step.

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Personal Values Effect on Intention and Usage Behavior of E-Procurement in Government Institution

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Abstract—The main purpose of this paper is to examine empirically the influence of personal values on the adoption of e-Procurement in government institutions. The research design used is a survey research. The theoretical model is empirically tested with data collected from 130 work units involving 185 respondents from across the local government institutions in Central Java, Indonesia. Structural equation modeling was used to analyze the data. The results show the influence of personal values on the adoption of e-Procurement in government institutions. The study results suggest that perceived behavioral control affects on usage behavior of e-Procurement, but self-efficacy more affects on intention toward e-Procurement. Other findings, past experience and social learning of personal do not affect the intention toward e-Procurement. This paper offers a model of development for the government adoption of e-Procurement in government institutions through a personal approach. Implementation of e-Procurement requires personal capability to adopt the technology. This paper is a study on the adoption of e-Procurement in the public sector that involves personal factors as the main determinants of technology in performing of adoption behavior. The study's findings provide insight the importance to involve the champion persons in government institution to diffuse the e-Procurement.

Keywords— e-Procurement, adoption, personal values

INTRODUCTION

E-Procurement is one of the major topics in the area of e-Government. Procurement of goods and services electronically (e-Procurement) is one of the mechanisms to realize the values of good governance. E-Procurement in the public sector is the adoption of the successful implementation of e-procurement in the private sector or business.

Popularity of internet use has significantly affected the institution intention to apply e-Procurement. This technology is considered necessary to be implemented in the public sector in order to realize the values of good governance, such as transparency, accountability, and integrity in the procurement of goods and services (Vaidya, 2006). Vulnerability discovered from the previous system has led to the development of e-Procurement in the government (Matthews, 2005).

According to the issue about public accountability of conventional procurement process also becomes an ethical issue. The procurement of goods and services is the most significant activity of the government, not only in terms of the amount of activity, but also the funds allocated (Moon, 2005).

At first, the implementation of e-Procurement in the public sector is expected to increase the efficiency of public organizations such as the business sector. E-Procurement in turn also expected to establish a national internet-based market (Oliviera and Amorim, 2001). In addition to efficiency, the application of e-Procurement in the government also intended to increase the effectiveness, transparency and fairness (equity) between citizens in the provision of goods and services (Dooley and Purchase, 2006; Majdalawich and Bateman, 2008).

Some studies reported the critical success factors of e-Procurement adoption process and produce different conclusions. The factors inhibiting the implementation of e-Procurement in the public sector especially is a problem employee skills in running an e-Procurement (MacManus, 2002). Other also note that performance management will determine the success of the development of e-Procurement (Reddick, 2004). In his research, Moon (2005) argued that the greater the size of the organization and the innovative culture of the organization will be more active in the government to adopt a wide range of e-Procurement.

Further, factor "human" by Vaidya et.al (2006) assessed as the most prominent factors in successful implementation of e-Procurement. Dooley and Purchase (2006) expressed the strong positive effect of participation and attention provider of goods/services to the implementation of e-Procurement. Other different conclusions stated by Walker and Harland (2008) that type of organization, organizational readiness to initiate e-Procurement, the procurement strategy, procurement documentation and information technology influence the adoption of e-Procurement.

To answer these differences, this study proposed a personal value perspective as one of the main factors that determine the adoption of e-Procurement in government institutions

LITERATURE REVIEW

The literature has provided a number of studies to examine the main determinants of technology adoption. Theory of Reasoned Action (TRA) proposed by Fishbein and Ajzen (1975) stated that individual behavior is driven by the intention of the individual to such behavior. Intention is determined by individual attitudes toward the behavior and by subjective norms from the outside in the form of social pressure. Ajzen (1985, 1991) proposed

Theory of Planned Behaviour (TPB) by adding the construct of perceived behavioral control to eliminate the limitations of the TRA in dealing with behavior in which a person cannot fully able to control their desires. Hall (1979) in the Concerns-Based Adoption Model (CBAM) states that the integration of innovation is influenced by how much individual attention to innovation. One of the assumptions of this model that is the innovation is a process that requires growth and development (Hord, Rutherford, Huling-Austin, & Hall, 1987). The basic components of this model are the individual characteristics and the characteristics of the innovation.

Based on the TRA, Davis (1989) proposes Technology Acceptance Model (TAM). According to this model, the use of technology is influenced by the individual's intentions toward technology. This intention is determined by how the individuals attitude (positive or negative feelings) for these technologies. This attitude is dependent on the individual's perception of ease (perceived ease of uses) and usability (perceived usefulness). Other studies that use the TRA / TPB are included using the software Lotus 123 at the University (Mathieson, 1991); word processing software business graphics program (Davis, 1992), the use of technology in the University Computer Center (Taylor and Todd, 1995); interactive online help desk system (Venkantesh, 2000a); proprietary system, windows based system, customer account management system, financial system (Venkantesh, 2000b), the world wide web and the internet (Moon and Kim, 2001); touch screen ordering system (Dabholkar & Bagozzi, 2002).

Referring to the CBAM, IDT, TAM and UTAUT about technology adoption, Straub (2009) draws the general conclusion that the adoption of technology is a complex process, socially embedded, influenced by the perception of the uniqueness of the individual and involves the cognitive, emotional and contextual. Some research on the adoption of e-Procurement is still partially involves several aspects that influence technology adoption.

Based on these theories, models and research about technology adoption and e-Procurement, the focus of this study is to prove that in the government institutions, the personal aspect has influence on individual decision to adopt e-Procurement.

RESEARCH MODEL

Intention towards e-Procurement

Fishbein & Ajzen (1975) stated that the intention is a closest cognitive antecedent to the actual behavior. Several studies showed the relationship between intention and behavior is highly correlated (Armitage & Conner, 2001; Notani, 1998; Shepherd, Hartwick & Warshawa, 1988). Research conducted by Davis et al., (1989), Taylor and Todd (1995); Venkantesh and Davis (2000) also showed that this intention is a good predictor of the use of technology. Several other studies also used the intention in predicting the behavior of the use of technologies such

as intention to use (Mathieson, 1991), behavioral intention (Taylor and Todd, 1995) and behavioral intention to use (Zolait, AH and Mattila, M., 2009). Thus the following hypothesis:

H1: Intention towards e-Procurement has a positive effect on the usage behavior of e-Procurement

Social Learning

Each individual is able to learn not only from their own experience but also from the experience of their surroundings (Bandura, 1986). The ability of humans to learn what happened to someone else to be one of the basic concepts of social cognitive theory.

In connection with the adoption and diffusion, social learning has two important roles. First, through modeling, experiences of others who succeed or not succeed in using the technology will affect other parties. Secondly, a few years earlier, modeling conceptualized as a real phenomenon but technological developments lately and access to a broad mass media, resulted in that learning from other people's experiences also occur in the form of symbols of nature (Bandura, 2001). Social learning does not just affect the decision whether or not to adopt the technology, but the widespread use of the internet, television and radio and even cell phone use has expanded the area of the possibility.

Rogers (1995) stated the information channel is an important factor supporting the diffusion of innovation. Information on the innovations delivered from an individual to another individual through direct or indirect communication (group and the mass media). The process of diffusion of innovation will take place if there are any support from the social system in the form of a working environment, group of organizations, informal groups or subsystems other group. Based on the literature review then the hypothesis is as follows:

H2: Social learning has a positive effect on intention toward e-Procurement

Self-efficacy

Self-efficacy is a self confidence in the ability of organizing and carrying out a series of actions required to produce a particular achievement (Bandura, 1997). Self-efficacy is always thinking ahead to the decisions based on personal ability. In the context of the adoption of technology, Burkhardt (1994) stated that self-efficacy is an individual beliefs about the ability to use certain technologies. Burkhardt (1994) suggested a link between the frequency of computer use with self-efficacy.

Several other researchers also stated the importance of self-efficacy as predictors to explain the use of the system that need to be involved in research on technology adoption (Agarwal et al., 2000). Compeau, Higgins and Huff (1995) stated that self-efficacy is an individual assessment on its ability to use technology in a variety of specific situations. Thus, individual with levels of high self-efficacy has a more positive view of the technology and use it with a higher frequency (Compeau et al., 1999; Venkantesh and Davis, 1996).

Several other studies have also found evidence of the relationship between self-efficacy with the adoption of high-tech products (Hill, Smith and Mann, 1986), the use of register-based computers at the university and study computer languages (Hill et. al, 1987) and the adoption of technological innovation (Burkhardt and Brass, 1990). All the results of the study suggested that further research to fully explore the role of self-efficacy in computer technology adoption behavior.

The next hypothesis as follows:

H3: Self-efficacy has a positive effect on intention toward e-Procurement

Internal Locus of Control

Locus of control is the belief of individuals to control whether or not capable of self-determination which is an individual's control over their work and their confidence in the success of the self (Rotter, 1966). Someone has a tendency to both internal and external locus of control. Individuals with an internal locus of control more powerful, believe that they are responsible for the achievement of his life and has a high degree of control over the success of his life. Conversely, someone with an external locus of control believes that higher surrounding circumstances beyond their control and the results achieved are not the result of ability and work.

The individual is said to have an internal locus of control if it has confidence that fate or event in his life was under control of himself (Robbins and Judge, 2007); Kreitner & Kinichi, (2005); Slavin (1986). Individuals with an internal locus of control were identified more rested their hopes on themselves and also prefers the identified skills rather than just a favorable situation. Internals are individuals who believe that they are in control over anything else that happens to them. Externals are individuals who believe that whatever happens to them is controlled by outside forces such as luck and opportunity.

In the context of the adoption of technology, internal locus of control characterizes someone who has the confidence that they are responsible for the behavior of their work in the organization. This study offers orientation control of the products in the form of internal locus of control as factors that affect the value of individual initiative of the use of technology. Individuals with self-control orientation internals have personal value such as the belief that they should be responsible for the conduct of their work in the organization. Awareness of personal responsibility for the performance of these initiatives encourages them to use certain ways better through technology.

Based on the literature review then the hypothesis is as follows:

H4: Internal locus of control has a positive effect on intention toward e-Procurement

Past Experiences

Past experience is the determining factor of behavior (Ajzen and Fishbein, 1980). However, several studies on the effect of past experiences on the intentions and behavior of technology adoption do not give firm conclusions about the direct influence of these factors on the adoption and behavioral intentions. Most studies only found evidence that the experience of acting as a moderator variable.

Taylor and Todd (1995) stated that perceived usefulness, attitude toward behavior and perceived behavioral control over increasing influence on the intention with increased experience. Karahanna et al. (1999) used the theory of reasoned action stated that increasing experience, the influence of attitude becomes critical in shaping behavior, while subjective norm becomes a factor that is not prominent in shaping behavior when the higher experience.

Similar results were also delivered by Szajna (1996) to prove empirically that the ease of use of the technology becomes insignificant if the experience is increasing. In line with the above results, Venkatesh (2000) proved empirically that the experience proved to moderate the relationship between subjective norms and intention, subjective norm becomes significant with increasing experience.

This study constructs filed past experience that draws on the experience in the form of an introduction to the technology level and the worse experience ever experienced associated with the use of technology and the implementation of tasks.

Based on the literature review then the hypothesis is as follows :

H5: Past experience has a negative effect on intention toward e-Procurement

Perceived Behavioral Control

Individual behavior is self-willingness and is not influenced by the external environment (Sheppard, Hartwick and Warshawa, 1988). Thus a person can control their own behavior and consider the order of the results of such behavior behind these actions (Ajzen, 1987).

However, not all individual behavior is under the control of its own volition. One cannot fully able to control their willingness to perform certain behaviors because of constraints or difficulties experienced by the individual to perform the behavior. Ajzen (1991) defined the assessment as perceived behavioral control (PBC) is the individual's perception of the ease or difficulty in shaping the behavior of interest.

In the context of the adoption of the technology, prior to using the new technology of individuals will assess the possibility that they are not able to overcome obstacles in using these technologies. Some research on technology adoption involves the construct of perceived behavioral control is as a direct predictor of the use of technology. Mathieson (1991) in research on the use of software technology at the university Lotus 123 proved that

behavioral control as one of the factors that influence the use of these technologies. Similarly, research conducted by David (1992) on the use of word processing software as well as Taylor and Todd (1995) about the use of technology in the Computer Center; showed a significant effect on the use of technology.

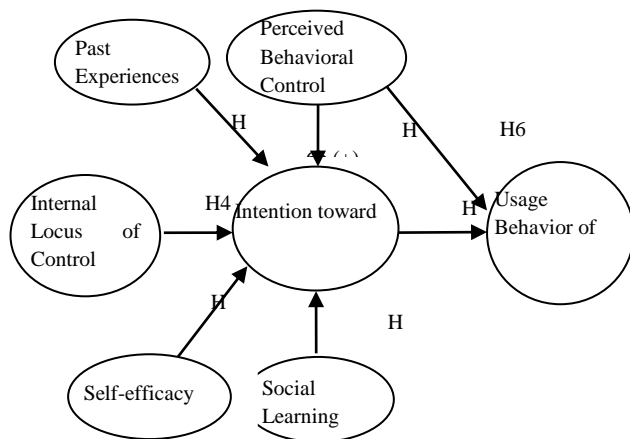
Based on the literature review conducted and the synthesis of the connectedness of the above, the proposed hypothesis is as follows:

H6: Perceived behavioral control has a positive effect on the behavior of the use of e -Procurement

This construct was also tested their direct influence on the intentions of the e -Procurement through hypothesis as follows :

H7: Perceived behavioral control has a positive effect on intention toward e-Procurement

FIGURE 1: RESEARCH MODEL



RESEARCH METHOD

The research survey is used to test the research model. Unit of analysis is the work unit on the Provincial Government agencies and State University who has been using the e-Procurement system. The population of users of the system as many as 359 units and as many as 130 the number of sample units and the number of respondents as many as 185 personnel. Respondents in this study were government employees who have been using the e-Procurement.

Data analysis was performed using analysis of evaluation measurement (outer model) and an analysis of the structural model (inner model). Structural model was tested using Structural Equation Modelling-Smart PLS. Descriptive analysis of the open-ended questions was also performed to explore qualitatively and complement the research findings.

TABLE 1: MEASUREMENT

| Construct | Measurement | References |
|--|---|---|
| <i>Usage behavior of e-Procurement (USE)</i> | | |
| USE1 | Full utilization | Fishbein and Ajzen (1975), Igarria et al. (1995), Davis (1989) |
| USE2 | Frequency of use | |
| USE3 | Time duration of use | |
| USE4 | Value of procurement (Rp) | |
| USE5 | Size of procurement | |
| <i>Intention toward e-Procurement (INT)</i> | | |
| INT1 | Tendency to use | Fishbein and Ajzen (1975), Venkatesh and David (2000), Lada et al. (2009) |
| INT2 | Possibility to use | |
| INT3 | Plan to use | |
| INT4 | Decision to use | |
| <i>Past Experiences (EXP)</i> | | |
| EXP1 | Familiar to computer technology and the Internet | Ajzen and Fishbein (1980), Taylor and Todd (1995), Karahanna et al. (1999), Szajna (1996), Lymperopoulos and Chaniotakis (2005) |
| EXP2 | Bad experience in using certain computer applications | |
| EXP3 | Bad experience in doing procurement | |
| <i>Internal Locus of Control (LOC)</i> | | |
| LOC1 | Depending on the self effort and hard work | Rotter (1966), Robbins and Judge (2007), Robbins and Judge (2007); Kreitner & Kinichi, (2005); Slavin (1986) |
| LOC2 | Not rely on the help others | |
| LOC3 | Not depend on the external conditions | |
| <i>Social Learning (SLR)</i> | | |
| SLR1 | Learning from the experience of other people 's success | Bandura (1986), Rogers (1995) |
| SLR2 | Learning from the mass media (internet, television, etc.) | |
| SLR 3 | Engage in a forum or community | |

| Construct | Measurement | References |
|---|--|---|
| <i>Self-efficacy (EFF)</i> | | |
| EFF1 | Completing the specific task | Bandura (1997), Korbanoglu (2004), Burkhardt (1994), Compeau, Higgins and Huff (1995) |
| EFF2 | Using technological devices | |
| EFF3 | Following the development of technology | |
| EFF4 | Implementing the new tasks | |
| <i>Perceived Behavioral Control (CON)</i> | | |
| CON1 | Easy to use the system | Ajzen (1987,1991) |
| CON2 | Easiness in understanding the procedures | |
| CON3 | Easiness in implementing procedures | |
| CON4 | Easy to use internal facilities | |
| CON5 | Easy to use public facilities | |

RESULTS

Data analysis was performed in 2 (two) stages of evaluation measurement (outer model) and tested the structural model (inner model). First, the evaluation of measurement (outer model) of empirical models; obtained convergent validity values (> 0.7), average variance

extrated (> 0.5), composite reliability (> 0.7), cronbachs alpha (> 0.7) and discriminant validity are eligible. Second, the test result of the structural model (inner model); the model shows the value of goodness-fit models are moderate with a value from 0.234 to 0.265. Table 2 illustrates the output of SmartPLS.

TABLE 2: EVALUATION MEASUREMENT (OUTER MODEL): AVE, CR, CA, T-VALUES

| | <i>Outer Loading</i> | $\sqrt{\text{AVE}}$ | Composite Reliability | Cronbachs Alpha | <i>T Statistics</i> |
|--|----------------------|---------------------|-----------------------|-----------------|---------------------|
| <i>Behavioral use of e-Procurement</i> | | 0,813556 | 0,906694 | 0,872327 | |
| USE1 | 0,784494 | | | | 20,458613 |
| USE2 | 0,692506 | | | | 11,789955 |
| USE3 | 0,822169 | | | | 20,527078 |
| USE4 | 0,882581 | | | | 24,347284 |
| USE5 | 0,871473 | | | | 22,871496 |
| <i>Intention toward e-Procurement</i> | | 0,900058 | 0,944367 | 0,920966 | |
| INT1 | 0,919977 | | | | 31,255143 |
| INT2 | 0,786004 | | | | 9,032339 |
| INT3 | 0,943540 | | | | 76,300186 |
| INT4 | 0,941246 | | | | 76,405582 |
| <i>Past Experiences</i> | | 0,590731 | 0,000855 | 0,303063 | |
| EXP1 | 0,843097 | | | | 1,171995 |
| EXP2 | -0,485829 | | | | 0,941295 |
| EXP3 | -0,316288 | | | | 0,792208 |
| <i>Internal Locus of Control</i> | | 0,853558 | 0,841520 | 0,655135 | |
| LOC1 | -0,027384 | | | | 0,070769 |
| LOC2 | 0,928381 | | | | 3,235410 |
| LOC3 | 0,764980 | | | | 2,514698 |
| <i>Social Learning</i> | | 0,717178 | 0,625761 | 0,100449 | |
| SLR1 | 0,294981 | | | | 1,068528 |
| SLR2 | 0,110702 | | | | 0,301658 |
| SLR3 | 0,963819 | | | | 2,900093 |
| <i>Self-efficacy</i> | | 0,791094 | 0,869056 | 0,799064 | |
| EFF1 | 0,792128 | | | | 13,023521 |
| EFF2 | 0,681856 | | | | 7,917566 |
| EFF3 | 0,880942 | | | | 18,868148 |

| | <i>Outer Loading</i> | $\sqrt{\text{AVE}}$ | Composite Reliability | Cronbachs Alpha | <i>T Statistics</i> |
|-------------------------------------|----------------------|---------------------|-----------------------|-----------------|---------------------|
| EFF4 | 0,796783 | | | | 11,590602 |
| <i>Perceived Behavioral Control</i> | | 0,642322 | 0,778025 | 0,687590 | |
| CON1 | 0,593996 | | | | 3,811236 |
| CON2 | 0,667178 | | | | 4,232105 |
| CON3 | 0,650769 | | | | 4,159479 |
| CON4 | 0,627434 | | | | 5,432382 |
| CON5 | 0,669145 | | | | 6,342183 |

Table 2 above shows that the constructs EXP and SLR have cronbachs alpha < 0.70. Thus it is concluded that EXP and SLR have a low reliability value that should be excluded from the model.

TABLE 3: LATENT VARIABLE CORRELATIONS

| | USE | CON | EFF | EXP | INT | LOC | SLR |
|-----|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| USE | 0,813556 | | | | | | |
| CON | 0,343909 | 0,642322 | | | | | |
| EFF | 0,292560 | 0,484996 | 0,791094 | | | | |
| EXP | -0,135071 | -0,349669 | -0,430886 | 0,590731 | | | |
| INT | 0,360602 | 0,385675 | 0,330296 | 0,228774 | 0,900058 | | |
| LOC | -0,135259 | 0,130695 | -0,015556 | -0,087661 | 0,122404 | 0,853558 | |
| SLR | 0,169007 | 0,115141 | 0,348612 | 0,334541 | 0,165123 | -0,078266 | 0,717178 |

Notes: Bold numbers on the diagonal are the square root of the variance shared between the constructs (average variance extracted) and their measures. Off-diagonal elements are correlations among constructs. For discriminant validity, diagonal elements should be larger than off-diagonal elements.

Latent variable correlations Table 3 above shows that the roots of AVE (diagonal elements) have a higher value than the value of the correlation between the other constructs. This proves that all the constructs USE, CON, EFF, EXP, INT, LOC and SLR has good discriminant validity.

Test of the inner model was performed to see of the relationship between constructs, as well as the value of significance and R-square. Test of goodness-fit model of the structural model (inner model) was performed by looking at the value of R-square. R-square value of 0.19, 0.33 and 0.67 for the endogenous latent variables in the structural model indicates that the model is weak, moderate and good. The following table provides estimates of the output. Table 4 below provides the output estimate.

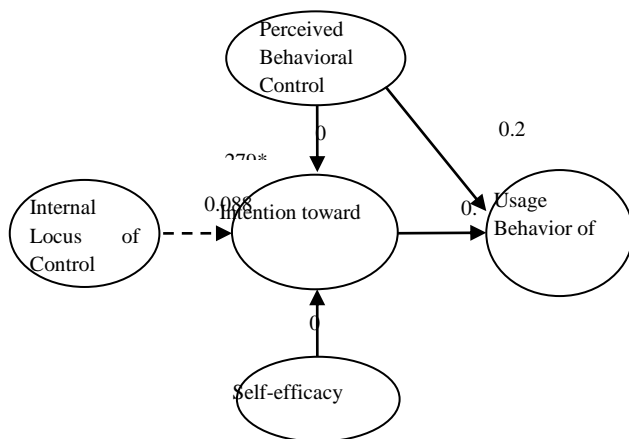
TABLE 4: TESTING A STRUCTURAL MODEL (INNER MODEL)

| | R Square |
|-----|----------|
| USE | 0,179322 |
| CON | |
| EFF | |
| INT | 0,191245 |
| LOC | |

Table 4 above shows that the model is weak to describe the effect of the independent latent constructs to the dependent latent constructs.

Figure 2 bellow shows the test results of the structural model (inner models). Intention towards e-Procurement (INT) has a positive effect on usage behavior of e-Procurement (USE) ($\beta=0.268$, $p < 0.05$). Perceived behavioral control (CON) has a positive effect on INT ($\beta=0.279$, $p < 0.01$) and positive effect on usage behavior of e-Procurement (USE) ($\beta=0.240$, $p < 0,05$). Self-efficacy (EFF) has a positive effect on INT ($\beta=0.197$, $p < 0,05$). Nevertheless, internal locus of control (LOC) has no effect on intention towards e-Procurement (INT).

FIGURE 2: RESULTS



Notes : significance *** $p < 0,01$ ** $p < 0,05$ * $p < 0,10$

Figure 2 also shows that INT and CON overall explain 17.9% variability of USE ($R^2 = 0.179$). Furthermore 19.1% variability of INT can be explained by EFF and CON ($R^2 = 0.191$).

DISCUSSION

First, the analysis proved that the intentions of the individual toward e-Procurement has a positive effect on usage behavior of technology is shown by the value of coefficient = 0.268 (95% confidence level). These findings support the view of Ajzen (1985, 1991) who stated that intention is the closest cognitive antecedent of actual behavior. Someone will do a behavior if he has a desire or intention (behavioral intention) to do so. In connection with the adoption of information technology, these findings also reinforce support for technology acceptance model proposed by Davis (1986) and Venkatesh (2003).

Second, the analysis found that perceived behavioral control has a positive effect on the intention toward e-Procurement. It is indicated by the value of coefficient = 0.279 (99% confidence level). Perceived behavioral control also showed has a strong positive effect on usage behavior of e-Procurement with a coefficient = 0.240 (95% confidence level). The results of the statistical analysis also showed that the direct effect of perceived behavioral control to use of e-Procurement is stronger than its influence indirectly through intentions. The test results support the hypothesis that statements made by Ajzen (1991) in the theory of planned behavior (TPB) that the performance of a particular behavior is correlated with trust in the ability of individuals to perform the behavior. Perceived behavioral control is the individual's perception of the ease or difficulty in shaping the behavior of interest.

Third, the analysis found that the self-efficacy has a positive influence on the intention toward e-Procurement with a coefficient of 0.187 (95% confidence level). Results of this study support the statement Bandura (1997) that self-efficacy will influence their decision to adopt the technology. These findings also support the notion Compeau et al. (1999) and Venkatesh and Davis (1996), which states that individuals with high level of self-efficacy have a more positive view of the technology. For the case of the adoption of e-Procurement, individuals who have high levels of self-efficacy (indicated by the ability of self-confidence in using new technologies), the higher his or her intention toward e-Procurement.

Fourth, the analysis found that internal locus of control has no effect on the intentions toward e-Procurement with a coefficient of 0.088. This study reinforces the opinion Himelstein & Moore (1963), and Warner & DeFleur (1969) regarding inconsistencies evaluative relationship between attitude and behavior. This inconsistency is caused due to failure of general attitude in predicting the behavior associated with the object of the attitude. Internal locus of control used in this research is the general attitude measurement to predict the behavior of the adoption of e-Procurement. Internal locus of control is common construct,

causing a weak correlation between this constructs with the intention of e -Procurement .

Fifth, the analysis found that social learning has no effect on the intentions of the e -Procurement. This study rejected the notion Bandura (2001) which states experience of institution to use the technology will influence others to adopt the technology. The study's findings also rejected the Rogers (1995) which stated that the information channel is an important factor supporting the diffusion of innovation.

Sixth, the analysis also found that past experience has no effect on the intentions of the e -Procurement. The findings of this study supported the statement of Davis et al (1989) that found no significant effect of the experience factor in shaping the behavior of technology adoption. This finding also support for further research on the role of past experience as a moderating factor on technology adoption behavior (Taylor and Todd , 1995; Karahanna et al, 1999; Szajna, 1996; Venkantesh, 2000) .

CONCLUSION AND RECOMMENDATION

Through the personal values perspective, this study shown that the usage behavior of e-Procurement in government institution is determined by how high the confidence of person to be able to overcome difficulties and obstacles in using these technologies (perceived behavioral control). The next aspect of personal value is self-efficacy that if an individual has a high self confidence in using the new technology, it will encourage increasing the intentions toward technology and ultimately improve the usage behavior of e-Procurement. But the study proved that internal locus of control, social learning and past experiences have no effect on the intentions toward e-Procurement.

This study implies that policy makers need to strengthen the personal capabilities that will bring up the champion person who will drive diffusion e-Procurement independently in public institutions. This process will affects the quality of adoption e-Procurement, not only measured by the intensity of usage but also arouse the attention of members of the organization to develop the technology as needed.

The main limitations of this research model lies in the relatively small number of R-square for variables endogenous intentions towards e-Procurement and e-Procurement usage behavior that is the subject of the research issue. This figure shows that there are other variables as well as antesendent of intention and usage behavior of e-Procurement so we need a more in-depth exploration for other variables.

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Proposing A Study on Global Water Sustainability Reporting

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Abstract— *This paper offers a study on the sustainability reporting which focus on the water used by agricultural company. Using the positivist quantitative empirical paradigm this study intends to explore the extent of water sustainability reports of the global top 500 agriculture companies in several countries by using quantitative empirical study. A large scale dataset will be used for statistical analysis and hypotheses testing based on legitimacy theory tenets which will be employed in this research. Bearing in mind that this paper is a part of upcoming research, thus no result will be presented at this stage.*

Keywords— *Water sustainability, disclosure, legitimate theory*

INTRODUCTION

Water resources take an essential role for many key economic sectors for example agriculture, industry and tourism (UNEP 2005). Based on prior research, the percentage of a country's total water supply used for irrigated agriculture is about 70% (UNESCO, 2006). About 86% of the total freshwater worldwide is utilised by agriculture (Hoekstra and Chapagain, 2007). For instance, the irrigation sector in Australia consumes two thirds of all water (Ahmad, Tower, Plummer and Aripin, 2010). The impact of the agricultural sector upon the global water condition cannot be underestimated.

On the other hand, the impact of organizational activities on social and environmental aspect including water sustainability has attracted global concern (see for example Larrinaga-Gonzales and Perez-Chamorro 2008). The fundamental for corporate transparency and accountability which is water sustainability disclosures provides better information about the companies' activities concerning water use to stakeholders. Although there has been more attention in the environmental disclosure literature in the area of some industries (see for example Nurhayati et al. 2006; Cho and Patten 2007; Aerts and Cormier 2009; and Rankin et al. 2011), not many research has been conducted on water sustainability disclosure worldwide due to the limited information provided by companies concerning the total available water inflows and outflows of their entire water cycle (Ahmad, Tower, Plummer and Aripin, 2010).

In recent years, some researchers have discussed the theoretical framework of legitimacy theory for Corporate Social Responsibility Disclosure (CSR) practices (see for example Wilmschurst and Frost 2000; Islam and Deegan 2008). According to Branco (2006), the legitimacy theory is established as a result of social contract which implicitly exists between business and society. This theory posits that companies should provide adequate social information which is balanced and suitable to the social values embodied in their

activities and the norms of society (Lindblom 1983, quoted in Guthrie and Parker 1989, 344).

According to the legitimacy theory, the sustainability disclosure which is adopted by companies can be used to legitimate their activities when the business entities do not meet expectations of society (Deegan, 2002). Based on legitimacy theory, this proposed study will explore the extent of water sustainability reports in agriculture companies globally.

Four hypotheses based on legitimacy theory can be purposed in this study. They are:

1. H1: The companies that have voluntarily implemented an environmental management system (EMS) are more expected to disclose water sustainability in their annual reports.
2. H2: There is a positive association between the presence of a corporate social responsibility (CSR) committee and the extent of the water sustainability disclosure in their annual reports.
3. H3: There is a positive correlation between the size of a company and the extent of the water sustainability disclosure in their annual reports.
4. H4: There is a positive correlation between the profitability of the company and the extent of the water sustainability disclosure in their annual reports.

Two research questions can be proposed in this study. Those are (1) What is the extent of water sustainability disclosure across the sample? (2) What are the factors that influence water sustainability issues to their stakeholders? This study is relevant for two reasons. First, obtaining a better understanding of the agricultural sector massive use of worldwide water resources is crucial for societal welfare. Second, it contributes to future research and development by testing legitimacy theory to better understand water reporting. Finally, the purposes of this study are to measure to what extent agriculture companies provide water sustainability disclosures in their annual reports globally based on legitimacy theory.

METHODOLOGY

This study is a cross sectional study which uses top 500 agriculture companies around the world as the sample set. Data for all variables are gathered from the year 2014 annual reports. The dependent variable in this study is a benchmark disclosure index composed of 21 key water disclosure items which are based on the United Nation System of Environmental and Economic Accounting for Water (UN

SEEAW) framework as the influential reference guide to explore transparency of financial reporting about the various concepts of accounting for water (Ahmad, Tower, Plummer and Aripin, 2010).

The independent predictor variables of this study based on legitimacy theory are:

1. The present of environmental management system (EMS). EMS is defined as “systematic planning, implementation and control activities in order to achieve continual improvement of corporate environmental performance” (United Nations 2001, p.176). Consistent with Rankin et al. (2011), it is measured by categorical variable; 1 is awarded for firms which have EMS and 0 for firms with no EMS.
2. The presence of a CSR committee (Adams 2002). This variable is determined by a dummy variable that takes the value of 1 if the company has a CSR committee and 0 else.
3. The firm size. This variable is generally used as a substitute for public view that is measured by whole assets.
4. The profitability. The net profit to sales ratio will be used as the measures of profitability.

Two control variables will be engaged in this study. The first control variable is corporate governance mechanisms which will be determined by the percentage of independence directors to total directors. The second control variable is ownership structure which will be measured as the level of ownership concentration.

SUMMARY

This paper proposed a study to examine the extent of agriculture companies worldwide in disclosing water sustainability in their annual reports. The legitimacy theory will be used to examine the report through four independent variables. Those are the presence of EMS, the presence of CSR committee, the firm size and the profitability. Statistical analysis will be employed to analyse a large scale dataset of the global top 500 agriculture companies worldwide.

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Optimization Extraction Process of Winged Bean (*Psophocarpus tetragonolobus* L.) Protein Using Respond Surface Methodology

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Abstract— Winged bean (*Psophocarpus tetragonolobus*) is one of legume contain high protein. Optimisation for winged bean protein extraction was investigated using response surface methodology. The effect of time , pH and rasio water-flour was studied in the protein extraction process. A central composite design was used with three variables: time (15, 30, 45 minutes), pH (10, 11, 12) and solvent : meal ratio (5:1, 10:1, 15:1) to study the response variable (protein yield). The experimental values of protein yield range between 5.5 and 94.8 % . optimum protein extraction was obtained with ratio meal-solvent, pH and extraction time were 1:15, 12 and 45 minutes respectively.

Keywords—winged bean, protein, respond surface methodology

INTRODUCTION

The winged bean, as a tropical regions crop contain much protein and oil in its seed . Other part of this plant such as the tuber, shoot, leaf, flower and pod are also edible [1]. Protein content of the winged bean seed has value between 34.3-40.7% on dry basis [2]. One way to utilize the protein of winged bean is to process into protein concetrated by isolation. Protein isolate can be obtained from legumes such as soybeans, mung bean, cowpea, winged bean and pigeon pea [3].

Protein isolation process can influenced by some parameters, such as pH, temperature, ionic force, salt or solvent type, extraction time, solid-solvent ratio and presence of components causing linking. The extraction, isolation and fractioning procedures may differ, depending on the end use. In food application area, isolation and fractionation is carried out in alkaline aqueous solution, followed by isoelectric precipitation at pH between 4.0 and 5.0. Precipitated proteins may separated by heat coagulation, filtration, centrifugation or ultracentrifugation [4], [5], [6].

Winged bean protein extracted at pH 10 and pH 12 had protein contents of about 90% and 80%, respectively [7]. Solubility of the protein concentrate was minimal at a pH of 4.0. Maximum protein extractability was attained at pH 12 while the minimum extractability occurred at pH 4. Protein extractability was not significantly affected at the various temperature and time combinations. Increased solvent to flour ratios resulted in increased protein extractability [8], [9].

Response surface methodology (RSM) is a statistical mathematical method which uses quantitative data in an experimental design to determine and simultaneously solve, multivariate equations, to optimise processes or products [5]. RSM is an effective tool for optimizing the process, when many factors and interactions affect desired responses [6]. The purpose of the present work was to apply RSM to optimize the parameters such as pH, time and rasio flour to solvent on protein extraction of winged bean flour.

EXPERIMENTAL

Materials

All reagents used were Merck chemical. The flour were obtain from dry mature winged bean seed. The seed harvest from Ambarawa land central java.

Methodes

Raw material and Sample Preparation

The seeds were manually cleaned to remove foreign matters, then soaked in tap water at seed to water ratio 1:2 for 24 hours at room temperatur. After soaking, it is boiled for 15 minutes to inactivate enzyme and then dehulled manually. Dehulled seed were dried in a hot air cabinet drier at 50^o C for 24 hours and ground in laboratory blender. The ground materials were passed through sieve 100 mesh screen to obtain winged bean flour. The comosition of flour was : moisture, ash, total lipid and carbohydrate determined according to AOAC (Association of Official Analytical Chemists) procedure.

Experimental design

The effect of the variables X₁ (pH), X₂ (liquid:solid ratio, v/w) and X₃ (time extraction) at three variation levels (Table 1) in the winged bean extraction process was investigated using the central composite design for respond surface methodology with 16 experimental runs.

The model proposed for the respond (Y) was:

$$Y = b_0 + \sum_{n=1}^3 b_n X_n + \sum_{n=1}^3 b_{nn} X_n^2 + \sum_{n < m}^3 b_{nm} X_n X_m$$

Where b₀ is the value of the fixed response at the central point of the experiment which is the point (0,0,0);

bn, bnn and bnm are the linear, quadratic and cross products coefficients, respectively. The response function investigated was $Y = g$ of soluble protein from extract/100 g flour.

Protein Extraction

Winged bean flour (10 g) was extracted with 16 combinations of independent variables such as pH (10, 11, 12), ratio flour:solvent (1:5, 1:10, 1:15) and extraction time (15, 30, 45) minutes as per central composite design. The protein extraction was carried out by adding 1 N NaOH for adjust pH. The solution was continuously stirred with magnetic stirrer at 50 °C for selected period. After stirred, the solution centrifuged at 4000 rpm for 20 minutes. The pH of supernatant was adjusted to 4.5 and the precipitated proteins were filtrated under vacuum using a Whatman No. 1 filter paper. The protein concentrate was dried at 50 °C for 48 h, ground and passed through a 100 mesh sieve.

Statistical Analysis

The data was analysed for analysis of variance (ANOVA) and regression models using a commercial software Statistica 8 (Statsoft). A second –order polynomial was fitted to the data to obtain regression equations. Statistical significance of the terms in the regression equation was examined.

RESULTS AND DISCUSSIONS

Proximate Analysis

The proximate analysis of winged bean flour is presented in Table 1. The winged bean flour contained protein 32.59%. The content of protein obtained will be different with other varieties, that is 35.9 % [10], 33.7 % , 37.8% [11], 29.8-37.4% [12].

Tabel 1. Proximate analysis of winged bean flour

| | Composition % |
|---|---------------|
| Carbohydrate (determined by difference) | 33.65 |
| Protein | 32.59 |
| Lipid | 13.11 |
| Moisture content | 8.97 |
| Ashes | 3.04 |

Winged bean flour was extracted for its protein following 16 combinations of three variables : pH, ratio flour:solvent and time extraction process. The experiments were carried out presented on Table 2, using 10 g of winged bean flour. Results showed that the experimental protein yield varied from 5.5 to 94.8 % of soluble protein in winged bean flour.

The application of RSM yields the following regression equation, which is an empirical relationship

between protein yield and the test variable in coded units, as given in the following equation.

$$Y = -588.616 - 14.692X_1 + 117.494X_2 + 2.492X_3 + 0.174X_1^2 - 5.735X_2^2 - 0.002X_3^2 + 1.425X_1X_2 + 0.037X_1X_3 - 0.232X_2X_3$$

Tabel 2. Central composites design arrangement, responses values for protein yield

| Treatment | Variables | | | Protein yield (Y) (%) |
|-----------|----------------------|---------------------------------------|---------------------------------|-----------------------|
| | pH (X ₁) | ratio flour:solvent (X ₂) | Time (minute) (X ₃) | |
| 1 | 10 | 5 | 15 | 20,4 |
| 2 | 10 | 5 | 45 | 26,1 |
| 3 | 12 | 5 | 15 | 10,8 |
| 4 | 12 | 5 | 45 | 5,5 |
| 5 | 10 | 15 | 15 | 70,2 |
| 6 | 10 | 15 | 45 | 89,8 |
| 7 | 12 | 15 | 15 | 92,0 |
| 8 | 12 | 15 | 45 | 94,8 |
| 9 | 11 | 1,6 | 30 | 27,7 |
| 10 | 11 | 18,4 | 30 | 85,0 |
| 11 | 9,3 | 10 | 30 | 32,4 |
| 12 | 12,7 | 10 | 30 | 23,2 |
| 13 | 11 | 10 | 4,8 | 38,9 |
| 14 | 11 | 10 | 55,2 | 46,2 |
| 15 © | 11 | 10 | 30 | 50,2 |
| 16 © | 11 | 10 | 30 | 50,3 |

ACKNOWLEDGMENT (HEADING 5)

The preferred spelling of the word “acknowledgment”

The predicted values of protein yields were calculated using the regression model and compared with experimental values. The value for the coefficient of determinaton R² was 0.894 which indicates the adequacy of the applied model [13]. Earlier studies have reported values for R² ranging from 0.77 to 0.96 for pigeon pea, cowpea, red pepper seed, watermelon seed [4][5][6][13].

Analysis of variance (ANOVA) of independent variables was performed. The statistical analysis data revealed that linear, quadratic and interaction terms were significant (p<0.05). The lack of fit test measures the failure of the model to represent data in experimental domain at points which are not included in the regression. There was a non-significant lack of fit that further validates the model (p>0.05). The coefficient of variation (CV) is the ratio of the standard error of estimate to the mean value of observed response expressed as a percentage [6].

Optimization of the Process

The 3D surface plots were drawn to illustrate the main and interactive effects of the independent variables on the dependent one. These graphs were obtained by fixing two variables at coded zero level (Table 2) while varying the remaining two variables and predicting the response variable (protein yield) (Fig. 4).

flour/solvent ratio showed an increasing trend for protein isolation.

Optimum isolation conditions were estimated by a Statistica software. A flour/solvent ratio of 1:15, extraction time 45 minutes and pH 12 were found to be optimal for protein extraction from winged bean seed.

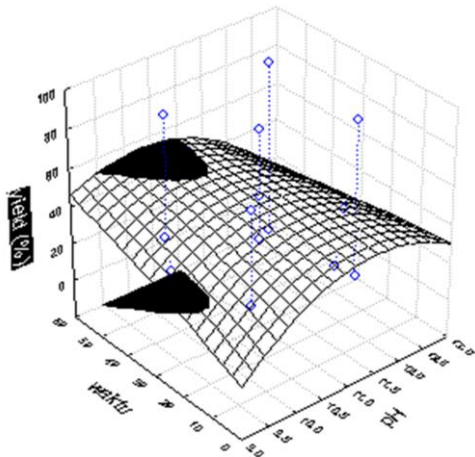


Fig 1. Effect of Time and pH on protein yield of winged bean flour with ratio flour:solvent=1:10

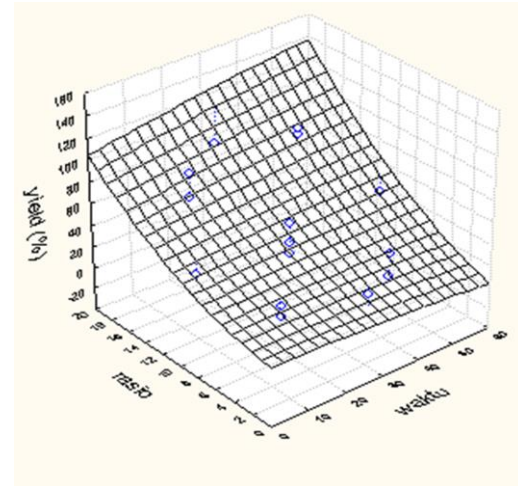


Fig. 3. Effect of ratio flour:solvent and Time on protein yield of winged bean flour with pH 10

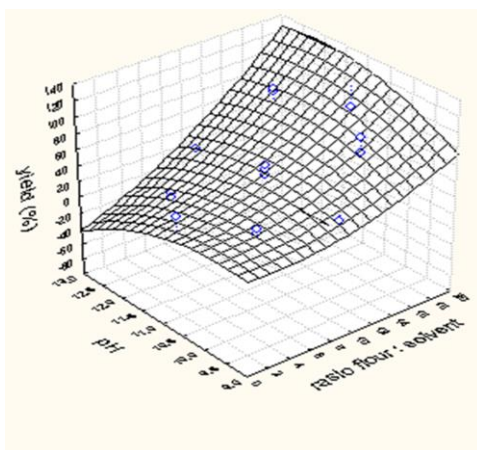


Fig.2. Effect of pH and ratio flour:solvent on protein yield of winged bean flour with time extraction 30 minutes

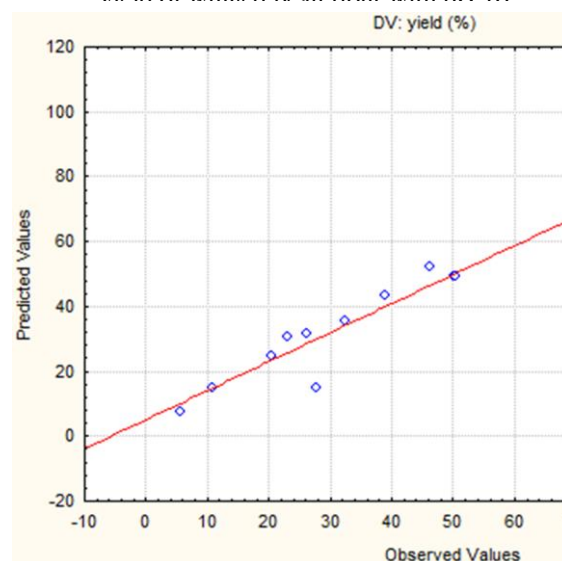


Fig. 4. comparison between predicted and observed protein yield (g protein/100 g flour)

Fig.1. shows the effect of the time and pH on protein production. A quadratic effect of time and pH on the response were observed. Fig.2. shows the effect of pH and ratio flour:solvent. Fig.3. shows the effect ratio flour:solvent and time on protein extraction. The results revealed that extraction time did not have any significant effect on the protein extraction while an increase in

Studies of the extraction winged bean seed before has results that winged bean protein extracted at pH 10 and pH 12 had protein contents of about 90% and 80%, respectively and protein extractability was not significantly affected at the various temperature and time combinations. Increased solvent to flour ratios resulted in increased protein extractability [7] ,[8], [9].

Similar studies using other plant material have been reported. Protein extraction from germinated pumpkin seed found significant effects of solvent/meal ratio and concluded that optimum conditions were: solvent/meal ratio of 30.2:1 (v/w), NaCl concentration of 4.26 % and a reaction time of 18.1 min [14]. The extraction of watermelon seed protein concluded that maximum protein yield was obtained by extracting seed meal with a NaOH concentration of 1.2 %, solvent/meal ratio of 70:1, mixing time of 15 min and temperature of 40 °C [13]. Protein extraction from tomato seed found that optimum condition could be achieved by extracting one part of tomato seed meal with 30 parts of water (w/v) at pH 11.5 at 50 °C for 20 min [15]. Protein extraction from pigeon pea were no NaCl, pH =8.5 and solvent/meal ratio=5.1 [5]. The optimum condition of protein extraction from flax seed meal has results that solvent to meal ratio of 101/kg, 0.8 mol/L NaCl and pH 8.0 [16].

CONCLUSIONS

Response surface methodology technique proved to be a useful tool in establishing optimum conditions for extracting winged bean seed protein. Optimum conditions of winged bean protein extraction was obtain on pH 12, time 45 minutes and flour/solvent ratio 1:15 with yield of protein 94,8 % . The optimum conditions can be used to produce protein concentrate from winged bean seed.

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Comparative Study Relation of CPO Rendemen to FFB Production Risk In the Plantation Company with Different Performance

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INTRODUCTION

Factors that influence the CPO rendemen achievement are the FFB quality as crude material for palm oil, factory installation condition, processing, and weighing implementation. Fress Fruit Bunch (FFB) of Palm Oil as the crude for achieving rendemen contribute up to 70%. Therefore the quantity and quality of FFB has significant factor to increase the CPO rendemen.

The cultivation of palm oil constitutes an effort that depends on the nature condition especially to the production process of Fresh Fruit Bunch in the plantation field. The dependence of the plantation activity to nature makes those who manage the plantation business to consider the nature condition as a significant risk. The influence of nature can affect the increasing or decreasing the profit. Factors that can affect the FFB production risk in this study are ones such as: plant population, number of harvest labors, the amount of Nitrogen, Phosphor and Potassium fertilizer.

OBJECTIVE

The objective of the study are: 1) to compare and analyze the FFB productivity risk level and factors that influence them. 2) to compare and analyze the CPO rendemen and factors that influence them.

METHODOLOGY

Location

The study was conducted in two companies with different performance, one is in PTPN III as a company with high performance, which is located in North Sumatra Region; and the other is in PTPN XIV, the plantation company with lower performance, which is located in Sulawesi.



Figure 1. The location map of PTPN III and PTPN XIV

Data and Processing

Most of the data used in this study are secondary, supported by primary data. The primary data was taken from deep interview with some people who from the company such as on-field employee and executive employee in plantation, the engineering employee in the factory, and the processing employee. Secondary data was taken from palm oil plantation field (FFB field) and from the processing and production in palm oil factory (CPO). All of the data was collected from interview, recording, and documentation.

T-Test was conducted in data processing. Some factors that influenced the FFB productivity risk were analyzed

using resources allocation estimation method with resources below normal risk level (very risky) from *Just* and *Pope* Model. The T-Test was conducted to compare the CPO rendemen and the FFB Production Risk level in PTPN III to the CPO rendemen and the FFB Production Risk level in PTPN XIV. The production risk level was measured using Coefficient Variation (CV) using the following formula:

$$KV = \frac{\sigma}{X_k}$$

$$\sigma = \sqrt{\frac{\sum x^2}{n}}$$

This study also conducted a classic assumption and statistic test. The classic assumption tests include the following tests of: normality, multicollinearity, autocorrelation, and heteroscedasticity. Statistic test is conducted using the following: Determination Coefisient (R²), Simultaneous Test/F-test (over all tests) and T-test (individual test)

KEY RESULTS AND DISCUSSIONS

According to Coefisien Variation (CV) index, the FFB productivity and FFB production risk level in PTPN with high performance (that is PTPN III) is lower compared to FFB production risk level in PTPN with lower performance (PTPN XIV), that is 0.033078 and 0.314942 as displayed in Figure 2. The result of the study showed that the plant population, harvest labor, dosage of fertilizer N, P and K significantly influenced the level of FFB production risk in PTPN III. FFB production risk in PTPN XIV has been influenced by the use of plant input, fertilizer N and K dosage. According to its coefficient, it showed that the fertilizer N and K dosage induced the risk level (risk inducing).

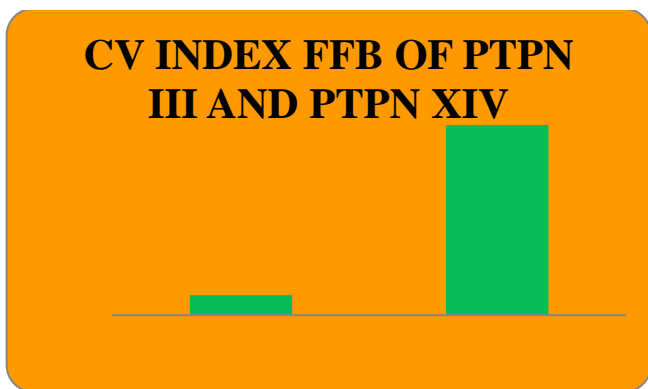


Figure 2. CV Index of FFB production risk PTPN III and PTPN XIV.

The influence of plant population, harvest labors, and fertilizer P dosage are factors that reduced the risk level (risk

reducing). Type of risk that correlates to harvest labor is one like some of the FFB not getting picked or fraction harvesting does not match to the standard. Type of risk that correlates to fertilizer P dosage is the effectiveness and efficiency of fertilizing process.

The result of the study showed that the CPO rendemen average in PTPN III was as high as 22.90% compared to CPO rendemen average in PTPN XIV that was as high as 19.87%.

The data have shown that the CPO rendemen will increase as the FFB fraction maturity increased, started form fraction 0 to fraction 4. However, fraction 5 of CPO rendemen decreased. The result showed that up to fraction 2, the more mature of the FFB, the higher of the rendemen was. The CPO rendemen percentage was influenced by the FFB quality and also by some factors related to the condition of CPO processing factory, such as stagnation, processing capacity, and losses; as displayed in the diagram in Figure 3:

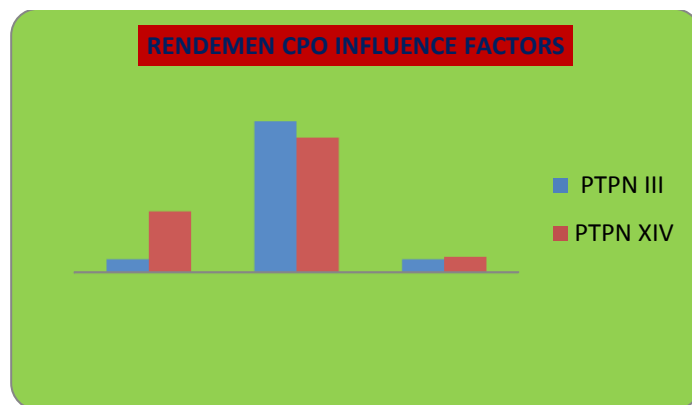


Figure 3. The CPO Rendemen Influenced Factors

CONCLUSIONS

Conclusion of the study are explained as the following:

1. The CPO rendemen average in the plantation company with high performance is higher (22.90%) than the one in the plantation company with lower performance (19.87%), due to the quality of FFB and factors that influence the CPO rendemen process. Fraction maturity is a significant factor for FFB quality; FFB fraction maturity from fraction 0 to fraction 4 will induce the CPO rendemen. The study shows that up to fraction 2, the more mature FFB is the higher the CPO rendemen is.
2. Factors that influence the CPO rendemen average in plantation company with low performance are those such as high stagnation (11.20%) and high losses (2.90%) during the CPO processing.
3. CPO rendemen has a negative correlation to high FFB production risk. Plantation company with high level of FFB production risk (0.314942) produces lower average of CPO rendemen (19.87%)

compared to the company with lower level of FFB production risk (0.033078)

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Optimization of Hydrolysis for Production The Substance of Color Indigo by Enzyme Cellulase Using Response Surface Methodology

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Abstract— The use of synthetic colors in batik process produces waste that pollutes the environment. Synthetic dyes are carcinogenic harmful to humans and therefore need to be replaced with dyes from nature. Batik cloth using natural dyes has artistic value and distinctive colors, as well as ethnic and exclusive impression that have a high value. Indigofera leaves containing blue dye that can be obtained through hydrolysis and oxidation. Hydrolysis using a cellulase enzyme catalyst. The research objective is to obtain optimum operating conditions of the hydrolysis reaction in the extraction of blue dye with a cellulase enzyme catalyst. Indigofera used leaves 5 month old and tools used include reactors, stirrer, aerator, autoclaves, incubators and ovens. Optimization parameters are studied cellulase enzyme concentration of 2-4% w, pH 5-7 and a reaction time of 12-36 hours. The concentration of blue dye was analyzed by gravimetric method. Experimental data were analyzed by the method of Response Surface Methodology, the model corresponding linear model with a mathematical equation $Y = 2,503 + 0,024 X_1 - 0,081 X_2 + 0,586 X_3 - 0,1 X_1 X_2 - 0,1 X_1 X_3 - 0,125 X_2 X_3 - 0,439 X_1^2 - 0,387 X_2^2 - 0,422 X_3^2 + 0,05$ The optimum operating conditions in the range of studied concentration of 4,68% w cellulase enzyme, pH 7,68 and the hydrolysis reaction time of 44,16 hours with a yield of 2,72 % dye.

Keywords— hydrolysis, enzyme cellulase, optimization, indigofera

INTRODUCTION

The use of synthetic colors in batik dyeing process produces waste that pollutes the environment. The synthesis of dyes, among others naptol, remasol and indigosol, which is classified as environmentally unfriendly chemicals. When these chemicals flow into the ground, it can damage the ecosystem of the soil because soil bacteria are not able to degrade these chemicals. Chemicals that are carcinogenic, if taken into the body then it will endanger human health. In order for the process of making batik is not too pollute the environment and harm to people, then the material

synthetic dyes that need to be replaced with dyes from nature (Rini,2011).

Natural dyes for textile materials are generally obtained from extracts of various parts of plants such as roots, wood, leaves, seeds and flowers. Plants that contain natural dyes include plant leaves indigofera, bark Soga Cleaner (*Ceriops candolleana* arn), wood tegeran (*Cudraina javanensis*), turmeric (*Curcuma*), tea leaves, roots of noni (*Morinda citrifelia*), leather Soga jambal (*Pelthophorum ferruginum*), crimson (*Bixa orellana*), guava leaves (*Psidium guajava*) (Susanto, 1973).

Indigofera plant leaves contain glucosides indikan, if immersed in water will occur hydrolysis by the enzyme will transform into indoksil indikan (white indigo) and glucose. Indoksil can be oxidized to blue dye. The content of the leaves of Indigofera consisting of: N 4.46%, 0.02% P₂O₅, 1.95% K₂O, CaO 4.48% dry weight (Adalina et al, 2010)

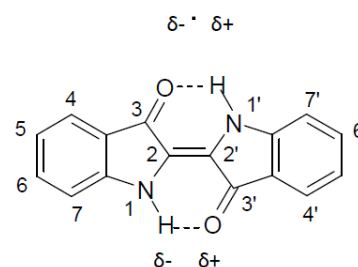


Figure 1. Structure of Dyes Indigo

Indigo is a group of carbonyl compounds is one of the oldest known dyes as natural dyes. A derivate (derivative) group of organic compounds that are colorless glucoside of the form "enol" it from a indoksil, namely indikan. Indigo plant (indigofera) containing glucoside indikan. Once the plant is soaked in water occurs hydrolysis by the enzyme, according to Hassan Shadily and Prof. Mr. Ag. Pringgogidgo in a book called introductory chemistry Sumardjo Nasution. Indoksil can be oxidized to indigo blue (Adalina, et al, 2010; Shadily and Pringgogidgo 1973; Sumarjdo 2006). Reaction formation of a blue dye indigo leaves are presented in Figure 2.

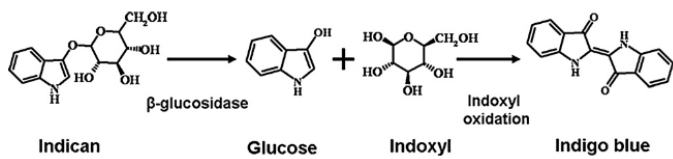


Figure 2 . Reaction formation of blue dye

MATERIAL AND METHOD

Materials research. Indigo plant leaves aged 4-6 months and cellulase enzymes. Tool. Reactor, aerator, analytical balance, pHmeter and oven. The course of study. Indigo leaves hydrolyzed with cellulase enzymes at concentrations, pH and reaction time specified. Regulates enzyme solution according to the desired pH. Indigo leaves soaked in a solution of the enzyme. Results from the hydrolysis reaction is separated between the filtrate and raffinate. The filtrate then carried out the oxidation reaction by using the aerator. Results of the oxidation reaction is the formation of blue dye as a response, a response which analyzed the amount of dye yield. The data were then processed by software STATISTICA 6. Design of experiments as presented in Table 1, which is obtained from the experimental design software STATISTICA 6. Variables studied in this research that variations in the concentration of enzyme catalyst in the range of 2-4% of the weight of the leaves, hydrolysis time and pH 5-7 12-36 hours to yield a dye. Design of experiments using Response Surface Methodology (RSM) and central composite design (CCD)

Table 1. The study design for optimization with RSM and CCD

| Run | X ₁ | X ₂ | X ₃ | X ₁ | X ₂ | X ₃ | Respon |
|-----|----------------|----------------|----------------|----------------|----------------|----------------|-----------------|
| 1 | -1 | -1 | -1 | 2 | 5 | 0,5 | Y ₁ |
| 2 | -1 | -1 | 1 | 2 | 5 | 1,5 | Y ₂ |
| 3 | -1 | 1 | -1 | 2 | 7 | 0,5 | Y ₃ |
| 4 | -1 | 1 | 1 | 2 | 7 | 1,5 | Y ₄ |
| 5 | 1 | -1 | -1 | 4 | 5 | 0,5 | Y ₅ |
| 6 | 1 | -1 | 1 | 4 | 5 | 1,5 | Y ₆ |
| 7 | 1 | 1 | -1 | 4 | 7 | 0,5 | Y ₇ |
| 8 | 1 | 1 | 1 | 4 | 7 | 1,5 | Y ₈ |
| 9 | - α | 0 | 0 | 1,318 | 6 | 1 | Y ₉ |
| 10 | + α | 0 | 0 | 4,682 | 6 | 1 | Y ₁₀ |
| 11 | 0 | - α | 0 | 3 | 4,318 | 1 | Y ₁₁ |
| 12 | 0 | + α | 0 | 3 | 7,682 | 1 | Y ₁₂ |
| 13 | 0 | 0 | - α | 3 | 6 | 0,159 | Y ₁₃ |
| 14 | 0 | 0 | + α | 3 | 6 | 1,841 | Y ₁₄ |
| 15C | 0 | 0 | 0 | 3 | 6 | 1 | Y ₁₅ |
| 16C | 0 | 0 | 0 | 3 | 6 | 1 | Y ₁₆ |

Keterangan :

+1 : nilai atas
 -1 : nilai bawah
 0 : nilai tengah

RESULTS AND DISCUSSION

The results obtained are presented in Table 2, which is a comparison of experimental results with the results of the calculation model. The mathematical model obtained are as follows;

$$Y = 2,503 + 0,024 X_1 - 0,081 X_2 + 0,586 X_3 - 0,1 X_1 X_2 - 0,1 X_1 X_3 - 0,125 X_2 X_3 - 0,439 X_1^2 - 0,387 X_2^2 - 0,422 X_3^2 + 0,05 \quad (1)$$

Keterangan :

X₁, X₂ dan X₃ : konsentrasi katalis, pH dan waktu reaksi.

Y : respon (rendemen zat warna)

Table 2. The results of the experiment

| Run | X ₁ | X ₂ | X ₃ | experiment Y _o |
|-----|----------------|----------------|----------------|---------------------------|
| 1 | 2 | 5 | 0,5 | 0,6 |
| 2 | 2 | 5 | 1,5 | 1,8 |
| 3 | 2 | 7 | 0,5 | 0,7 |
| 4 | 2 | 7 | 1,5 | 1,8 |
| 5 | 4 | 5 | 0,5 | 0,8 |
| 6 | 4 | 5 | 1,5 | 2,00 |
| 7 | 4 | 7 | 0,5 | 0,9 |
| 8 | 4 | 7 | 1,5 | 1,2 |
| 9 | 1,318 | 6 | 1 | 1,2 |
| 10 | 4,682 | 6 | 1 | 1,4 |
| 11 | 3 | 4,318 | 1 | 1,6 |
| 12 | 3 | 7,682 | 1 | 1,3 |
| 13 | 3 | 6 | 0,159 | 0,1 |
| 14 | 3 | 6 | 1,841 | 2,6 |
| 15 | 3 | 6 | 1 | 2,5 |
| 16 | 3 | 6 | 1 | 2,5 |

Table 3. Results of ANOVA analysis

| | SS | Df | MS | F | P |
|-----------|---------|----|----------|--------|----------|
| Var 1 (L) | 0.00828 | 1 | 0.008284 | 0.2144 | 0.654360 |
| Var 1 (Q) | 2.64042 | 1 | 2.640423 | 68.323 | 0.000017 |
| Var 2 | 0.08933 | 1 | 0.089333 | 2.3116 | 0.162737 |

| | | | | | |
|-------|----------|----|----------|--------|----------|
| (L) | | | | | |
| Var 2 | 2.04204 | 1 | 2.042044 | 52.839 | 0.000047 |
| (L) | | | | 8 | |
| Var 3 | 4.69154 | 1 | 4.691544 | 121.39 | 0.000002 |
| (Q) | | | | 80 | |
| Var 3 | 2.43243 | 1 | 2.432432 | 62.941 | 0.000024 |
| (L) | | | | 4 | |
| 1L by | 0.08000 | 1 | 0.080000 | 2.0701 | 0.184068 |
| 2L | | | | | |
| 1L by | 0.08000 | 1 | 0.080000 | 2.0701 | 0.184068 |
| 3L | | | | | |
| 2L by | 0.12500 | 1 | 0.125000 | 3.2345 | 0.105646 |
| 3L | | | | | |
| Error | 0.34781 | 9 | 0.038646 | | |
| Total | 10.92947 | 18 | | | |
| SS | | | | | |

Results of ANOVA analysis of variance and the variance is obtained (R²) of 0.9682, which means that 96, 82% of the amount of variation according to the model. Chart comparison between the results of research and predictions presented in Figure 3.

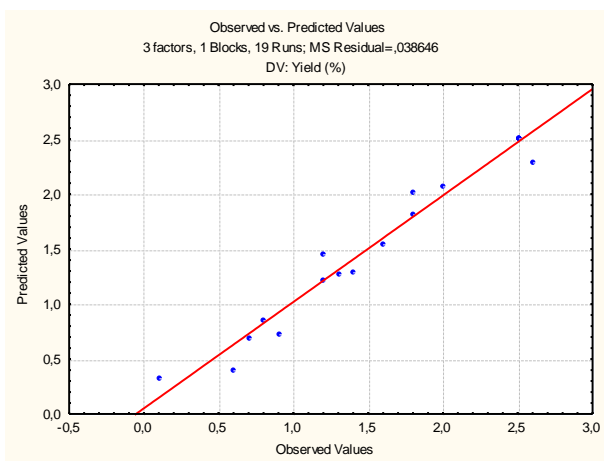


Figure 3. Graphic comparison between the results of research and prediction

The research results are presented in three dimensions, as in Figure 4.

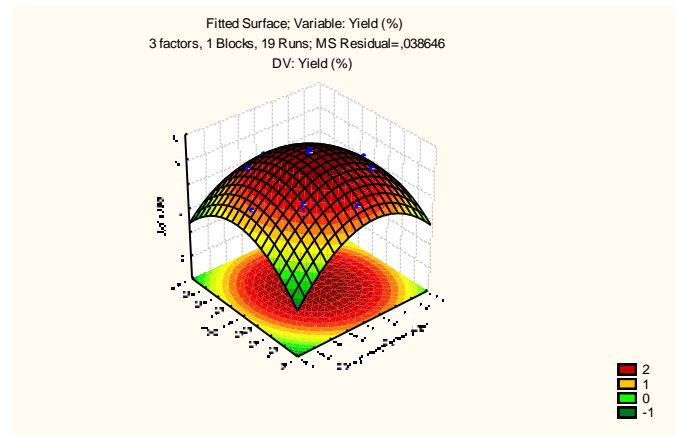


Figure 4. Profile fitted response surface to yield a dye

Based on the above empirical model, the obtained optimum conditions at a concentration of cellulase enzyme catalyst 4.68%, pH of 7.68 and 44.16 hours of reaction time with a dye obtained yield by 2.72%.

CONCLUSION

Manufacture of indigo dye with cellulase enzyme catalyst described as a linear model with a mathematical equation

$$Y = 2,503 + 0,024 X_1 - 0,081 X_2 + 0,586 X_3 - 0,1 X_1 X_2 - 0,1 X_1 X_3 - 0,125 X_2 X_3 - 0,439 X_1^2 - 0,387 X_2^2 - 0,422 X_3^2 + 0,05$$

Results of analysis of empirical models obtained optimum operating conditions with an enzyme catalyst concentration 4.68%, pH of 7.68 and 44.16 hours of reaction time with the resulting dye yield of 2.72%

ACKNOWLEDGEMENTS

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Exploration bacteria trash of Rawasari and Bantar Gebang Indonesia as a superior candidat of compost bacterial agent

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Abstract- To obtain a superior compost bacterial agent carried out by exploration of bacteria that already exist in its place. This research is aimed at exploration bacteria trash from Rawasari and Bantar Gebang Indonesia. This descriptive research was exploration of bacteria in molecular level. The identification technique used consisted of observation on morphology and mineral analysis content of soil samples, molecular identification of 16sRNA genotype analysis using PCR and sequencing as well as kinship test bacteria using a program of Mega tree. The isolates multiplied using cloning techniques and analyzed its growth.

Keywords-superior compost bacterial agent, Rawasari, Bantar Gebang, 16sRNA genotype identification.

INTRODUCTION

Application of waste by fermentation of microorganisms is one method of controlling garbage in the environment. Efforts waste processing using microorganisms will degrade organic waste into high quality compost. This study provides an important breakthrough in addressing the waste problem with the approach of exploration results and determination of seed compost bacteria in the fermentation process. microorganisms succession process in each stage and has a diversity of different microorganisms (Peters et al. 2000). Succession is categorized into four stages based diversitasnya, namely: mesophilic, thermophilic, mesophilic second, and maturation (Ryckeboer et al. 2003). Fermentation is the result of acid hydrolysis of fats and also as a result of the activity of bacterial growth. One of the organic acids resulting from the process is lactic acid. Lactic acid is formed as a result of anaerobic glycolysis metabolism through enzymatic conversion of pyruvate by the help of the enzyme lactate dehydrogenase - LDH. Lactic acid may increase the acceleration revamp organic materials such as lignin and cellulose and memfermentasikannya without causing toxic compounds Microorganisms can be bacteria that produce lactic acid is known for Lactic Acid Bacteria (LAB). Lactic acid bacteria can ferment carbohydrates to produce lactic acid. Functional lactic acid bacteria decompose organic matter by fermentation forming lactic acid and glucose. The lactic acid will suppress the growth of harmful microorganisms and improve the degradation of organic

materials quickly (Javed et al. 2010) (Anif et al., 2007: 124).

Bacillus bacteria under anaerobic conditions LDH enzyme plays an important role in forming ATP during glycolysis (Javed et al. 2010). Lactic bacteria isolated from compost is Bacillus sp. Bacillus sp. These bacteria are known most commonly found in the temperature range 20 ° C to 60 ° C, while above this range only strains of Bacillus stearothermophilus are able to live (Strom 1985). Bacillus sp. have a metabolic enzyme that plays a role in degrading cellulose, lignin, and bioplastics (Ryckeboer et al. 2003). Therefore, the role of Bacillus sp. very important in the beginning of the composting process.

The genus Bacillus originally proposed by Cohn in 1872 were classified as bacteria which produce endospores (endospore-forming bacteria). This genus has a number of very fantastic kind reaches 146 species, including the two most popular types that B. anthracis and B. subtilis {Citation} (Fritze, 2004). Since Cohn, taxonomy Bacillus undergone some changes, until now known only valid genus Bacillussecara teradaptat 88 species (Fritze, 2004) and about 18 species ditemukanpada compost (Ryckeboer et al., 2003).

The purpose of this research is to isolate new strains of mesophilic bacteria that get into the genus Bacillus sp. of compost in Bantargebang (Indonesia), namely Bacillus sp. strain-BG, define the taxonomic and phylogenetic position of organisms through a complete analysis area 16 rRNA. This research will be conducted identity and combinations LDH isoform composition of Bacillus sp.

METHODS

Samples taken from the soil bacterium derived from the land end of the garbage collection population in Jakarta, namely Bantargebang - Bekasi Indonesia and land waste collection in the area of Rawasari- East Jakarta. We have done in Hazaka Plant Research Center were sampling, making media, sterilization using autoclave, direct inoculation, and sample incubation. Furthermore, bacterial samples are stored in the Laboratory of Microbiology, Faculty of mathematics and natural science Universitas Negeri Jakarta. **Bacteria Culturing Stage**

Sampling

Choose the location of the sample for isolation and identification. The soil chosen was the result of compost fermentation or getting finish the fermentation step. Chose the location with many white surface. Put the sample into the plastic bag. When you want to collect the sample please choose the place with many white surfaces. Because, the location with white surface many bacteria growth in there. Not only bacteria but fungi can growth in there. Collect the soil sample sufficiently. If you collect the sample with less white surface it can be can to growth the bacteria or maybe the bacteria have slow to grow up. After that the soil can to use to the next stage, is direct inoculation.

Media. The medias were: CG medium, CG + Antibiotics Kanamycin 50 ppm, Basic medium, Basic medium + Antibiotics Eritromycin 50 ppm, RBBR medium broth, Yeast medium, NA medium, and ISP series medium. CG medium content are gellan gum and CaCl₂ 0.2 %. Gellan gum is a water-soluble [polysaccharide](#) produced by *Pseudomonas* elodea. In this media Gellan gum 1.5 % be the once to supply the carbohydrate for bacteria culture. And the function of CaCl₂ is become the substance to make the wall cell can be polar so the bacteria can transform many nutrition in the medium. And for basic medium the material have function for each material. MgSO₄ 0.1 % function is for give mineral nutrition for the colony of bacteria and yeast the main producer carbohydrate. Peptone 0.2 % function be the main protein producer for bacteria and the agar function is to make solid the solution. RBBR medium 0.045 %. RBBR (Remazol Brilliant Blue R) is the staining for know the enzymatic process in bacteria are be held or not. The color before we add the bacteria is blue or dark blue. So after we incubate the color must be change into yellow when the bacteria have the enzymatic activity. Procedure for RBBR media was measure all the composition needed using scales (RBBR 0.045% and yeast 1 %) until neutral. The procedure for making ISP1 medium was measure all the composition needed using scales (Tryptone 0.5 %, Yeast 0.3 %, and gel 1.5 %) mix all material. For the medium using antibiotics, the antibiotics are added after sterilization process. All media must make appropriate the protocol. When you add more water, the medium can ossified and the form is mushy.

Direct Inoculation. Direct inoculation is a process to grow the bacteria from the sample by put the sample directly into the medium. The function direct inoculation is only to growth all kinds of bacteria. This method is only to know what the unique colony of all bacteria. After that, we choose one colony and then streak or dilution the colony into a new media.

Sample Incubation. There are 50°C, 55°C, 60°C, 65°C, 41°C, 70°C and 37°C. For the 70°C, it is not used. For this time, we only use the incubator at 50°C-70°C and room temperature for growth the compost bacteria. Compost bacteria can growth well when the temperature is high, because all kind of bacteria are mesophiles and thermophiles bacteria. Thermophiles bacteria are the

bacteria can growth well at high temperature and mesophiles bacteria are bacteria can growth wall at middle temperature.

Dilution and streak the colony of bacteria. After the bacteria grew up, we must make the pure culture of bacteria. We can use streaking and dilution technique. Collect 10 gram sample and then put into 100 ml water for all sample. Collect 100µl sample and dilute the sample into 900 µl, and then mix.(mixing use micropipette after that invert the mix solution) Repeat until 10⁶ dilution and then pour 100 µl into 10⁶, 10⁵, and 10⁴ dilutions. Spreading into the media. Take into incubator.

Streak the colony of bacteria. According to the results of observations made during the course of the work. The results obtained are mostly growing Actinomycetes bacteria are bacteria and Streptomyces. The bacterial colonies characterized shaped like white cotton. Moreover, in nukka we can found the colonies microbispores and like ktodonobacteria. *Streptomyces* is a kind of bacteria that we found in the soil.

Isolation DNA, PCR, and Electrophoresis

Bacterial DNA extraction process.

The bacteria cultures were cultivated in NA agar for DNA isolation. Cells were collected from the logarithmic phase of growth (containing approx. 0.5 – 1.5 x 10⁹ cells). The DNA was extracted by using kit the Gentra Puregene Yeast/ Bact Kit.

PCR Reaction

The 16S regions of rDNA of bacteria were amplified using primer pairs 9F (5'-GAGTTTGATCCTGGCTCAG-3') primer forward and 1510R (5'-GGCTACCTTGTTACGA-3') primer reverse (Nilsson & Strom, 2002). The PCR reaction was performed using The PCR reaction was performed using PuReTaq Ready-To-Go PCR Beads (GE Healthcare) in a total of 25 µL reaction volume which contained 15 µL nuclease free water (NFW) diluted in PuReTaq™ Ready-To-Go (RTG) PCR beads (GE Healthcare), 10 pmol for each primer 9F and 1510R, and ca. 100 ng DNA template. PCR condition was as follows: 94°C for 2 min; 94°C for 1 min; 50°C for 1 min, and 72°C for 5 min, followed by polishing step at a temperature of 4°C for 5' (30 cycles).

Visualization of PCR Products

The gel electrophoresis of PCR products was performed using Tris Acetate EDTA (TAE) buffer solution at 100 Volt for 25 min. The 100 bp DNA MW marker was used as a molecular size marker. The PCR products were analyzed on 2 % (w/v) agarose gel, stained with ethidium bromide, and visualized under UV light using the Gel doc (Sambrook and Russell, 2001). When amplified bands were confirmed, PCR products were purified using ethanol precipitation method. Purified PCR products were

measured for their quality and quantity using Nanodrop Spectrophotometer.

Phylogenetic Analysis

The sequence data were sent to online international DNA database for homology search by Basic Local Algorithm Search Tools (BLAST) program (Altschul *et al.*, 1997). The sequences of 16S regions of rDNA of the bacteria isolates were aligned with other 16S regions of rDNA sequences available on the online database on the basis of similarity of the sequences. Sequences of the 16S regions of rDNA gene were manually edited and assembled using MEGA version 4 software (Tamura *et al.*, 2007). The gaps were excluded in our phylogenetic analyses. The distance matrix for the aligned sequences was calculated using two-parameter method Kimura. The neighbor-joining (NJ) method was used to construct all phylogenetic trees (Saitou and Nei, 1987). The robustness for individual branches was estimated by bootstrapping with 1000 resamplings (Felsenstein, 1985).

Cloning

The cloning procedure base on Werner *et al* (1970). DNA fragment from electrophoresis process was cut. The fragment DNA from agarose Put the Solubilation buffer with comparison 1: 3 of the sample and the buffer. Incubated until 10 minutes at 50°C and each 2 minutes we must vortex it. Sentrifuge for 1 minute with the speed of 13000 rpm. Discard the supernatant and make sure there is no water left inside the tube. Add the PE buffer 0.75 mL or 750 µL into the tube which fill dry DNA sample. Sentrifuge for 1 minute with the speed of 13000 rpm. Discard the supernatant and make sure there is no water left inside the tube. Add 30 µL of EB buffer into the liquid and wait for 1 or 2 minutes. Sentrifuge for 2 minute with the speed of 13000 rpm. If the sample is divided into 2, so after sentrifuge the sample is merged into 1 tube. Add the DNA control 1 µL into 2 tubes. (one tube is empty and the other tube fill DNA sample 2 µL) Add the competent serum 50 µL each the tube. Put the tube into the ice for 30 minutes. Put the tube into water bath for Heat Shock process for 30 second with the temperature of 42°C. Put back the tube into the ice for 1 hour. Put out the tube from the ice after that add the SOC medium 450 µL for each tube. Put the tube into the shaker incubator for 1 hour with the temperature 37°C. After 40 minutes prepare the medium for culturing the *E. coli* . Add 20 µL, 50 µL, and 100 µL of DNA sample into the medium. Incubate into the 37°C incubator for 1 x 24 hour. DNA cloning involves separating a specific gene or DNA segment from a larger chromosome, attaching it to a small molecule of carrier DNA, and then replicating this modified DNA both an increase in cell number and the creation of multiple copies of the cloned DNA in each cell. A *clone is an identical copy*. cloning there are: Cutting DNA at precise locations. Cloning vector Joining two DNA fragments covalently. Transformation to a host cell.

Selecting or identifying host cells that contain recombinant DNA.

Soil analysis

Soil analysis was aim to determine concentration of minerals contained in compost. Soil composts were derived from Fukui, Bantar Gebang, and OD. Soil assays are very important to identify concentration of hazardous materials, such heavy metals. It is also used for obtaining concentration of elements that are required to support plant growth, such as phosphorus, potassium, and Sodium. While the concentrations of hazardous materials exceed the expected concentration that is already resolved by government, thus soil compost is not qualified for use. Soil assays will be discussed more detail below:

Sample preparation

Soil samples from several locations (Fukui, BantarGebang, OD) were ground using Sumitomo grinder to reduce all soil fragments to a uniform size. 0,5 gr of refined soil was extracted and insert into 50 ml of porcelain cup Add 5 ml of Nitric Acid and 4ml of perchloric Acid into the cup. Toast the cup at 140⁰ C and wait for 4 to 5 hours. After all yellow smokes disappeared, and then add 4 ml perchloric acid and 8 ml Hydrochloric Acid using 1 ml micropipette into the cup. Heat the cup at 250⁰ C and wait till the soil that formerly added completely dissolved and forming a clean liquid. Add 5 ml nitric acid and heat again at 140⁰ C. When the soil dissolved and forming a clean liquid, then soil is ready to be analyzed. If the soil have not dissolved and forming a clean liquid, we must repeat point 2.

Measuring EC and pH

Five gram of soil sample was mixed with 50 ml of distilled water and wait till one hour. After one hour, insert sensor of EC meter Horiba into the sample and wait until measured value displayed on the LCD. Record the value. Insert the probe of pH meter Horiba into the previous sample to measure pH level.

Determining soil component using Atomic Absorbance Spectrophotometer Spectra AA 220 Atomic Absorbance Spectrophotometer (AAS) is utilized to measure concentration of some chemical elements. In this examination, we measured concentration of Iron (Fe), Potassium (K), Calcium (Ca), and Magnesium from the soil sample which prepared before. Spectra AA will automatically read the sample, so we can easily get the concentration of expected elements.

RESULTS AND DISCUSSION

Streptomyces is the largest [genus](#) of [Actinobacteria](#) and the type genus of the family [Streptomycetaceae](#). Over 500 species of *Streptomyces* [bacteria](#) have been

described. As with the other Actinobacteria, streptomycetes are Gram-positive, and have genomes with high GC content. Found predominantly in soil and decaying vegetation, most streptomycetes produce spores, and are noted for their distinct "earthy" odor that results from production of a volatile metabolite, geosmin. Streptomycetes are characterised by a complex secondary metabolism. They produce over two-thirds of the clinically useful antibiotics of natural origin (e.g., neomycin and chloramphenicol). The now uncommonly used streptomycin takes its name directly from *Streptomyces*. Streptomycetes are infrequent pathogens, though infections in humans, such as mycetoma, can be caused by *S. somaliensis* and *S. sudanensis*, and in plants can be caused by *S. caviscabies*, *S. acidiscabies*, *S. turgidiscabies* and *S. scabies*.

Streptomycetes can grow up because it has high tolerance in environment. So after we do the direct inoculation we can find many streptomycetes in our medium and difficult to find the actinobacteria species. Because actinobacteria have the specific condition for growth. So when we see the medium we only found like actinobacteria in nukka sample and miyagi sample. In the other none.

For the activities that were doing some of the samples we tried to do the isolation of bacterial DNA to PCR in Nuka, Hazaka Miyagi, Hokkaido, Rawasari and Bantargebang. The fifth sample of his DNA fragmentation succeeded in using the primer 16S rRNA vulnerable 9-1510bp.

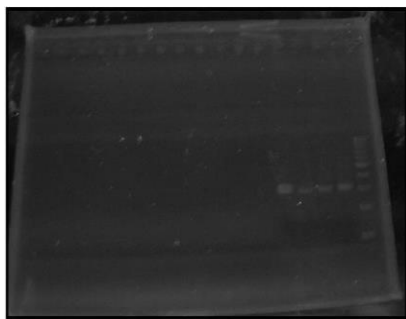


Figure 1. PCR result with 9F 16S rRNA

Sequencing

Results of the PCR process and electrophoresis then sent to the national body along with primer sequences used. Then wait for the results for 2 days. Once the results are sent out via email, followed the blast analysis method. Then get the results of existing methods. Results of PCR and electrophoresis were successful in sequences showed that 85% of the land Rawasari DNA containing bacteria *Streptomyces* sp. and for land 95% is Miyagi *Paenibacillus* sp. However, these results can't be said to be appropriate because many contain n the sequence results. Most likely it is because there happens to pure culture of microorganism contamination are made. Based on these results we can say the results likely swamp juice right results because many factors n the

sequencing results that require isolation back there so pure bacterial culture of the bacteria can be obtained. And then can be extracted so that the results are not widely available n the sequencing results. And species can be determined with high accuracy percentage values.

CONCLUSION

The result sample bacteria from the soil Bantargebang have similar to bacteria derived from Hokkaido. Characteristics derived from observations showed that the bacteria Bantargebang shape and morphology of coccus bacteria, which have colonies that look like jelly. The sequencing results showed sequences of bacterial strains included in *IRZ Tubericillus Calidu* (similarity index is 95%).

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The Effects of Isoflavone on Antioxidant Status in The Serum of Rats DMBA-Induced Breast Cancer and Treated With Tempe

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Abstract- Purpose : tempe was investigated for its antioxidant properties in DMBA-induced breast cancer. Methods : Rats were randomly allocated to five groups: control group (K; n =6), 1% tempe diet (K1; n=6), 10% tempe diet (K2; n=6), 50% tempe diet (K3; n=6), and 75% tempe diet (K4; n=6). All groups had breast cancer initiated by 7,12-dimethylbenzanthracene (DMBA, 20 mg/kg bw) orally for sixteen weeks at twice a week. Tempe diet based on AIN93M formula (control group) and modified with tempe flour (intervention group). Tempe diet were given since the first induction of DMBA until one week after the last DMBA induction. After sixteen week experiment, blood were collected and checked for SOD level. Results : group treated with tempe showed significant increased in SOD level compared to control group. Conclusion : tempe consumption can increase celluler antioxidant system in DMBA-induced breast cancer.

Keywords- tempe, breast cancer, SOD, antioxidant

INTRODUCTION

Beberapa penelitian mengindikasikan keterlibatan radikal bebas seperti *singlet* oksigen, anion superoksida, hidrogen peroksida, hidroksil dan spesies nitrogen reaktif, yang sering dikategorikan sebagai prooksidan, dalam etiopatogenesis kanker [1]. Untuk menangkal efek toksik dari radikal bebas, tubuh kita dipersenjatai dengan sistem pertahanan antioksidan yang kuat yang dapat menangkap dan menetralkan radikal bebas, serta mencegah terjadinya kerusakan biologis. Antioksidan seluler dalam tubuh manusia terdiri dari komponen enzim (SOD, katalase, glutathion peroksidase) serta komponen non-enzim (vitamin C, vitamin E, albumin). Gangguan homeostasis antara prooksidan dan antiosidan dapat memicu karsinogenesis [2].

Kanker payudara merupakan jenis kanker paling umum yang diderita kaum wanita. Diantara negara di Asia, Indonesia mempunyai insidensi kanker payudara tertinggi [3] dengan jumlah kematian sebesar 19.750 pada tahun 2012 [2]. Hingga saat ini belum dapat ditentukan penyebab utama terjadinya kanker payudara meskipun telah banyak dilakukan penelitian. Pola makan diduga memegang peranan penting dalam proses inisiasi, promosi, progresi dan prevensi kanker payudara [4]. Penelitian terdahulu banyak yang memfokuskan pada pengaruh pola makan wanita dewasa terhadap kejadian kanker payudara. Akan tetapi, beberapa bukti menyatakan bahwa pola makan pada saat kanak-kanak atau remaja lebih berpengaruh dibandingkan pola makan saat telah dewasa mengingat masa kanak-kanak dan remaja merupakan periode kehidupan dimana payudara lebih sensitif terhadap pengaruh makanan [5]. Hal ini sejalan dengan penelitian Coral (2002) yang menyatakan bahwa periode

awal kehidupan seorang wanita sangat penting untuk predisposisi dan perlindungan terhadap kanker payudara [6].

Penelitian oleh L'abbe, Fischer dan Chavez (1989) menunjukkan pemberian DMBA yang digunakan untuk menginduksi kanker payudara pada hewan coba mengakibatkan penurunan aktivitas SOD tepat sebelum munculnya sel tumor. Tempe kaya akan isoflavan yang dapat berperan sebagai antioksidan. Penelitian ini bertujuan untuk menganalisis pemberian tempe terhadap perubahan aktivitas antioksidan seluler (SOD dan GPx) pada tikus yang diinduksi DMBA. Pemberian tempe diharapkan dapat mencegah timbulnya ketidakseimbangan antara antioksidan dan prooksidan yang menjadi awal timbulnya kanker payudara [7].

MATERIAL DAN METODE

Hewan coba dan diet. Tiga puluh tikus putih galur *sprague dawley* berusia 15 hari diperoleh dari Pusat Studi Pangan dan Gizi Pusat Antar Universitas Universitas Gajah Mada. Selama 14 hari, tikus diadaptasikan dengan diberi pakan standar AIN93. Pada hari ke-30, tikus dikelompokkan secara acak menjadi 5 kelompok, yaitu kelompok kontrol (K), pemberian tepung tempe 1% (P1), pemberian tepung tempe 10% (P2), pemberian tepung tempe 50% (P3) dan pemberian tepung tempe 75% (K4). DMBA diberikan secara oral selama 16 minggu, dengan frekuensi pemberian 2 kali seminggu dengan dosis sebanyak 20 mg/kg BB yang dilarutkan pada minyak jagung.

Desain penelitian. Penelitian ini merupakan penelitian eksperimental dengan desain *post test only controlled group trial*.

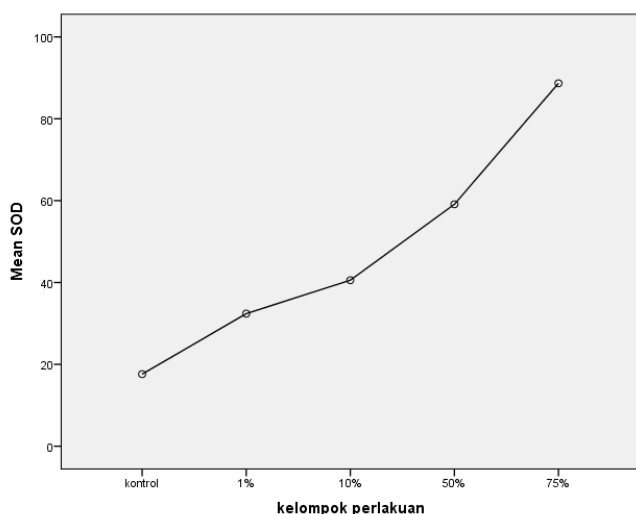
Tempe-Based Diet Preparation. Pakan yang diberikan adalah pakan standar AIN93 yang dimodifikasi dengan tepung tempe. Komponen minyak kedelai pada formula AIN93 digantikan oleh minyak jagung. Untuk pakan kelompok perlakuan, komponen pati jagung digantikan oleh tepung tempe.

Pemeriksaan Laboratorium. Sebelum pengambilan darah, tikus dipuasakan selama 12 jam. Darah diambil dari vena orbitalis. Pengukuran SOD menggunakan metode ELISA pada panjang gelombang 450 nm.

Analisis Statistik. Data ditampilkan dalam bentuk rerata \pm SD, *one way analysis of variance* (ANOVA) dilanjutkan dengan uji lanjut LSD dilakukan untuk menganalisis perbandingan antar kelompok. Data dianggap signifikan apabila nilai $p < 0,05$.

HASIL DAN PEMBAHASAN

Stress oksidatif menimbulkan kerusakan lipid, karbohidrat, protein dan DNA pada sistem biologis serta mempengaruhi struktur dan fungsi sel. Sel kanker payudara terkena stress oksidatif dalam jumlah yang tinggi baik secara inter seluler maupun ekstraseluler. Kondisi stress oksidatif menyebabkan peningkatan konsentrasi spesies oksigen reaktif (*reactive oxygen species*-ROS) yang mengakibatkan kerusakan terhadap berbagai sistem biologis tubuh termasuk enzim antioksidan [8]. Superoksida dismutase (SOD) merupakan enzim yang penting untuk mengeliminasi radikal superoksida (O_2^-) dan melindungi sel dari kerusakan yang diakibatkan oleh radikal bebas [9]. Berdasarkan uji anova, perbedaan kadar SOD antar tiap kelompok perlakuan menunjukkan adanya perbedaan signifikan ($p < 0,05$). Rata-rata kadar SOD dari masing-masing kelompok dapat dilihat pada Gambar 1.



GAMBAR 1. RERATA KADAR SOD SERUM TIKUS PASCA PEMBERIAN PAKAN TEMPE DAN INDUKSI DMBA

Asupan isoflavon dikaitkan dengan penurunan risiko penyakit kardiovaskuler, osteoporosis, kanker yang berhubungan dengan sistem endokrin (payudara, prostat, kolon) serta gejala menopause karena aktivitas antioksidan yang tinggi. Genistein, isoflavon yang banyak ditemukan di kedelai terutama di tempe, berperan secara langsung sebagai antioksidan melalui mekanisme donasi atom hidrogen dari gugus hidroksil yang terikat pada cincin benzena, yang dapat melawan kerusakan oksidatif. Penelitian pada hewan coba yang diberi daidzein menunjukkan peningkatan aktivitas katalase dan SOD yang signifikan, sedangkan pemberian genistein meningkatkan aktivitas SOD meskipun tidak setinggi pada pemberian daidzein [10].

Isoflavon banyak ditemukan di sayur dan buah dalam bentuk glikosida. Dua jenis utama isoflavon, genistein dan daidzein, ada pada kedelai dalam bentuk β -D-glikosida, genistin dan daidzin. Bentuk glikosida tersebut tidak aktif secara biologis. Setelah proses ingesti, β -glukosidase yang ada di dinding usus halus menghidrolisis glikosida tersebut serta mengubahnya menjadi bentuk aglikon yang aktif, yaitu genistein dan daidzein. Fermentasi pada proses pembuatan

tempe juga mampu mengubah isoflavon glikosida menjadi isoflavon aglikon yang aktif [10].

Pemberian tempe pada penelitian ini terbukti mampu meningkatkan kadar SOD serum secara signifikan. Semakin tinggi persentase tepung tempe yang diberikan, semakin tinggi pula kadar SOD serum. Tingginya kadar SOD ini dapat menangkal radikal bebas dari DMBA yang merupakan zat karsinogen yang dapat menyebabkan terjadinya kanker payudara. Peningkatan aktivitas SOD diharapkan dapat menangkal proses karsinogenesis sehingga dapat mencegah terbentuk sel kanker pada jaringan payudara.

KESIMPULAN DAN SARAN

Konsumsi tempe mampu meningkatkan aktivitas antioksidan seluler SOD dalam menangkal radikal bebas akibat induksi DMBA pada hewan coba yang dikondisikan kanker payudara. Akan tetapi, perlu diteliti lebih lanjut hubungan antara peningkatan aktivitas SOD dengan terbentuknya sel kanker pada jaringan payudara hewan coba yang diinduksi DMBA.

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Antimicrobial Activity of Methanol Extract from Mahogany Seeds (*Swietenia macrophylla*, King)

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Abstract- Mahogany seeds is one of the natural ingredients that can be used as an antimicrobial. This study aims to determine the antimicrobial activity of methanol extract mahogany seeds and determine the components of active compounds that have antimicrobial activity against *Escherichia coli* (*E.coli*) and *Bacillus cereus* (*B.cereus*). Extraction was done by maceration method with methanol and testing of antimicrobial activity using the absorption method. The results showed that the antimicrobial activity of methanol extract mahogany seeds shows inhibitory activity and provide clear zone against bacteria *E.coli* with value Inhibitory Regional Diameter 16,75 mm respectively, but did not give a clear zone of the bacterium *B.cereus*. Based on the results of the study it can be concluded that the methanol extract of seeds mahogany has antimicrobial activity against *E.coli*.

Keywords- antimicrobial, mahogany seeds, *E.coli*, *B.cereus*.

INTRODUCTION

Seeds of mahogany (*Swietenia macrophylla*, King) is one of the traditional medicine which has many benefits. Existing research shows that mahogany seeds contain compounds that have antidiabetic activity, usually used as well as insecticides, larvicides, nematicides, antipyretic, fungicides, antimicrobials and antioxidants (Nurcahyanti and Timothy, 2011). Chemical constituents in mahogany seeds are alkaloids, saponins, flavonoids, (Mursiti 2009; Dhulgande et al., 2010; Babu & Sarma, 2011).

Several studies have been done on testing the antimicrobial power of some plants, among other things is basil. Atikah (2013) conducted research on antimicrobial activity test phase basil leaf extract n-hexane, ethyl acetate phase and the phase of 70% ethanol and 70% ethanol phase that shows antimicrobial activity *S.aureus* and *C.albicans* with agar diffusion method and dilution liquid, However the study did not report the active compounds that have antimicrobial activity. Results of other studies say that basil chloroform extract can inhibit the bacteria *Shigella dysenteriae* and methanol extract can inhibit microbe *Klebsiella pneumoniae*, *Salmonella paratyphi* and *S.aureus* with Inhibitory Regional Diameter (DDH) respectively 10 mm, 9 mm, and 7 mm, but does not mention the concentration used to test the antimicrobial activity (Devi et al., 2010).

Based on these studies it can be concluded that the part of the basil plant that often tested the activity of antimicrobial is part of basil leaves, whereas according to Gupta and Prakash (2005) not only the basil leaves just that contain secondary metabolites such as essential oils, but part of the basil plant such as trunks also contain secondary metabolites that may also have antimicrobial activity. So far have not found a research report stating about power test the antimicrobial

activity on the stem of basil against *S.aureus* and *E.coli* bacteria.

RESEARCH METHODS

Extraction of mahogany seeds with methanol technical maceration method includes several stages of the sample preparation, extraction and evaporation process extracts with a rotary evaporator at a temperature of 68 °C and a pressure of 350 mmHg. The evaporated then analyzed include tests alkaloids, flavonoids, saponins, triterpenoids and steroids.

Antimicrobial activity test using the absorption method is a modification of the order and that has been done by Aiyelaagbe et al. (2008) and Widiara (2012). Nutrient medium so as to be used as a medium for bacterial growth is provided by heating NA back, then poured into a sterile petri dish aseptically. The bacteria are grown on medium NA by entering 1 mL of bacterial culture medium in NA then averaged over the surface of the agar medium.

Paper discs with a diameter of 6 mm is dipped into isolated compounds were each concentration 10 mg/mL, 25 mg/mL, 50 µg/mL, 100 µg/mL, then allowed to stand for 1 hour, then placed on a saucer solder containing bacteria sterile. Negative controls using paper discs were dipped in distilled water, whereas the positive control using a paper disc dipped in wipol. The entire cup solder containing seeding bacteria were incubated for 12 hours at a temperature of 37 °C in reverse, then observed and measured the inhibition of bacterial growth in the area around the paper disc, followed by calculating the area.

RESULTS AND DISCUSSION

Mahogany seed extraction includes several stages of sample preparation and extraction process. The methanol extract of mahogany seeds obtained 10,7% in the form of a brown powder with a distinctive aroma and taste very bitter. Qualitative test results showed that the methanol extract of mahogany seeds contain secondary metabolites are alkaloids, flavonoids and saponins, and is consistent with the results of Mursiti's study (2009).

Testing the antimicrobial activity of methanol extract of seeds mahogany using two test bacteria is *E. coli* and *B.cereus* with absorption method. Controls used in this method is a negative control (distilled water) and positive control (wipol). The test results showed that the methanol extract at a concentration of 10 mg/mL, 25 mg/mL, 50 µg/mL, 100 µg/mL showed activity against bacteria *B.cereus* but not for *E. coli*, It is known by the diameter of the visible area of inhibition around the paper disc. The diameter of inhibitory regions experienced an increase means that the higher the concentration, the greater the concentration of

active ingredient that serves as an antibacterial, so the ability to inhibit bacterial growth *B.cereus* also getting bigger. While in the test against *B.coli* showed no inhibition. According Dzidic et al., (2008) states that one of the mechanisms of bacterial resistance is inaktivikasi antibiotics by producing enzymes. One enzyme that can menginaktivikasi antibiotics are β -glukoronidase. *E. coli* is a bacteria that is capable of producing β -glukoronidase that allegedly active compound in methanol extract mahogany seeds can be described by β -glukoronidase into other compounds that are not toxic for the bacteria. Baiano & Barners (2009) says no obstruction at all against *E. coli* because of the capsule casing on some strains of *E. coli* that

can cause ethanol extract the active compounds are lipophilic basil stems can not bind to the cell wall.

Higher levels of bioactive compounds that are generally bactericidal (lethal microbes) and a lower level usually is bacteriostatic (inhibits growth, not lethal microbes) (Binadja et al., 2012). This is consistent with research Khumaisah et al., (2011) which states that basil is less susceptible to *E. coli* and *Shigella sonnei*, but effectively inhibit *Salmonella* bacteria *sonnei*. This is caused by the bacterium *Salmonella sonnei* thought to have lower metabolic activity so slow to mensistesis ribosomal protein that antibacterial agents can freely enter and activity may be hampered. Data inhibitory activity by measuring the diameter of inhibitory regions (DDH) is presented in Table 1.

TABLE 1. DIAMETER INHIBITORY REGION (MM) MAHOGANY SEEDS METHANOL EXTRACT AGAINST *E. COLI* AND *B.CEREUS*

| Sample | Diameter (mm) | | | | | |
|--------------|-------------------------|-------|-------|------------------------|-------|-------|
| | <i>Escherichia coli</i> | | | <i>Bacillus cereus</i> | | |
| | 100% | 50% | 25% | 100% | 50% | 25% |
| D1 | 0 | 0 | 0 | 17,00 | 15,00 | 13,00 |
| D2 | 0 | 0 | 0 | 17,25 | 15,00 | 13,50 |
| D3 | 0 | 0 | 0 | 16,00 | 14,33 | 12,67 |
| Average | 0 | 0 | 0 | 16,75 | 14,77 | 13,05 |
| Controle(+) | | | | | | |
| D1 | 35,16 | 35,16 | 35,16 | 51,33 | 51,33 | 51,33 |
| D2 | 35,50 | 35,50 | 35,50 | 51,00 | 51,00 | 51,00 |
| D3 | 35,33 | 35,33 | 35,33 | 52,00 | 52,00 | 52,00 |
| Average | 35,33 | 35,33 | 35,33 | 51,44 | 51,44 | 51,44 |
| Controle (-) | 0 | 0 | 0 | 0 | 0 | 0 |

The results showed that the inhibition of the ethanol extract was higher against *S. aureus* bacteria (gram-positive bacteria) as compared with *E.coli* bacteria (gram-negative) value indicated by inhibition area diameter. This is due to differences in the sensitivity of bacteria to antibacterial influenced by the structure wall del bacteria. Gram-positive bacteria tend to be more sensitive to the antibacterial because of the structure of the cell wall of gram-positive bacteria is simpler than the structure of the cell wall of gram-negative bacteria, making it easier for antibacterial compounds to enter the cell structure of the cell wall of gram-positive bacteria gram (Pramuningtyas, 2009).

Based on the research that has been done, it can be concluded that the antimicrobial activity of methanol extract mahogany seed with 100% concentration gives the largest clear zone where inhibition of *S. aureus* bacteria higher than *E.coli*.

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Photocatalytic Activity and Antimicrobial Properties of TiO₂-SiO₂-PVA Composite

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Abstract- A series of silica-titania nanocomposite materials with different silica-titania mole ratios was prepared in presence of polyvinylalcohol (PVA) by the sol-gel method. Several characterization techniques were adopted such as N₂-adsorption-desorption, X-ray diffraction (XRD), Fourier transform infrared (FT-IR), transmission electron microscope (TEM), and Scanning electron microscope (SEM) connected with energy dispersive spectroscopy (EDS). The photocatalytic activity of the composites were evaluated based on the photodegradation of methylene blue under UV irradiation with a wavelength of 254 nm. The maximum methylene blue adsorption onto the composites was measured in darkness. The results showed that there was a little adsorption of methylene blue on pure TiO₂. The 30% SiO₂-TiO₂ composite showed the highest rate of methylene blue removal among the synthesized composites. The antimicrobial activity of the nanocomposite was then evaluated microbiologically using *E coli* as the tested bacteria. Furthermore, the nanocomposite of silica-titania with the most excellent antimicrobial activities will be developed into anti-microbial materials in acrylic paints

Keywords- nanocomposite, sol-gel method, antimicrobial activity

INTRODUCTION

In the last two decades, due to the non toxic and its special properties, titanium oxide nanoparticle have attracted a great deal of attention as potential photocatalysts to address urgent and global environmental concerns. The photocatalytic degradation of various toxic compounds in aqueous solutions using fine titanium oxide particles has been studied by many researchers (Chen *et al.*, 2004; Balachandaran *et al.*, 2010; Rahmani *et al.*, 2011). Recently, silica, titania and silica-titania materials have been obtained by sol-gel methods extensively. And the sol-gel process is expected to offer unique advantages for the preparation of such highly dispersed materials photocatalysts, especially to be applied for coating material, active thin film photocatalysts and multicomponent ceramics (Fu *et al.*, 2005; hadi nur 2006; Song *et al.*, 2007; Wilhelm and Stephan 2006).

The chemical and physical properties of titania-silica material depend on both the composition and the degree of homogeneity. Therefore, different synthesis strategies have been developed (Gao *et al.*, 1999) such as coprecipitation, flame hydrolysis, impregnation and chemical vapour deposition. The sol-gel route has demonstrated a high potential for controlling the bulk and surface properties of the oxides (Matsuda *et al.*, 2003; Il seok *et al.*, 2004). In the present study, TiO₂-SiO₂-polyvinylalcohol nanocomposite was synthesized via sol-gel method at room temperature. TiO₂ is largely used as photocatalyst due to its beneficial characteristics: high photocatalytic efficiency, physical and chemical stability, low cost and low toxicity (Zhang *et al.*,

2004; Awati *et al.*, 2003). TiO₂-SiO₂ composites are very promising in field of heterogeneous photocatalysis, since they could enhanced photocatalytic properties compared to pure TiO₂ photocatalyst. The effect of mole ratio SiO₂/TiO₂ on particles size and antimicrobial capability were investigated.

METHODS

The chemicals used in this study were titanium tetraisopropoxide (Ttip, 97%, Sigma), as a titanium precursor, tetraethylorthosilicate (TEOS, 98%, Merck), as silica source, Methylene Blue, HCl, NH₃ (25 wt%), and anhydrous ethanol (C₂H₅OH) from Merck. *Escherichia coli* (DH 5R), were from laboratory stock of the Biological Sciences Department of Semarang State University. Other materials for bacteria cultivation, such as agar, yeast extract, sodium chloride, tryptone, and plastic and Pyrex Petri dishes were used from conventional laboratory stock.

The TiO₂-SiO₂-Polyvinylalcohol (TSP) composite was prepared by the following sol-gel method. In the synthesis of Sol A, titanium tetraisopropoxide (Ttip) was used as a precursor and was mixed with ethanol, hydrochloric acid (0.1M) solution and deionized water in the ratio 1:2:2:2, respectively. The mixture was stirred for an hour and maintained in the pH range from 1 to 2. In Sol B, Teos (0,5 mL, 1 mL, 1,5 mL and 2,0 mL) was mixed with ethanol (40 ml) solvent under a nitrogen atmosphere and stirred for an hour. Sol A was added to Sol B; and the mixture was stirred for 3 h at 60 °C. The polyvinyl alcohol (PVA) solution (1 %) was added to the above mixture at the rate of 20 ml/h and was stirred for 2 h. The gel was dried at room temperature. Finally, the mixture was heated at 120 °C for an hour. The powder was calcined at 500°C for 4 hour. The composite produced was denoted as TS.

Phase identification of the products was carried out by X-ray diffraction (XRD) obtained on Shimadzu diffractometer using Cu K α line radiation. The crystallite size of the samples was determined by Scherrer equation. Spectroscopic analysis of the nanocomposite was performed using a Fourier transform infrared (FT-IR) spectrometer (Perkin-Elmer 843). The morphology of the products was studied by transmission electron microscope (TEM, JEOL JEM 3010 operating at 200 kV). The specific surface area of the samples was determined through nitrogen adsorption using a surface area analyzer (CHEM BET 3000). Surface morphology and their composition were studied using scanning electron microscopy-energy dispersive spectroscopy (SEM-EDS) (Model JEOL JSM 6310).

Photocatalytic activity of the synthesized nanocomposites were evaluated by the degradation of methylene blue. All of the experiments were conducted in an opened Pyrex vessel of 50 ml capacity and in identical conditions. A 20 W UV-B lamp was used as light source. The distance between the UV source and the vessels containing reaction mixture was fixed at 15 cm. Antimicrobial activity of the nanocomposites were evaluated by agar dilution methods with E coli as microbial tests. The aim of this study was to prepare coatings with photocatalytic and antimicrobial effects. First, this study was conducted to develop SiO₂-TiO₂ nanocomposite as photocatalysts and its performance evaluated through degradation test against methylene blue dye. The nanocomposite was also tested as an anti-bacterial substance against E coli. On the development of next year's research, nanocomposite of silica-titania is applied as an anti-bacterial ingredient in acrylic paint.

RESULTS AND DISCUSSION

Figure 1 shows the XRD patterns of TiO₂ and nanosized TiO₂/SiO₂ (with varying molar ratio of SiO₂) samples. All were calcined under the same condition in air at 500 °C for 3 h. TiO₂ and nanosized TiO₂/SiO₂ showed a clear anatase-type crystal structure. The sharp peaks and strong intensities indicated that crystallization was present, and the higher the percentage of TiO₂ gave higher intensity of peaks. The peak associated with SiO₂ show that it is an amorphous form of silica. The crystallite sizes and surface area of Titania and TiO₂/SiO₂ are listed in Table 1.

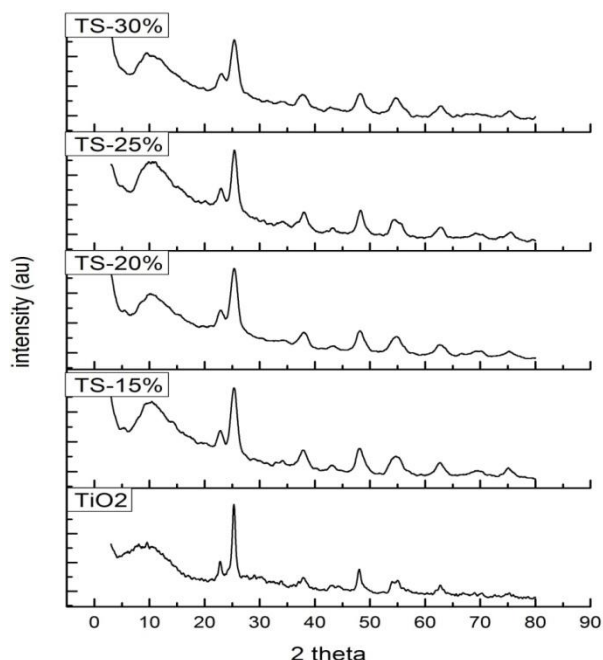


Fig. 1 XRD patterns of TiO₂ and TiO₂-SiO₂

From the crystallite size and BET surface area data in Table 1, it appears that the amount of SiO₂ sphere has an effect on the crystallite size of TiO₂-SiO₂, with higher amount of SiO₂ resulting in smaller crystallite size, and larger surface area. This effect may be due to the SiO₂ limiting the

agglomeration of TiO₂ particles (Sirimahachai *et al.*,2010). SiO₂ also enhancing the homogeneity of TiO₂ in the surface of nanocomposites.

TABLE 1. THE CRYSTALLITE SIZE AND BET SURFACE AREA OF TiO₂ AND TiO₂ - SiO₂

| Catalysts (Surface area) m ² /g | Phase | Crystallite size (nm) | calcinations (°C) | BET |
|--|---------|--------------------------|----------------------|--------|
| TiO ₂ 100% | anatase | 19.57 | 450 | 98,0 |
| TiO ₂ -SiO ₂ 30% | anatase | 11.90 | 500 | 214.87 |
| TiO ₂ -SiO ₂ 25% | anatase | 13.90 | 500 | 199.47 |
| TiO ₂ -SiO ₂ 20% | anatase | 15.53 | 500 | 194.40 |
| TiO ₂ -SiO ₂ 15% | anatase | 16.17 | 500 | 95.10 |

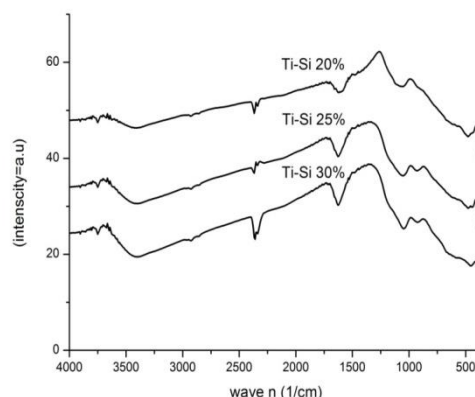


Fig. 2. FT-IR spectra for TiO₂-SiO₂ nanocomposites.

Figure 2 represents the FT-IR spectra of the sol-gel derived nano TiO₂-SiO₂ and TiO₂-SiO₂-PVA composites. The peaks at 3,402 and 1,628 cm⁻¹ in the spectra are due to the stretching and bending vibration of the -OH group (Rubio *et al.*, 1997). In the spectrum of pure TiO₂, the peaks at 550 and 1479 cm⁻¹ show stretching vibration of Ti-O and Ti-O-Ti, respectively. The spectrum of TiO₂-SiO₂ shows the peaks at 1481 cm⁻¹ and 450 to 550 cm⁻¹ exhibiting stretching modes of Ti-O-Ti. The peak at 1049 cm⁻¹ shows Si-O-Si bending vibrations, and the peak at 926 cm⁻¹ shows Si-O-Ti vibration modes which are due to the overlapping from vibrations of Si-OH and Si-O-Ti bonds (Venkatersh *et al.*,2012). The broad band centered near 3,500 cm⁻¹ has been assigned to sites that interact with residual physisorbed water [Sirimahachai *et al.*,2010]. These results indicate that TiO₂-SiO₂ nanoparticles were prepared by a combination of TiO₂ with SiO₂ nanoparticles [Balachandran *et al.*, 2010]. SEM-EDS results show the presence of metal oxide bonds in both samples.

Figure 3 shows the SEM-EDS images along with particle size distribution of the colloidal TiO₂-SiO₂ nanocomposites.

The TiO₂-SiO₂ particles exhibited irregular morphology due to the agglomeration of primary particles and with an average diameter of 13 to 16 nm. On the other hand, the colloidal TiO₂-SiO₂ nanocomposites exhibited regular morphology since the TiO₂-SiO₂ cores were coated by PVA, which was confirmed by transmission electron microscopy (TEM) image (Figure 3).

Figure 3 shows transmission electron micrographs of 30 mol% silica added titania precursors calcined at 500 °C. Pure titania shows lattice fringes corresponding to (101) planes of anatase phase, as was supported by X-ray diffraction pattern. Pure titania has an average particle size 19.57 nm which is calculated from XRD data. But 30 mol% silica added titania calcined at the near same temperature has an average particle size 11.9 nm. From this observation it is confirmed that addition of silica is inhibiting the crystal growth of titania by providing a barrier between titania grains (Baiju *et al.*, 2007).

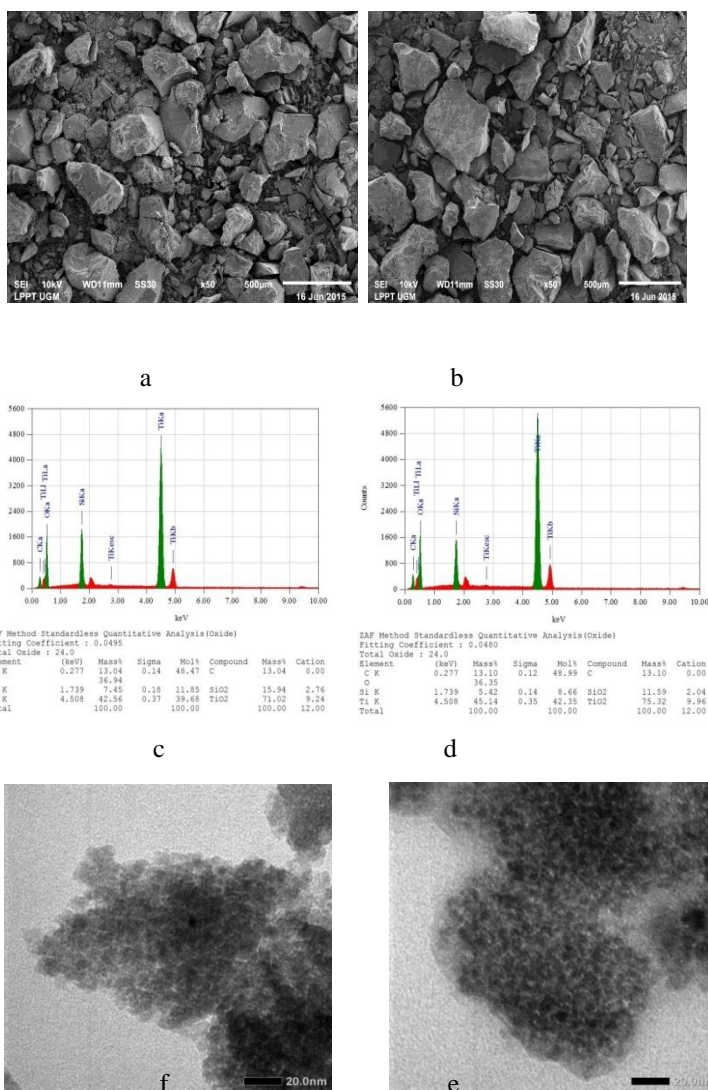


Fig. 3. SEM images (a,b), EDAX spectra (c,d) and TEM images (e,f) of TiO₂-SiO₂ and TiO₂-SiO₂-PVA composites.

To evaluate the photocatalytic activity of pure TiO₂ and TiO₂-SiO₂ nanocomposites, we examine the material to degrade methylene blue dye in solution. In a typical process, 50 mg photocatalyst was added to 100 mL of 10 ppm methylene blue solution. Fig. 4 shows the increase percent degradation of methylene blue by nanoparticle TiO₂ and TiO₂-SiO₂ nanocomposites. The absorbance of methylene blue decreased exponentially with irradiation time and the highest degradation of methylene blue belongs to 30% TiO₂-SiO₂. The methylene blue in the semiconductor of pure TiO₂ shows lower photodecomposition. The results show that the rate of decomposition of methylene blue depends on the TiO₂-SiO₂ mole ratio and surface area of TiO₂-SiO₂ and was largest at 30% TiO₂-SiO₂. The increase in reactivity can partly be attributed to an increased homogeneity of the nanocomposites, and also the beneficial effect of SiO₂, which indicates no photo activity, but is probably related to the preferential adsorption of methylene blue on SiO₂. The preferential adsorption effectively increases the surface concentration of methylene blue at or near the TiO₂ sites promoting more efficient oxidation by photo generated species (Anderson and Bard, 1995).

The usefulness of metal oxide for anti-microbial application lies in the ability of the photogenerated electrons and holes to participate in reactions with the pollutants or microbial pollutants that have been mineralized to harmless products. Most organic pollutants or microbial pollutants can be removed by oxidation reactions.

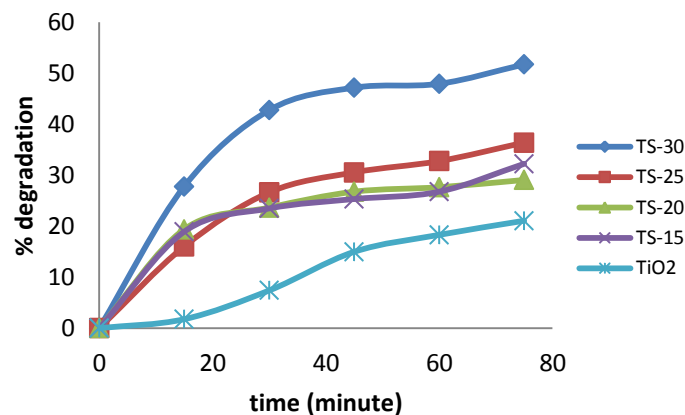
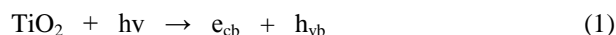
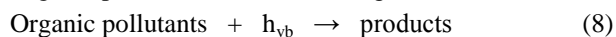
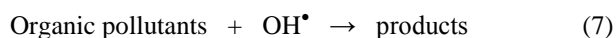
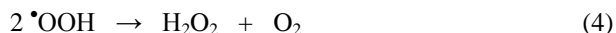


Fig. 4 Degradation of methylene blue solution by TiO₂-SiO₂ composites

As shown in Fig. 5, either the photogenerated hole directly reacts with the pollutant or the hole reacts with water forming hydroxyl species, which oxidize the pollutants. The photocatalytic mechanism of TiO₂ has been well documented and can be summarized as follows (Anpo and Takeuchi, 2003).

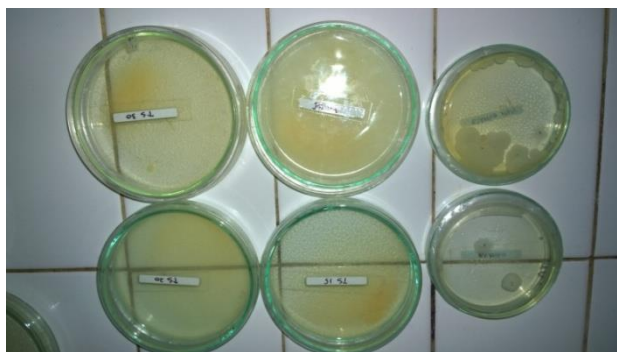




The reaction begins with TiO₂ particles being excited with UV light resulting in the formation of electron-hole pair, as displayed in Eq. (1). The electron in the conduction band, e_{cb}, and the hole in the valence band, h_{vb}, may recombine and nullify further reactions. The e_{cb}-h_{vb} pair, if they do not recombine, will eventually diffuse to the bulk

surface and react with other molecules nearby. The e_{cb} can react with molecular O₂ adsorbed at the bulk surface and after few more steps will lead to the formation of OH[•] radical at the surface, Eq. (2-5), which plays a major role in photocatalytic reaction. The h_{vb} can react with H₂O at the bulk surface leading to formation of OH[•] radical as well, Eq. (6). The OH[•] radical can react with adsorbed dye molecules to completely mineralize them, Eq. (7). In addition, the h_{vb} itself can also attack and mineralize dye molecules at the photocatalyst surface, Eq. (8). This cycle continues when light is available.

The photocatalytic activity of TiO₂ and TiO₂-SiO₂ nanocomposites studied by testing its ability to inhibit the growth of bacteria E coli (ATCC 25922). The synthesized TiO₂ and TiO₂-SiO₂ nanocomposites were used for all experiments. The method for testing the antibacterial activity is the agar dilution method to determine the inhibitory concentration of antimicrobial agents



The minimum inhibitory concentration of synthesized nanoparticles was listed in Table 2. The obtained MIC value of TiO₂-SiO₂ was 25 mg/ml and 12.5 mg/ml respectively. The standard anatase TiO₂ powder has 50 mg/mL MIC value. The results shown that the bacterial inactivation was strongly enhanced in presence of photo-activated anatase TiO₂ nanoparticles. While in absence of photo-activated nanoparticles, no inhibition was observed. Hence times of exposure to UV light, amount of TiO₂ or TiO₂-SiO₂ and duration of exposure are factors found to be responsible for taken for 100% killing of bacterial population. The study indicates that low concentration of TiO₂ is sufficient to control diversity of bacterial population.

TABLE 2. ACTIVITY OF SYNTHESIZED MATERIALS IN AGAR MEDIUM

| Sample name | treatment | activity |
|---|-----------|-----------|
| TiO ₂ | UV 368 nm | No growth |
| TiO ₂ -SiO ₂ 15% | UV 368 nm | No growth |
| TiO ₂ -SiO ₂ 20% | UV 368 nm | No growth |
| TiO ₂ -SiO ₂ 25% | UV 368 nm | No growth |
| TiO ₂ -SiO ₂ 30% | UV 368 nm | No growth |
| TiO ₂ -SiO ₂ 25% | No UV | growth |
| TiO ₂ -SiO ₂ 30% | No UV | growth |
| blank | UV 368 nm | growth |

CONCLUSION

The nanosized TiO₂ decorated on SiO₂ sphere was prepared by sol-gel process. The major phase of the pure TiO₂ particle and deposited TiO₂ on SiO₂ sphere are of the anatase structure. In photodecomposition, a batch reactor was used to study the degradation of methylene blue by TiO₂-SiO₂ and pure TiO₂ particles. A mixed oxide

TiO₂-SiO₂ is a more efficient photocatalyst for the degradation of methylene blue than TiO₂ alone. The presence of SiO₂, can act to elevate the efficiency by increasing the quantity of methylene blue near the TiO₂ sites relative to the solution concentration of methylene blue and possibly tunes the position of the valence and/ or the conduction band of the TiO₂ to better match the absolute values of the redox couple of the methylene blue. In this study, the material synthesized were tested for antibacterial activity for E coli bacteria. All the six synthesized samples showed inactivation activity towards bacteria by illuminating with UV 368 nm.

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The Potency Of Household Contacts As Peer Support To Decrease The Number Of Tuberculosis Prevalence

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Abstract— *The eradication of tuberculosis in Indonesia was beginning since 1950. According recommendation of WHO in 1986, the duration of treatment was changed from 12 months become 6-9 months. It was affected adherence tuberculosis treatment. So it could increase the risk of drug's resistance and disease transmission. In 2013, there were 136.412 drug's resistance cases in the world. In Indonesia was about 2% from the number 680.000. Was estimated patient getting drug's resistance. The existing of supervisor treatment was become a pillar which hopefully could contribute to prevent drug's resistance. The research aim to analyze the potency of household contacts as their peer support to decreased the tuberculosis incidence through adherence tuberculosis treatment. The research was conducted by qualitative approach. The informants are household contact and patient who doing treatment. The data collected by focused group discussion and analyze by content analysis. The results showed that the potency of household contacts as peer support included support on treatment, strengthen the treatment, supply the facilities, vitamins, nutrition food, and motivation reinforcement. Based on the data, the household contact can be empowered to become peer support to increase patient adherence to tuberculosis treatment.*

Keywords—Household Contact, Peer Support, Tuberculosis Patient (key words)

INTRODUCTION

Based on data from the WHO Global Report 2012, Indonesia was ranked 9th out of 27 countries with the burden of MDR TB (Multi Drug Resistant Tuberculosis) in the world. WHO said MDR-TB incidence gradually increased the average 2% a year. It is estimated that patients with MDR TB in Indonesia reached 6,620 people. In detail, the MDR TB among new TB cases and 5,700 cases of MDR TB among TB cases ever received treatment 920 cases [1]. Until 2012, there were 4,297 suspects netted with 1,005 MDR TB patients. One possible cause is the disobedience of the patient in taking the medication. Indonesia ranks to three the number of cases of tuberculosis after India and China in the amount of 700 thousand cases. The death rate was the same as in 2011 at 27 per 100,000 population, but the incidence figure dropped to 185 among 100,000 population in 2012 [2]. In 2013, in the world there are 136,412 cases of resistance and in Indonesia are estimated to almost 2% of the 680,000 patients with tuberculosis [3].

One of the pillars of prevention of tuberculosis with DOTS strategy is the discovery of the case as early as possible. It is intended to streamline the treatment of patients and avoid transmission of the contact person, including subclinical infection. The reality in the city, the data show the

number of suspect cases of the invention is still far from the target. Since the year 2009 until the year 2011 to the first quartile, the achievement of the discovery of suspect numbers only around 53% [4].

One pulmonary TB patients is needed in addition to the availability of medicines and affordable health facilities also need social support to reduce the double burden of economic good, the bad stigma and ignorance about the problems they experienced pulmonary tuberculosis. For patients with pulmonary tuberculosis, they can obtain social support from a variety of sources, such as families, teachers, parents, and peers are fellow sufferers of pulmonary tuberculosis. But the role of community leaders in rural areas not yet support the prevention and control programs pulmonary Tb. While the role of health workers (coordinator pulmonary Tb program) is still limited to carry out treatment, counseling, and yet carry out active search of new cases [5]. Therefore, information about the potential of household contact as peer support for people with tuberculosis is essential for the development of tuberculosis treatment program through reinforcement.

METHODS

Information about household contact as a peer support was obtained from studies conducted using qualitative methods. Such information includes individual characteristics, knowledge about tuberculosis, and the potential for peer support. In-depth interviews were conducted to gather information household contact and people with pulmonary TB. Household contacts of people chosen subjectively by criteria have been live with pulmonary tuberculosis patients at least 1 year, were able to communicate well, age more than 15 years, is experiencing severe pain and are willing to be a subject of study. Found 7 patients with active pulmonary TB treatment, so that household contact was taken 7 people according to criteria. Data analysis was performed using content analysis techniques.

RESULTS ANDS DISCUSSION

Pulmonary TB patient age ranged mostly between 30-60 years of age, only one person who was a teenager who was 18 years old. Two of the seven patients with pulmonary Tb female that most other men. Judging from his work, most patients with pulmonary TB do not work or only as a housewife. There are only two people who work as private

workers in companies of furniture and one person who was a high school student. Most people simply educated middle level, there is a person who is not a graduate school and college. Most patients with pulmonary TB are a new patient in 2015.

The characteristic feature of pulmonary TB patients according to age and sex were not much different from the picture of pulmonary TB in the world. Mentioned that in 2013, the majority of pulmonary TB patients aged between 35-55 years and the largest contracted in men [3]. Tuberculosis would be a double burden on the part of the population because the impact on the economy, especially in those who do not work and the less educated. These apparently condition has not changed over the last 5 years. Most elementary education in larger groups of patients (32.4%) than in the group not exposed pulmonary Tb (0.0%) [6].

Household contact the research subjects mostly over 50 years old. Most only reach secondary education. Most household contact the research subjects are female, the male only two people. Pulmonary TB patients live at home with other family members at most 14 people in one house and mostly stay at home with 4-6 other family members. It is known that most of the economic level of the research subjects was the lower middle. Income is mostly less than 2 million per month. Nevertheless, all of the study subjects had to meet their nutritional needs with enough, every day to eat at least 3 times. The food menu is quite varied rice, vegetables, and side dishes are mandatory menu, while fruit and dairy products that consume only a small part, and even then rarely. Social class influenced on the incidence of transmission of tuberculosis, on the families who do not have the resources at risk of contracting tuberculosis earning 7.2 times more than families with productive resources [7].

Characteristics of the household contact with pulmonary TB patients are inclusive of productive age, this potential can be utilized in economic capacity. See the earnings and ability to meet food needs, household contact has a great potential to help patients with tuberculosis materially. Families with higher incomes will be able to buy food quantity and adequate quality for their families, as well as able to afford the health care they need [8].

Social relations between members of the family of an excellent research subject, mutual love, and care. When a family member is sick then asked to check. Decision-makers in the family according to informant almost evenly between the father or head of household, the mother, and by consensus. Selection as a companion to take medication for tuberculosis patient need to be adapted to the local social structured [9]. Therefore, the husband or wife can be used as alternatives become peer support. Almost all research subjects occupying a permanent home with the construction of the walls and the walls had all. Similarly, the floor has ceramics or plasters all. Almost all the houses the research subjects had adequate lighting, sunlight can get into the house because overall had no window, only one house less illumination than sunlight because of the lack of windows. There is a very solid house, because the house inhabited by

14 people, but all the house is not damp. The condition of the house is still possible to support the transmission of diseases as tuberculosis contagious tuberculosis in people living in a crowded house occupant, lack of sunlight and air circulation is bad, but if there is enough light and circulation, the tuberculosis bacteria can only survive for 1-2 hours [10].

Most people already know about the household contacts of pulmonary TB disease with mention of the disease is an infectious disease, pulmonary disease, and coughing. But there are two research subjects who answered do not know about tuberculosis. Most informants did not know the cause of tuberculosis, only a small portion out, and even then only mention the cause is bacterial, and as a result there is another contagious patient. Associated with symptoms and signs of tuberculosis, almost everyone already knew household contact with states such as persistent cough, heat and fever, not eating, and weight decreased. Most people already know how to household contacts of transmission and treatment of tuberculosis. They mention that the transmission of tuberculosis spread through the air, direct contact, and adjacent talk to the patient. Treatment of tuberculosis mentioned by the study subjects was with routine medical treatment, take the medicine regularly and follow the doctor said to completion. But there informant mentions the herbal drink first and then to the doctor. Almost everyone knows how to prevent household contacts of tuberculosis, they mention tuberculosis can be prevented by increasing the body's immunity, sports, if the vent is opened in the morning, when the cough is closed, should not smoke, eat fruit, take vitamins, and wear a mask. The level of knowledge of household contact who have been classified as either can be used to assist patients with tuberculosis. One of the success programs of tuberculosis treatment is to increase the knowledge [7].

The potential of household contact as a peer support excavated from informant responses against family members who suffer from tuberculosis, his role in the treatment, support treatment, ease of transportation, ease of communication and the ease of access to services, and future plans besides informant knowledge about tuberculosis.

Information obtained contained an informant diversity of responses to family members affected by tuberculosis. There are two informant fear and regret not surprised because from the first taken to the infirmary lung. Some feel it is not a problem because it was resigned up to the hospital alone. There is an informant who was sad and concerned because it would check but do not have the money and time. Then there was also concerned with the pain patient and supportive treatment by giving motivation and patience. All informants had a role in the treatment of family members affected by tuberculosis. Its role includes preparing the medicine to drink, give support, encouragement when taking medication is sometimes a side effect, reminding to take medication, reminds when taking the drug in the clinic, prohibits away the evenings, have a drink vitamins, delivering treatment, consult your doctor, to pray, ask for support to a friend because he felt partly responsible, reminiscent of favorite foods and cooking let patients recover quickly, get the drug

in the clinic, a mark on the calendar when to check and take drugs again.

The support in the treatment of tuberculosis carried by the informant is always accompanied or accompany the time of treatment, seek information neighbor tuberculosis multidrug resistance on television, giving money to seek treatment at clinics lungs, ordered to eat when feeding, prayer support and always reminded to take medication, give support so that no stress, to remember that go should wear a mask, if the cough is closed, and encouraging the scare gave the example of the disease do not heal until emaciated. Most informants have a belief that health is the main thing because health can do all the activities. However, almost half of the informants believe the important thing is education because education can obtain a decent job.

Media of supporting the potential of all the household contact is minimal ownership of the means of transport motorcycles, there is also has a car but there is one that only had bicycles. All household contacts of people already have a mobile phone as a communication tool and easy access to health care because it was close and ease of transportation. More than half of the informant does not have insurance while others participation BPJS (Universal Coverage). Most informant have plans in the future will always give support to the treatment of patients with pulmonary Tb finished and cured, still reminiscent of the treatment of patients, and the encouragement and motivation.

The existence of potential possessed by the household contact, then the companion role taking medication will be better implemented with the activities of clear and focused. Selection of person who would be a companion to take medication must be in accordance with the potential and people who really fit. Otherwise it will be a lot of drinking companion drugs drop out [9]. Therefore, the selection of peer support should pay attention to potential and the role that will be implemented in assisting patients with tuberculosis.

CONCLUSION

Household contacts of people suppose your wife or husband has a great potential as peer support for people with

tuberculosis. The potential of a requirement as peer support, among others, have knowledge about tuberculosis enough, have sufficient authority to make decisions in the family, motivation and communication, as well as having good resources both material and empathy are good for health, especially against tuberculosis, these potentials can systematically supporting the treatment process, the provision of facilities and infrastructure, diet regulation, and the strengthening of motivation in patients with tuberculosis.

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Ground Acceleration in Yogyakarta Based on Earthquake Data

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Abstract—Yogyakarta is one of the areas in Indonesia are prone to earthquakes. This is due to the Yogyakarta region is a subduction zone between two major plates, namely the Australian plate and the Eurasian plate. Due to the movement of these plates lead to follow-fault fault active constituent Yogyakarta area, fault Opaque, Dengkeng fault, fault and fault Parangtritis Prambanan. To determine the level of earthquake intensity and maximum ground acceleration in the region of Yogyakarta research calculating the maximum ground acceleration. The data used are seismic data the earthquake that occurred from 1940 to 2010 with magnitude earthquake over 3 SR. The data is calculated empirically by the equation Gutterberg Richter and further processed using software Arc View GIS 3.3. The results showed that the Special Region of Yogyakarta included in the risk level of small-scale earthquake intensity VI - VII MMI (Modified Mercally Intensity). and maximum ground acceleration 30.32 cm/s². Although most earthquake in Yogyakarta has a large magnitude, but the Yogyakarta area has a small degree of risk, this is because the center of the earthquake that occurred mostly in the sea which is about oceans Indonesia

Keywords—earthquake, intensity, ground acceleration

INTRODUCTION

Earthquakes are defined as vibration is felt on the surface of the earth caused by seismic waves from the earthquake source within the earth's crust. When this shift occurs, arising vibrations called seismic waves that tremor that spread inside and on the surface of the earth by means of longitudinal and transverse. Sources of earthquakes are located inside the earth called hiposentrum. The surface area of the earth or the sea bottom which is where the center of the earth vibrations propagate called epicenter. Earthquakes can be classified according to the depth hiposentrum, power surges or vibration earthquake and a contributing factor [1].

When two plates collide then the boundary area between the two plates would happen voltage. One of the plates will be slipped under another plate, into the bottom layer of the asthenosphere. In general, would infiltrate the oceanic plate under the continental plate, this is due to oceanic plate has a greater density than the continental plate.

Figure 1 shows the mechanism of the earthquake is the source of tectonic earthquakes. Vertical lines indicate fractions or fault on the part of the solid earth. On the time 1 show a layer that is not deformed geology. Because in earth movement occurs continuously, there will be stress over time will accumulate and are able to change the shape of the geology of the rock layers.

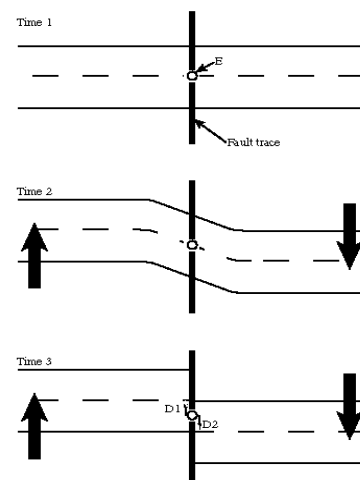


Figure 1. Earthquake source mechanism

On the time 2 shows the state of a layer of rock has got and contains stress when the change in the geological forms. A local stress to get to the top, while area B gets stress down. This process continues until the stress that occurs in this area is big enough to turn it into friction between area A and area B. Over time because rock layer is no longer able to withstand the stress, then there will be a movement or a sudden shift so that there fault. Event of a sudden movement is called an earthquake.

On the time 3 shows the layers of rock that has been broken, due to the sudden movement of the rock. Movement slowly this fault will continue, so that all the above process will be repeated again and an earthquake will occur again after some time, and so on (Elastic Rebound Theory).

Every event of an earthquake would generate seismic information in the form of the wave-shaped signal recording after a manual or non-manual process will generate data. The seismic information is then analyzed so that a parameter earthquake. Parameters - parameters of this earthquake consists of the time of the earthquake, the depth of the quake, the epicenter, depth and magnitude earthquake. Parameter - these parameters are interrelated between one parameter with other parameters to obtain accurate data on earthquakes that occurred in the region.

The level of earthquake damage can be measured by its intensity. Earthquake intensity is the degree of damage caused by an earthquake in an area and views of the effects of the tremor. The amount depends on the intensity of the magnitude of magnitude, the distance from the source of the earthquake, geological conditions, and the structure has structure. High intensity usually occurs in areas near the source of the earthquake compared to a place far away from the earthquake source.

The system used to describe the intensity of an earthquake is Earthquake Mercalli intensity scale, which was developed in 1902 by an earthquake the Italian, Giuseppe Mercalli. This system of classifying the strength level earthquake (magnitude) with effects felt by residents in a region where earthquake. An overview of the effects of earthquakes grouped into twelve (XII) levels in populated areas compiled by Mercalli, called the Modified Mercalli Intensity scale (MMI). The level of intensity scale is able to describe the damage that occurs at different levels of intensity of earthquakes accurately. Earthquake intensity level can be seen in Table 1 below

Table 1. Magnitude, Characteristics Effects, and MMI Scale Earthquake [2]

| Richter | Mercalli | Earthquake Effects |
|---------|----------|--|
| 2 | I | Instrumental. Not felt except by a very few under especially favorable conditions detected mostly by seismography |
| | II | Feeble. Felt only by few persons at rest, especially on upper floors buildings |
| 3 | III | Slight. Felt quite notice ably by persons indoors, especially on upper floors of buildings. Many people do not recognize it as an earthquake. Standing motor cars may rock slightly. Vibration similar to the passing of a truck. |
| | IV | Moderate. Felt indoors by many, outdoors by few during the day. At night, some awakening. Dishes, windows, doors disturbed; walls make cracking sound. Sensation like a heavy truck striking building. Standing motor cars rock noticeably. |
| 4 | V | Rather Strong. Felt by nearly everyone; many awakened. Some dishes, windows broken. Unstable objects overturned. Pendulum clocks may stop. |
| 5 | VI | Strong. Felt by all, many frightened. Some heavy furniture moved; a few instances of fallen plaster. Damage slight |
| | VII | Very Strong. Damage negligible in buildings of good design and construction; slight to moderate in well built ordinary structures; considerable damage in poorly built or badly designed structures. |
| 6 | VIII | Destructive. Damage slight in specially designed structures; considerable damage in ordinary substantial buildings with partial collapse. Damage great in poorly structures. Fall of factory stacks, columns, monuments, walls. Heavy furniture overturned. |
| 7 | IX | Ruinous. Damage considerable in specially designed structures; well designed structures thrown out of plumb. Damage great in substantial buildings, with partial collapse. Buildings shifted off foundations. |
| | X | Disastrous. Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations. Rails bend greatly. |
| 8 | XI | Very Disastrous. Few, if any (masonry) structures remain standing. Bridges destroyed. Rails bend greatly. |
| | XII | Catastrophic. Damage total. Lines of slight and level are distorted. Objects thrown into the air. |

To determine the magnitude of the intensity can use Gutenberg Richter equation expressing the relation between earthquake intensity and magnitude [3].

$$I_o = 1,5(M - 0,5) \quad (1)$$

where I_o is earthquake intensity (MMI), M is magnitude (SR)

Acceleration is the parameter of the changes speeds ranging from rest until at a certain speed. In buildings comprising on the ground requires stability of the soil so that the building remains stable. The maximum ground acceleration vibration acceleration vibration value of the land is the largest ever happened somewhere caused by earthquake waves. The maximum ground acceleration value calculated based on the magnitude and distance of the source of the earthquake that has ever happened to point calculations, as well as the value of the soil dominant period [4], [5]. The value of the maximum ground acceleration is calculated empirically using Gutterberg Richter equation [6] is:

$$\alpha = 10^{\frac{I_o - 0,5}{3}} \quad (2)$$

where α is ground acceleration (cm/s^2) and I_o is earthquake intensity (MMI).

Grouping level of risk of earthquakes that occur in a place based on the value of the maximum ground acceleration and intensity of earthquakes. Based on the table it is clear that the value of the maximum ground acceleration is proportional to the scale of earthquake intensity earthquake. Least order if the value of the maximum ground acceleration of less than 25 cm/s^2 with a value scale of earthquake intensity less than IV. The greater the value of the maximum ground acceleration and scale of earthquake intensity, the greater the level of damage caused.

The level of risk of damage caused by the earthquake can be seen in Table 2 where the level of risk due to earthquake grouped into eight levels ranging from very little risk to the level of risk is very large.

Table 2. The level of earthquake risk [7]

| No | Risk Level | Acceleration (cm/s^2) | Intensity (MMI) |
|----|------------|----------------------------------|-----------------|
| 1 | I | < 25 | < VI |
| 2 | II | 25-50 | VI-VII |
| 3 | III | 50-75 | VII-VIII |
| 4 | IV | 75-100 | VII-VIII |
| 5 | V | 100-125 | VII-VIII |
| 6 | VI | 125-150 | VIII-IX |
| 7 | VII | 150-200 | VIII-IX |
| 8 | VIII | 200-300 | VIII-IX |
| 9 | IX | 300-600 | IX-X |
| 10 | X | >600 | > X |

METHOD

This study is based on secondary data in Yogyakarta earthquake that occurred during the period of 70 years. (1940-2010). Data obtained in BMKG . Steps of research as follows:

1. Data collection

To make observations in Meteorology and Geophysics Agency in Yogyakarta. Data obtained in origin time of the earthquake, position, depth, magnitude, and focal mechanism.

2. Data Processing
 - a. Classifying the data earthquake with a magnitude of $M \geq 3,0$ SR
 - b. Calculating the value of the intensity of the earthquake in Yogyakarta.
 - c. Determine the value of the maximum ground acceleration in the empirical models with equations Gueteberg-Richter
 - d. Creating a contour map of the intensity and maximum ground acceleration by using a software Arc View GIS 3.3.

RESULTS

Based on the calculation of earthquake data it obtained great value and maximum ground acceleration intensity value. In addition, it can also predict when an earthquake in Yogyakarta region because the earthquake is a natural event that occurs within a certain time period as shown in Figure 2, Calculation of the intensity of this earthquake can be seen in Figure 3, and the maximum ground acceleration calculation results can be shown in Figure 4.

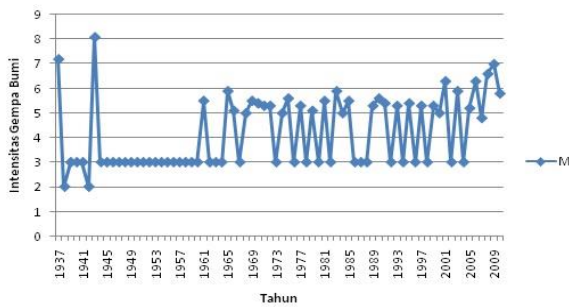


Figure 2. Frequency of the earthquake in Yogyakarta period 1940-2010

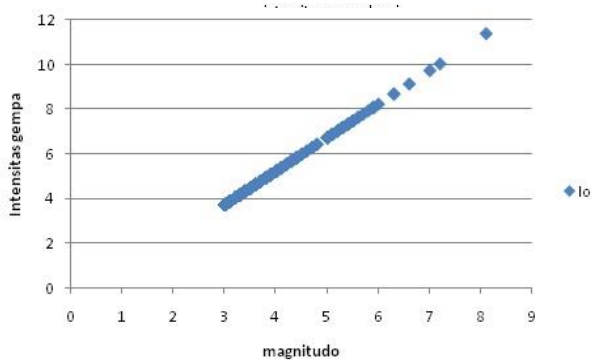


Figure 3. The intensity value of earthquakes based on seismic data the period 1940-2010

Based on Figure 2 and Figure 3 it can be seen that the earthquake - earthquake which often occur in Yogyakarta Province is dominated by a magnitude 6.5 earthquake was between 3 to SR at the level of intensity scale is IV to VIII MMI.

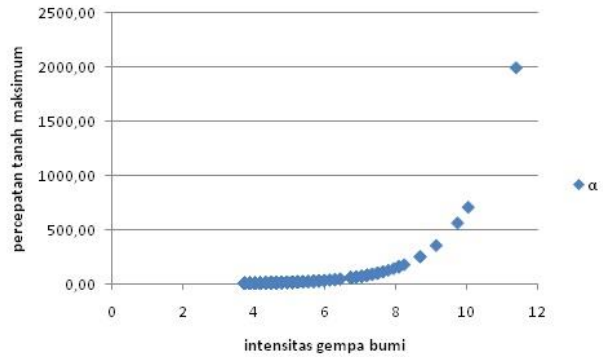


Figure 4. Ground aacceleration based on data from the period 1940-2010 earthquake in Yogyakarta

Based on the results of the calculation of the intensity of the earthquake in Yogyakarta empirically using equation Gutterberg Richter and it plotted on maps and s obtained earthquake intrnsity in Yogyakarta and its surrounding (Figure 5).

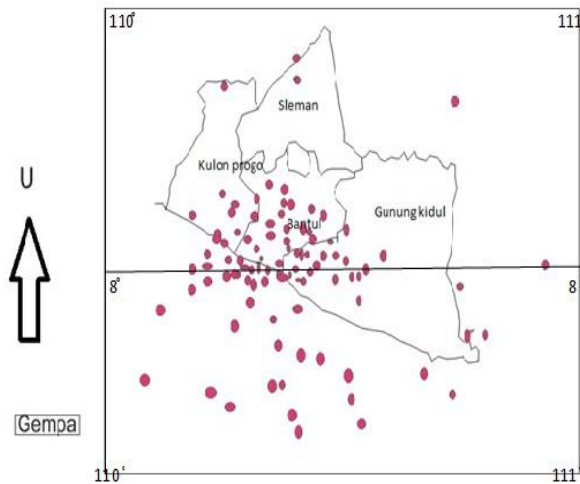


Figure 5. Earthquake intensity map in Yogyakarta

To get the maximum ground acceleration, a method similar to the method used to determine the intensity of earthquakes contour map. Data from the calculation of the maximum ground acceleration were processed using GIS software 3.3 acr view it will obtain the maximum ground acceleration contour map in the region of Yogyakarta and surrounding areas. Results of processing the maximum ground acceleration map in Figure 6.

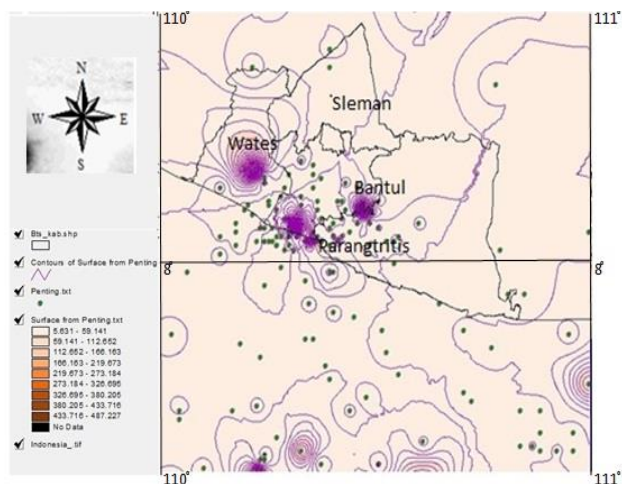


Figure 6. The maximum ground acceleration contour map

DISCUSS

Based on the above results indicate that the earthquake in Yogyakarta lot happening in the Indonesian Ocean, namely the area of subduction of the Australian plate so that in the area of frequent earthquakes with magnitude larger. Although in the Yogyakarta region many earthquakes with magnitude that large but the level of maximum ground acceleration in Yogyakarta region belong to the small degree of risk, this is because most of the earthquakes with great strength much going on in the ocean is in the Indonesian Ocean.

Based on historical data of earthquakes the period 1940 to 2010 it was noted that in the Special Region of Yogyakarta (DIY) has occurred 411 times tectonic earthquakes with a magnitude above 3 on the Richter Scale ($M \geq 3.0$ SR). From the calculation results obtained in that area that have maximum intensity and maximum ground acceleration of the largest occurred in 2009 occurred in the ocean Indonesian subduction zone located at coordinates 8.0° S and 110.28° E with the power of a magnitude 7 quake magnitude at a depth 10 km. This data is obtained from the value of the maximum ground acceleration of 562.34 cm/s^2 . At the scale of the earthquake vibrations are felt and the damage is very severe earthquake. Overall earthquake massive earthquake lot happening in the area of ocean Indonesia located at coordinates 110° - 111° E where during an interval of 70 years there has been a 411 kali earthquake with the strength of the magnitude above 3 on the Richter Scale ($M \geq 3$ SR) with the average value of the maximum ground acceleration is 30.32 cm/s^2 . The maximum ground acceleration values in Yogyakarta is due to the activity of faults and subduction zones are characterized by shallow hypocenter and deeper towards the seas south of Yogyakarta. Vibration earthquake in Yogyakarta and the surrounding region is perceived as the center of the earthquake that occurred mostly in the sea.

Based on historical data the earthquake region of Yogyakarta and surrounding areas classified as having a

small degree of risk to earthquakes. This is evidenced by damage to small buildings are on a scale of VII MMI. Earthquake intensity value and the value of maximum ground acceleration in the Yogyakarta region due to the movement of tectonic faults, it's strengthened that the regions of Yogyakarta and surrounding areas located in large fractures (Great Fault Java) and in the area of subduction plates Australian and Eurasian plates.

CONCLUSION

Based on the calculation of seismic data 1940 to 2010 obtained by the variation of the ground acceleration of Yogyakarta and surrounding areas are 5.62 to 1995.26 cm/s^2 . From this period the earthquake on 23 July 1943 had a value of maximum ground acceleration is 1995.26 cm/s^2 and maximum intensity value of 11.4 MMI. During a period of 70 years it is known that there was an earthquake in Yogyakarta region as much as 411 times the force of an magnitude above 3 SR and average maximum ground acceleration is 30.32 cm/s^2 . From this study it can be concluded that Yogyakarta, including the degree of risk of earthquakes with little risk (α between 25 - 50 cm/s^2) with its seismic intensity scale are the VI-VII MMI with the effects of the earthquake are caused minor damage to buildings.

ACKNOWLEDMENT

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Typology of Coastal Areas and Effect on Mangrove Vegetation Distribution in The Zone Sediment Cell Between River yo River Comal- Bodri Central Java

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Abstract— The study aims to identify the typology of the North Coast of Central Java and distribution of mangrove ecosystems in the zone between the River Sediment Cell Bodri and the Comal River. Studies observed geomorphic erosion and accretion process, sediment material distribution, and the distribution pattern of mangrove ecosystems. Materials used in this study are Landsat images captured in 2009, and 2014; RBI map scale of 1: 25,000 in 2000, LPI map scale of 1: 200,000, and data processing software using ER Mapper 7.0. Based on the results of this research is that during the period of 5 years (2009-2014) has occurred abrasion area of 91.55 hectares and accretion area of 250.48 hectares. while the long coastline of 2009 amounted to 87.71 km. Long beach in 2014 along 86 km, or increasing short 1.71 km of 2009. Material coastal sediments is dominated by sand with a dark gray color. Mangrove ecosystem scattered spots in the form of a narrow, elongated pattern as a barrier ponds or in the river mouth. Most are in the area around the mouth of the River Comal 72.5 ha (52.1%) and the River Bodri 27.2 ha (19.5 ha). Getting to the middle of the study area where Mangrove less. Type mangrove dominated by *Avicennia marina* and *Rhizophora mucronata* are generally grown by the community or is the result of rehabilitation activities.

Keywords— *typology, beach, erosion, accretion*

INTRODUCTION

Mangrove ecosystems currently on the North Coast of Central Java, including research areas, damage caused by abrasion due process and due to the land conversion into a variety of economic activities. It should concern us all because Mangrove ecosystems have an important role in maintaining the stability of the beach dariproses Abrasion and accretion. The mangrove ecosystem is a system in natural venue for the life that reflects the interrelationships between the living and the environment and between the living creature itself, found in coastal areas, affected by the tide and is dominated by species of tree or shrub that is unique and able to grow in salty waters / brackish (Kordi, 2012).

As the life support of the most important coastal and marine, mangrove ecosystems have ecological function as a provider of nutrients (feeding ground), spawning (spawning ground) and care (nursery grounds) a wide range of biota, as well as the securing of coastal erosion, wind and tsunami, as well as can prevent sea water intrusion (Dahuri, et al., 2004). For the existence of mangrove ecosystems in the coastal areas need to be preserved.

In some coastal areas of Indonesia have seen the mangrove ecosystem degradation due to logging beyond sustainability. On the North Coast of Java (north coast),

particularly in Central Java, where mangrove is very alarming. One of the conclusions written in a study conducted Puryono (2009) mentions that mangrove forest area in the northern coast of Central Java province have suffered damage (heavy and medium) of 96.96%. This leads to the destruction of forests in the northern coast of Central Java tends to damage the bio-physical environment in the form of accretion and erosion, causing a decline in both the quantity and quality.

Efforts to restore the presence of mangrove ecosystems in the northern coast of Central Java has been done include making real efforts to preserve mangrove tersistem community-based and structured. But these efforts have not yielded satisfactory results. Whenever carried mangrove planting mangrove life success rate is not as expected. This is because the coastal typology less attention in the rehabilitation of beaches with mangroves, but the form of coastal typology will affect the growth and development of mangrove plants (Supriharyono 2007; Kordi, 2012). Therefore, the study of typology of coastal areas is indispensable in order to improve conservation of mangrove forests in the northern coast of Central Java.

Typology beach is a study about the type or types of beaches. There are many different types and kinds of beaches, of which are based on changes in the coastline, beach material, geological processes, and others. Changes in the coastline that goes towards the sea during the process of sedimentation in the area called retrogradation. But the coastline changes will further inland when the area is actually happening coast abrasion process called progradasi dominant. In general, on the northern coast of Java process that occurs is retrogradation, but in some locations it happens abrasion

This research is a semi-detailed with territory area is in the zone of Sediment Cell, between the River Bodri and the Comal River. Specifically purpose of this study was to (1) identify the typology of the North Coast of Central Java in Zone Cells Sediment between River Bodri and the Comal River, (2) identify patterns of spatial distribution of mangroves in the area of research, and (3) Knowing the influence of the condition of the typology of the beach on the pattern mangrove distribution.

RESEARCH METHODS

1. Variables, include:

- a. Typology study area consisting Beach shoreline morphodynamics, Grain Analysis coastal sediment material.
- b. Spatial distribution pattern of mangrove in the area of research.

2. Stages Research

Data processing begins with a geometric correction on topographic maps and Landsat imagery used throughout. Geometric correction chosen type of polynomial to generate maps and imagery that has uniform projection system that will minimize errors during overlay activities.

Base folder used is such a map of the earth (RBI) scale of 1: 25.000 in 2000. Projections selected map on the Universal Transverse Mercator SUTM zone 49, datum field on WGS 1984. The results of geometric correction on each map generating RMS values ranging from 0.05 to 0.3 using ER Mapper software. To determine the abrasion and accretion, use the overlay method of time series of data with ArcView 3.2 software, while the identification of mangrove distribution pattern of the study area is made is based on the interpretation of Quickbird imagery in 2013. The results of interpretation set forth in the form of a basic map RBI map scale of 1: 25,000.

RESULTS AND DISCUSSION

1. Coastal Between Typology Bodri River and the Comal River

a. Abrasion geomorphic processes and accretion Research Areas

The process of erosion and accretion area were analyzed based on four sheets of map overlay description coastline shoreline change each time range is described as follows.

Based on the results overlay spatial data coastal study area in 1994 to 2001 showed that during the period of 7 years there has been an area of 487.64 ha erosion and accretion area of 69.07 ha. The area of research (AOI) 1994

= 41846.70 ha, due to erosion and accretion process, in 2001 the area of study became 39251.30 ha, or the narrowing of the land area of 418.55 ha, and a long coastline of 2001 amounted 84.49 km. Abrasion incident happens a lot and spread almost throughout the coastal area of research. Instead occurrence of sedimentation (accretion) is only found in a few places, for example in the area of Kendal found in Pidodokulon Village, Village Karangmalang wetan, whereas in Pemalang, namely in the village Limbangan, Ketapang, Blendung, and Kertosari.

Then from the year 2001-2009, a process Abrasion research area covering 67.39 ha and accretion area of 409.02 ha. The area of research (AOI) in 2001 amounted to 39251.30 ha, due to erosion and accretion process, in 2009 the study area into 39 592, 97 ha, or expansion occurs the land area of 341.65 ha, while the length of the coastline in 2009 amounted 87.71 km or 3.22 km length increases. So in contrast to the coastal conditions of the previous year (year 1994-2001) dominated the process of abrasion, the abrasion little incident occurred, namely at the End of Bodri River Delta and in the Comal River Delta. Instead occurrence of sedimentation (accretion) are common areas of research.

Then the process of erosion and accretion for 2009-2014 abrasion process is still smaller than the accretion process. During a period of 5 years has occurred abrasion covering an area of 91.55 hectares and 250.48 hectares accretion. The area of research (AOI) in 2009 covering an area of 39592, 97 Ha, due to erosion and accretion process, in 2014 to 39751.90 ha, or expansion occurs the land area of 158.93 hectares, while the length of coastline of 2009 amounted to 87.71 km. From the measurement results map, a long coastline of the study area in 2014 along 86 km, or a short increase of 1.71 km. Distribution of abrasion and accretion can be found spread evenly throughout the study area. Despite this accretion process is often found in the mouth of the River and the Comal River Bodri.

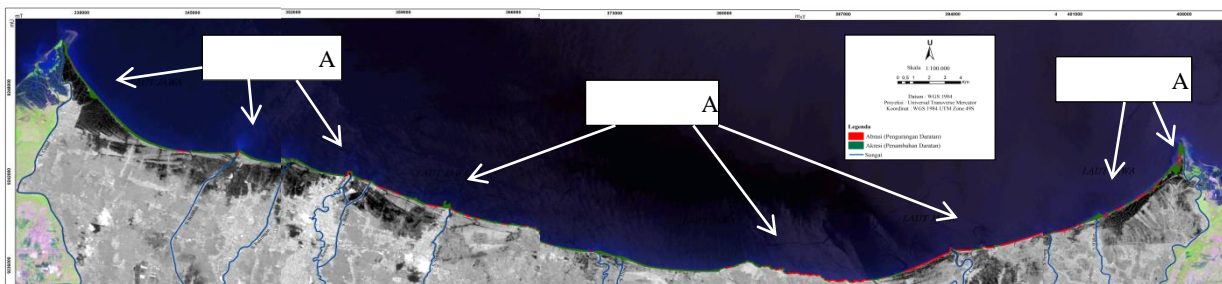


Figure 1. Distribution Map Abrasion and accretion Research Areas

b. Material Characteristics of Coastal Sediment Research Areas

Resources beach sediment material derived from sampling are further tested in Laboratotium Civil

Engineering UNIP on 29 June 2015. There are 16 sites visited sampling point and sediment samples taken with the distribution as presented in Figure 2.

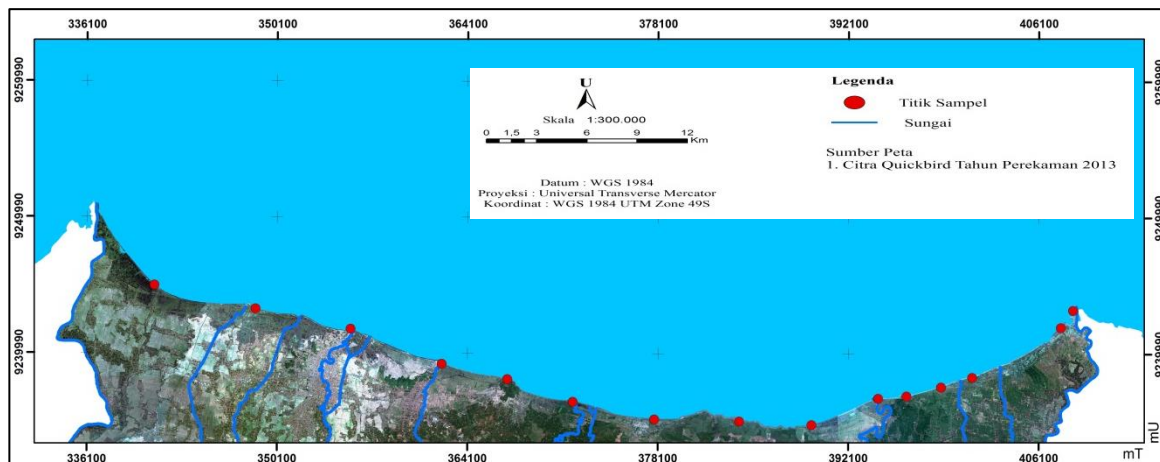


Figure 2. Map Location Sediment Sampling

Furthermore, the results of the analysis point to 16 samples are presented in Table 1, below.

Table 1. Percentage Fraction on Coastal Sediments Between S. Bodri and the Comal River

| Titik Sampel | Lokasi Koordinat | Lokasi Administrasi | Persentase Fraksi Sedimen (%) | | | |
|--------------|-------------------------|--------------------------------------|-------------------------------|--------------|-------------|----------------|
| | | | Kerikil (Gravel) | Pasir (Sand) | Debu (Silt) | Lempung (Clay) |
| 1 | 408538 mT 9242529 mU | Muara S Bodri Kabupaten Kendal | 0,00 | 88,72 | 11,28 | 0,00 |
| 2 | 407636 mT 9241918 mU | Pantai M Kencan Kabupaten Kendal | 0,00 | 92,40 | 7,60 | 0,00 |
| 3 | 401199 mT 9238271mU | Pantai Jungsemi Kabupaten Kendal | 1,50 | 94,80 | 3,70 | 0,00 |
| 4 | 398858 mT 9237561mU | Kampung Pening Kabupaten Kendal | 0,00 | 99,89 | 0,11 | 0,00 |
| 5 | 396173 mT 9236862 mU | Sendang Sikucing Kabupaten Kendal | 0,00 | 99,33 | 0,67 | 0,00 |
| 6 | 395228 mT 9236690 mU | Gubugsari Kabupaten Kendal | 0,00 | 99,16 | 0,84 | 0,00 |
| 7 | 389557 mT 9234776 mU | Pantai Jodo Kabupaten Kendal | 1,58 | 95,53 | 2,89 | 0,00 |
| 8 | 387706 mT 9234623 mU | Sawangan Kabupaten Kendal | 0,00 | 98,61 | 1,39 | 0,00 |
| 9 | 384470 mT 9234940 mU | Plabuhan Kabupaten Batang | 20,17 | 79,05 | 0,78 | 0,00 |
| 10 | 377881 mT 9235180 mU | Kuripan Kabupaten Batang | 5,41 | 81,84 | 12,75 | 0,00 |
| 11 | 371926 mT 9236399 mU | Muara Kaliboyo Kabupaten Batang | 0,00 | 97,49 | 2,51 | 0,00 |
| 12 | 367152 mT 9238032 mU | Ujungnegoro Kabupaten Batang | 5,69 | 92,23 | 2,08 | 0,00 |
| 13 | 362274 mT 9239151 mU | Sigandu Kabupaten Batang | 0,00 | 96,60 | 4,40 | 0,00 |
| 14 | 356785 mT 9241199 mU | Muara Loji Kota Pekalongan | 0,00 | 99,96 | 0,04 | 0,00 |
| 15 | 354484 mT 9243569 mU | Pantai Depok Kab. Pekalongan | 0,00 | 99,43 | 0,57 | 0,00 |
| 16 | 340513 mT 9245478 mU | Blendung Kab. Pemalang | 0,00 | 91,55 | 8,45 | 0,00 |
| Rata-rata | | | 2,11 | 94,14 | 3,75 | 0,00 |

Sumber: Hasil analisis laboratorium, 2015.

According to the table 1 above, of the 16 samples spread across the study area, entirely dominated by sand material the average percentage of sediment fractions of 94.14%, while the location of the sample that contains the largest sand fraction is located at the mouth of Pekalongan lodge that is equal to 99.96% Whereas the amount of sand fraction is at least Plabuan Batang district that is equal to 79.05%. For a fraction of the dust (silt) are also found in all the sample locations with a small percentage of the fraction that is an average of 3.75%, the most numerous in the river estuary Bodri Kendal in the amount of 11.28%, and the least are in the estuary Loji Pekalongan is equal to 0.04%. Instead of sedimentary material in the clay fraction is not available in all locations sampled. Sedimentary material such as gravel fraction (Gravel) can be found in several locations on the beach Jungsemi sample of as much as 1.50% Kendal, Kendal

Jodo Beach as much as 1.58%, Plabuhan Beach as much as 20.17%, Batang, Batang reGENCY Ujungnegoro Beach as much as 5.41%, and Kuripan Beach, Batang much as 5.69%.

2. Distribution of Mangrove at the Regional Research

Mangrove condition in a relatively narrow area of research is an area of 139.20 hectares. Conditions uneven spreading. The area around the mouth of the Comal River (Pemalang) has the greatest area is 72.47 hectares, followed contained around estuary Bodri (Kendal) in the amount of 27.16 hectares, while the most narrow in the city of Pekalongan is only 6, 5 Ha. Area of mangrove vegetation in each coastal district / municipal areas of research are presented in the following table.

Table 2. Broad Based Mangrove Forest Land Cover Condition on the North Coast of Central Java in 2013

| No | Regency / City | Area (ha) | % | Condition |
|--------|--|-----------|------|---|
| 1 | Pemalang Regency (East of the Comal River) | 72,47 | 52,1 | Scattered on the shoreline and estuaries, as well as around the pond as a barrier ponds. Mangroves are managed by the map farms and local NGOs. |
| 2 | Pekalongan Regency | 19,76 | 14,2 | Spread follows the pattern of the pond which serves barrier and managed many fish farmers. |
| 3 | Pekalongan City | 6,50 | 4,7 | Spread follows the pattern of the pond which serves barrier and managed many fish farmers. |
| 4 | Batang Regency | 13,31 | 9,6 | Scattered around the beach and shore Kuripan Sigandu. Many local NGOs managed |
| 5 | Kendal Regency (west of the Bodri) | 27,16 | 19,5 | Scattered as a barrier ponds, on either side of the river and gather on the shoreline. Many fish farmers managed |
| Jumlah | | 139,20 | 100 | |

Sumber: Hasil Analisis Peta berbasis SIG, 2015

Distribution of the existence of mangrove vegetation are presented in the following figure as a result of the 2014 Quickbird image interpretation are digitized using GIS software is ArcGIS.

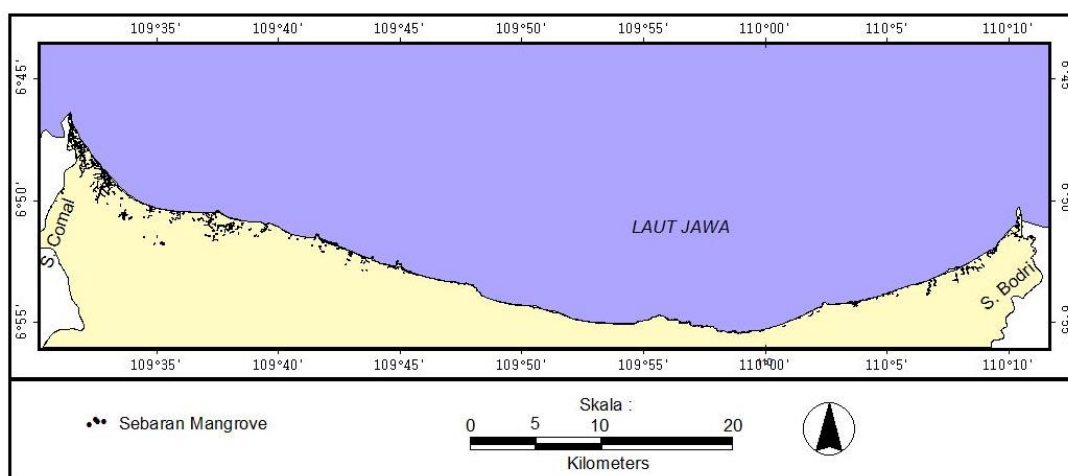


Figure 3. Distribution Map of Coastal Mangroves in the Comal River to River Bodri

Judging from the geographical position appears that more and more towards large river estuary (the Comal River and River Bodri) where mangrove increasingly widespread. In the middle of the mangrove area penilitiaan very poor

condition. Spreading just around ponds and many coastal areas unprotected mangrove vegetation. This condition causes the coastal areas become open and vulnerable to abrasion process.



Figure 4. Example of Mangrove condition at the Regional Research

3. Effect Typology Condition Distribution Pattern Against Beach Mangrove.

Based on distribution maps can be known mangrove distribution patterns of mangrove ecosystems in the study area. Mangrove ecosystem widely spread around the Comal River and the River while the middle Bodri relatively very little or even nothing at all. There are many factors that cause the mangrove ecosystem are unevenly distributed among which, sloping beach morphology, salinity is not too high, the availability of substrate sludge, as well as human intervention.

The mangrove ecosystem is an ecosystem that grows and thrives on sloping areas in estuaries and coastal areas affected by the tide. Therefore mangrove ecosystem regularly inundated by tides, the environment (soil and water) are saline mangrove ecosystems. High and long inundation will affect the salinity of the soil. Areas that are always submerged in sea water and did not get a supply of fresh water from rivers, the salinity will be higher. Usually, only certain types of mangrove (*Sonneratia* and *Avicennia*) that can grow and adapt to the high salinitias. In the research area of coastal morphological conditions in the central part of the study area is hilly so has the area of inundation by tidal narrow, thus becoming one of the factors of the narrowness of the existence of mangroves in the central part of the study area.

Mangrove ecosystem also requires a mud substrate to grow and develop. Type of suitable substrate for the growth of mangroves is soft mud containing silt, clay and organic materials are soft (Walsh in Kordi, 2012). Research results Sanjoto and Satyanta (2015) showed that the material coastal sediments in the study area predominantly sand fraction (on average more than 88%), while the fraction of mud (silt), although the percentage slightly, can be found around the river Bodri and rivers Comal, so that the presence of mangroves in the area around the river is quite a lot.

The existence of mangrove ecosystems uneven also affected by human intervention. Many human activities that cause damage in coastal mangrove ecosystems, including mangrove land conversion into agriculture, aquaculture, residential, and tourism. Socio-economic conditions of the communities living in coastal areas in general will affect mangrove ecosystems. Based on research by the Central Management of Watershed Area Pemali Jratun, Central Java (2006) showed that socio-economic factors as a cause of damage to mangroves, are (1) the main livelihood, (2) the location of business land, (3) the use of firewood, and (4) the perception of the mangrove.

CONCLUSION

Typology of the coastal area between the River and the Comal River Bodri influenced the geomorphological process research areas include erosion and accretion. Accretion process much going on around the mouth of the River and the Comal River Bodri while the abrasion process a lot going on in the central part of the study area. Sand sediment fraction dominates the area of research, especially in the central part.

Mangrove distribution in the study area are unevenly distributed in the western part is just around the Comal River and the eastern part around the mouth of the River Bodri, while the central part is relatively very little. Factors affecting the substrate including mud just scattered around the mouth of the Comal River and the River Bodri, and human activities such as the conversion of mangrove into aquaculture are still occurring in the study area.

Suggestions put forward are necessary rehabilitation of mangrove ecosystems through planting and maintenance mangrove ongoing basis. Then needs to be done capacity building coastal communities in relation to the maintenance of mangrove ecosystems.

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Residual Pesticide Study on Shallot Cultivation (*Allium ascalonicum* L.) in Brebes District

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Abstract— Shallot (*Allium ascalonicum* L.) is one of the horticultural crops that have economic value. The demand in Indonesia increases around 5% per year, excluding the needs of restaurants, hotels, and industrial processing. National shallot production center is located in Brebes district, Central Java. The district produces two hundred thousand ton, which supplies around 50% of the national production. The national production is still lower than the demand. The occurrence of pests and diseases is one of some constraints for increasing shallot production. It causes crop failure, yield reduction and low quality. Most farmers apply synthetic chemical pesticides for protecting crops from pests and diseases. The objectives of this study were to determine the type of pesticides applied the frequency of spraying pesticides and pesticide residues in shallot bulbs and soil in the district of Brebes. 10% of farmers were interviewed for knowing the types and frequency of application of pesticides. Bulbs and soils of 10% of the areas with the most intensive shallot cultivation were taken, and then the pesticide residues were analyzed using gas chromatography. Data obtained recapitulated, described and compared with the maximum residue limits (MRL) of pesticides in accordance with the Degree of the Minister of Agriculture and Minister of Health, No. 881/Menkes/SKB/VIII/1996; 711/Kpts/TP.270/8/1996 of maximum residue limits of pesticides in agriculture. Results showed that mixed of more than one type pesticides were applied to onion cultivation; the pesticides were sprayed in three days intervals; residue of pesticides in onion bulbs and in soil was under maximum residue limits for organochlorine pesticides, peritroids, and carbamates, except for organophosphate pesticides with the active ingredient of chlorpyrifos. The values were above maximum residual limits for most samples.

Keywords: pesticides, residues, shallot

INTRODUCTION

Shallot (*Allium ascalonicum* L.) is one of the horticultural crops that has important economic value (Iriani et al., 2004). It is a source of income for farmers and traders, its cultivation processing needs a lot of labors, it is consumed almost every day as spices and pickles, it is a traditional medicine, it is ingredient for food industries and it is an export commodity (Rokhminarsi, 1999).

The potential market of this commodity is good due to the increase of its consumption and the development of the processing industries. The domestic demand of shallot continues to increase by about 5% annually excluding the needs of restaurants, hotels, and processing industries (Suwandi and Hilman, 1995).

In Indonesia, shallot is cultivated intensively as a market-oriented or a commercial farming, so that it provides expected benefits (Ambarwati and Yudono, 2003; Soetiarso et al., 1999). However, the average productivity of the farmers is still low. It is approximately 7.17 tons/ha, while the potential yield can reach more than 10 tons/ha (Iriani et al., 2001). Therefore, it is necessary to manage an effort to increase the productivity and production.

The Regency of Brebes, Central Java, is one of shallot production centers which supplies proximately 39% - 50% the national demand (Indonesian Shallot Association of Brebes Regency, 2014; Pitoyo, 2003). The shallot potential production of Brebes reaches 54912 tons (Department of Agriculture, Food Crops and Horticulture of Brebes Regency, 2014). The national demand reaches 393600 tons (Indonesian Shallot Association of Brebes Regency, 2014).

The efforts to increase the shallot production are often hampered by the attack of pests and pathogens, which resulted in crop failure or yield reduction. Pesticides are often used as pests control. Improper use or overuse of pesticides can harm the health of farmers and consumers, non-targeted microorganism, environment both water and soil (Yuantari 2011; Yuantari et al., 2015), and they become the source of pollution or chemical residue in food products (Atmawidjaja et al., 2004).

Farmers generally assume that the pesticides are the ultimate solution and believe that by applying pesticides, the crops will not be attacked by pests and pathogens, so it triggers the rapidly increasing usage of pesticides from time to time. Spraying crops with pesticides intensively may results in the pesticide residue on bulbs. According to Hidayat et al., (1991) the application of pesticides on shallot crops in Brebes district was exceeding the recommended dosage. The frequency of pesticide application in Brebes district can be up to 15 times during one season, in which three to four different types of pesticides are mixed (Badrudin and Jazilah, 2013).

The purpose of this study is to determine the type and frequency of pesticide usage and its residue in soil as well as in bulb of shallot in the Brebes District.

RESEARCH METHODS

The research was conducted in the Brebes Regency. Two district was chosen i e Larangan District and Wanasari District. One farmer was chosen from each farmer group in Larangan Village (there are two farmer groups) and Kedungbokor Village (there is one farmer) of the Larangan District. Meanwhile, three farmers were chosen from Tanjungsari Village (there is only one farmer group). Shallot and soil samples were taken randomly from shallot cultivated areas. 1 kg of bulbs of shallot and 1 kg of soils were taken from each area. Farmers were interviewed for getting types and frequency of pesticide application. Gas Chromatography analysis of pesticide residues in the shallot bulbs and in the soils was carried out in the Laboratory of the Indonesian Agricultural Environment Research Institute, Bogor. The resulting data were recapitulated and compared to the Maximum Residue Limits (MRL) of pesticides in accordance with the Joint Decree of the Minister of Agriculture and Minister of Health, No. 881 / Menkes / SKB / VIII / 1996; 711 / Kpts / TP.270 / 8/1996 of maximum residue limits (MRL) of pesticides in agricultural products.

RESULTS AND DISCUSSIONS

Results showed that the types of pesticides for controlling control pests and diseases in shallot cultivation varied. Each farmer applied seven to eight types of pesticides. The types of pesticides applied were Amistar Top 325 SC, Amistar 250 EC, Dithane 430 SC, Heksa 50 SC, Topsin 500 SC, Endure 120 SC, Bendas 50 WP, Rovral 50 WP, Bion-M 1/48 WP, WP 70 Antarpol, Metindo 25 WP, Vondozeb 80 WP, Dithane M 45 80 WP, Antracol 70 WP, Delsen MX 80 WP, Pilaram 80 WP, Besconil 80 WP, Marshal 200 EC, Valetudo 300 EC, Pounce 20 EC, Ripcord 50 EC, Agrimec 18 EC, Abenz 22 EC, Krakatau 100 EC, Golex 250 EC, 80 EC Amazone, Arjuna 200 EC, Dursban 200 EC, Sancarb 500 EC, the Dragon 500 EC, Besmor US 200, 276 SL and Truper Gemaxone 3 GR. More than two types of pesticides were mixed and applied each time. The pesticides were applied every three days.

Pesticide residue analysis showed that organochlorin, pyrethroids, carbamates, and organofosfat in the shallot bulbs and the soils were still below the maximum residual limits (MRL) of pesticides. This is because the pesticides category of organochlorine and pyrethroid are non-systemic, so that those pesticides are not absorbed by crops, but they just covered the outside part of the plant and can not penetrate into the plant tissue (Yuantari 2011; Djojsumarto, 2006), while the pesticide category of carbamate is a type of pesticide that is easily biodegradable (not persistent) in the environment and does not accumulate in the plant tissues (Djojsumarto, 2006). Beside that, according to Karlina et al., (2013) the use mixed pesticides in one spraying tank resulted in no detection of the types of those pesticides.

In contrast, chlorpyrifos residual value in most samples of the shallot bulbs and the soil was above the maximum

residual limit (MRL) of this pesticide. The chlorfiripos residue in the shallot bulbs were 0.056 ppm, 0.139 ppm, 0.056 ppm, while that of in the soils used for the cultivation of shallot were 0.743 ppm, 0.068 ppm, 0.105 ppm. Based on the Decree of the Minister of Agriculture and Minister of Health, No. 881 / Menkes / SKB / VIII / 1996; 711 / Kpts / TP.270 / 8/1996, maximum residual limits (MRL) of this type of pesticides in agricultural crops was 0.05 ppm. This is because farmers applied pesticides with the chlorpyrifos active ingredient in controlling pests and diseases in shallot cultivation with high frequency. The application of this pesticides intensively and redundantly in agriculture resulted in pesticide residues on crops, pollute the soil and endanger the environment (water and soil) and human (Karlina et al., 2013; Yuantari et al., 2013).

One of the pesticides containing the chlorpyrifos active ingredient is Dursban 200 EC. It is often added adhesive in its usage, so the pesticides firmly attached both to the shallot bulbs and the soil. According Afriyanto (2008) in Hendariani et al., (2013) the use of pesticides from the category of organofosfat in the field of agriculture was mostly recommended, in addition, Maruli et al., (2012) said that sticker was added to the insecticides, after spraying, it would persist longer in the plants.

Chlorpyrifos pesticide residues settled in shallot bulbs because shallot bulbs are a plant organ used to store and accumulate pesticides absorbed by the soil and the leaves (Wariki et al., 2015). Munarso et al., (2006) said that pesticide residue was not only from pesticide spray, but also from absorption of the roots from the soil, especially the plants that parts of the tuber are harvested. Beside that, the application of pesticides was continued until the harvest season. According Tuhumury et al., (2012) the application of pesticides near harvest time would lead to the more occurrence of pesticide residues (Maruli et al., 2012), it was happened because the natural decomposition has not occurred yet (Munarso et al., 2006). Organofosfat pesticides with the chlorpyrifos active ingredient contained hydroxyl functional groups which were easily absorbed by plants. This resulted in chlorpyrifos residue on crops.

CONCLUSIONS AND SUGGESTIONS

Conclusion

Based on the research above the conclusions can be drawn as follows:

1. Seven to eight types of pesticides were applied for controlling pests and diseases in shallot cultivation in Brebes District.
2. Mixed of more than two types of pesticides were applied every three days
3. Pesticides residues for the category of organochlorine, pyrethroids, carbamates, and organophosphates, but not the chlorpyrifos active ingredient were still below the limit of maximum pesticide residue. The organophosphates with the

chlorpyrifos active ingredient in most samples were above the maximum residual limit.

Suggestion

1. The use of pesticides in the cultivation of shallot should be appropriate with the types of pests and diseases that emerge in the field.
2. The frequency of spraying pesticides in controlling pests and diseases in shallot cultivation should be implemented appropriately and wisely according to the recommendation of environment preservation.
3. The agricultural food products should be washed before consumption to remove pesticide residues in the foodstuffs.

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The Power of Online Consumer Community: an Elaboration Likelihood Model (ELM) Perspectives

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ABSTRACT – The development of the Internet, especially Web 2, has changed marketing communications phenomena . The role of social networking in the digital era brings great revolution of consumers power. Social networking drives consumers interact with other consumers, talking about products, services and brands. Consumer online review on a social networking is known as electronic word of mouth (eWOM). The eWOM strength in influencing consumer attitudes and behaviour has proven more than conventional media do. This paper is reviews about the Power of Online Consumer Community : an Elaboration Likelihood Model (ELM) Perspectives. This review adopts the ELM persuasive to explore the effect consumers community online reviews about brand . The ELM theory is about information processing responsible for yields to persuasive communication and strengthth of the attitudes that results from the processes. According ELM there are two difference persuasions routes, a central route and the peripheral route. The central route relate to argument quality and peripherals route related to source credibility. ELM Also posits that consumers behavior depends on consumer involvement. This paper views how argument quality, source credibility and consumer involment works as a power to change consumer brand attitude.

KEYWORDS-online consumer power; eElectronic Word of Mouth; Elaboration Likelihood Model; Argument Quality; SourceCredibility; Consumerinvolment, brand attitude

INTRODUCTION

The growth of Internet users in Indonesia can not be separated from the evolution of the Web platform 2, which changed the paradigm of the Internet as a medium of information and communication.

Web 2 opens the door for consumers to interact not only with the manufacturer but with othres consumers. Web 2 cause of social networks has grown so rapidly. Online conversations, online games, blogs, and online forums are a new form of consumer communities, parentheses, where consumers can share and communicate with customers in accordance with their respective interests.

The virtual community has an important meaning not only the marketers but also for consumers (Park, 2010). According Jalilvand, Esfahani and Samiei (2011) with the development of the internet, It raises two powers marketing communications, the first is the product information given by the company to the consumer through the company's website (Business to Consumer marketing) and the second power is the product information that is made by the consumer and published via social networks such as, forums, blogs and

other social media (Consumer to Consumer marketing) Information products, services and brands made by consumers through online community forum called consumer online review . Information which is shared consumer is not just information about products, services or brand, but including the experience of consumers who have purchased and used the product, the product evaluation and opinion (Park (2007).

Consumers online review became popular, important and more reliable for consumer (Delarocas, 2003). According to Bickart and Schindler (2001) there is a difference basic make consumers more confidence to the consumer online review compared to the information provided by the seller or the company.

Consumer online review is oriented on consumer interests, namely on the usefulness of the product as well as product excellence. The information given is based on consumer satisfaction on a product or brand that has been used. While the information provided by the company or the dealer is more oriented to the attributes of the product or brand and is given in the form of a standard.

Consumer online review is a new form of Word of Mouth (WOM) is the electronic communication -Word- of -Mouth (eWOM). For many years Word of Mouth (WOM) is known as the most effective influencing on consumer behavior in purchasing decisions.

WOM is a commercial non verbal communication that takes place between individual one with individuals about products, brands, services and companies (Arndt, 1967).

The influence of WOM on the behavior and attitudes of can not be denied because it has been proven by researchers who are interested and do research in this field, as disclosed by Katz and Lazarsfeld (1955), that the influence of WOM in the choice of brand is seven times larger than the newspapers and magazines and four times greater than on personal selling, and also two times greater than the radio. Other researchers are Day (1971) concludes in his research that WOM nine times more effective than other advertising media in changing consumer behavior even Aristotele in his *Rhetoric*, call sppeechcraft (Thossen and Beard, 1948).

LITERATURE REVIEW

Online Consumer Forum community

Community definition originally appeared in the 20th century in literature sociology. Sociologists mendefinikan community as a specific form of social organization based on small groups, such as environmental groups around, the small town is generally based on geographic boundaries .. Web 2 which allows internet users to interact with each other has supported the formation of communities through the website.

Community forums grows rapidly with a variety of interests. Virtual community is a group of people who do not see each other's face, exchanging words and ideas through social network (Scaraboto, Rossi; Costa (2012). Through this forum consumers interact ask questions and share information about products, brands and services before making a purchase decision.

There are two types of online consumer reviews, the first type is the online reviews made by the seller and the second type is formed by the consumer. Consumers prefer and trust online reviews made by others consumers than the reviews made by the seller.

The three things that cause the product information of consumers review is preferred than the information provided by the seller: 1) Belief in resources it will be associated with the trust information, the information provided the seller only aspect fine, sellers tend to hide the bad aspects; 2) The seller is only focused on product attributes, while the information provided consumers better illustrate the usefulness and the advantage of the product in consumers perspective.

Information is provided based on experience and customer satisfaction; 3) The seller provides information in the form of a standard, while the information provided by the consumer does not use the standard, more objective also subjective elements such as emotional elements can be expressed in such information (Park, ; Lee; Han 2007).

Elaboration Likelihood Model (ELM)

Various models of the process and information persuasion have been developed over the years. One of the models that are widely used in consumer research is a model developed by the many of information reception Petty and Cacioppo (1986) with the Elaboration Likelihood Model (ELM). This model explains the factors into consumer stimulus in processing and receiving information and its impact on consumer behavior.

Likelihood theoretical framework Elaboration Model (ELM) is most widely used in research eWOM (Chan and Ngai, 2011) because of the ELM may explain the strength of eWOM and consumer involvement in information processing and its influence on consumer attitudes (Park and Lee, 2008).

In principle of ELM is the level of consumer involvement in the process of information from low to high. ELM distinguish changes in consumer attitudes in the two channels, namely Central Route and the Peripheral Route.

ELM theory refers to central route for consumers in information processing have the high involvement products and services. This consumer focus on the quality of the argument. In ELM quality of the argument is the highest consumer involvement in the information process Some studies of eWOM has been proved that the quality of information is a predictor in consumer engagement to the purchase decision. (Park and Lee, 2008).

Peripheral route is low engagement in information processing, consumers which is used this route process the information with a shortcut, consumers in this line more view information instead of the quality of information but of the appeal of resources, as well as the number of people who review or recommend information. The discussion in this paper uses ELM approach through two channels, namely centrally by the quality of argument and peripheral is the credibility of the source.

DISCUSSION

Online community discussion of online consumers to share the opinion of the consumer product information via the internet. It is forming a new wave Word of mouth (WOM) is the Electronic Word of Mouth. (eWOM). WOM centuries old persuasion known as the most effective media in marketing. Katz and Lazarsfeld (1955).

Word of Mouth (WOM) is a non-commercial oral communication that takes place between individual one with individuals about products, brands, services and companies (Arndt, 1967).

eWOM is an extension of traditional communication interpersonal. eWOM described as positive or negative statement of potential customers or consumers beginning, about the product, brand and service that can be accessed by many people over the internet (Henig -Thurau et al., 2004). eWOM through social media meet three aspects: (1) seeking the opinion; (2) giving opinions; (3) recommends opinions.

Most discussions in the online community is about products, service and brands and shopping behavior. Three important components in eWOM is the sender, the message and the recipient.

Brand is the name of a term, sign, symbol or a combination of these things. The purpose of branding is to identify products, services produced so different from competitors' products. Brand is association as a symbol of products, organizations, and people (as well Keller, Kevin Lane, 1993).

Brand attitude is is an evaluation conducted thoroughly and continuously in person, goods or services (Engel et al., 2006), it consistently delivers positive and negative reactions to certain things through learning (Hawkins et al., 2007;

Schiffman and Kanuk, 2006), including the evaluation of a favorable or unfavorable, emotional feelings and the tendency to behave (Kotler and Keller, 2008).

The attitude of the brand is a continuous preference or inclination liked and disliked by consumers towards a particular brand (Fishbein and Ajzein, 1980) and of the whole evaluation of consumers to the brand. The basis of this evaluation is the advantage that stands or the brand image. Consumers' assessment may be advantages stand or the image useful and then later formed attitude or stance overall brand (Wilkie, 1986).

It is the result of a thorough evaluation of consumer behavior towards the attributes of a brand (MacKenzie and Spreng, 1992). Positive attitudes towards the brand can increase a person's chances to use the brand (Kotler and Keller, 2008).

Various marketing programs as part of efforts to develop a positive attitude toward the company's brand and products, because consumers like or positive attitudes toward a brand or product will tend to choose and buy the preferred brand.

The establishment of consumer attitudes not only from a marketer but transparency and flow of information that is easily obtained from the virtual world today helped shape consumer attitudes. Wu and Wang (2011) in his research has proven role in influencing consumer reviews online brand attitudes.

Percy and Rossiter (2001) says that the attitude of the brand was built on the results of the evaluation of the consumer to a brand, this happens because of the motivation will buy a brand and the other brands that are considered alternative is better than the brand used.

ELM theory refers to the central route for consumers in information processing have the high involvement products and services. This consumer focus on the quality of the argument. In ELM quality of the argument is the highest consumer involvement in the process informs.

Discussion with ELM approach essentially reached through three channels, namely: (1) centrally route which is based on the quality of the arguments and (2) peripherally focused on the credibility of the source; (3) involvement (involvement).

- Quality of argument has four dimensions: (a) The relevance of information, where the information is said to be irrelevant if the information obtained in accordance with the needs, can be obtained quickly without wasting energy.

Rafael (2013) adds the relevant information is information that can help the users and can be applied; (b) the accuracy of the time: The accuracy of the information according to Honey and Honey (2002) is the latest information, are timely and updated; (c) the accuracy of information information: Rafael (2013) states that the information is said to be accurate if the information is credible, qualified and trustworthy; (d) Completeness of

information: detailed information, have a broad scope and user-oriented; (e) format recommendation: online consumer reviews also see the recommendation format, the format can be positive or negative recommendation.

-Kredibilitas Source: According to the theory of source credibility ELM is a persuasive track phirepheral, Sussman (2003) called it a normative path, the path where the assessment using emotion. However, according to Bettina (2013) source credibility is an important component. If the consumer perception of the messenger lower then eWOM cridibility its acceptance will be low.

The credibility of the source consists of two dimensions: (a) expertise source: a source of expertise is the extent to which sources provide information because they have the knowledge, skills and experience of the products and services (Ohanian 1990); (b) a reliable source: the recipient can trust the source of information if the information provided judged to be true, honest, objective and sincere. Source credibility on the source is the positive impact on the credibility eWOM.

- Involvement of consumers: In a persuasion model of communication ELM consumer engagement is critical. Consumers involvement rely on the participation and respect for the consumer on the object. (Bettina, 2012).

Consumer engagement according Zaickowsky, (1985) is the acceptance of a person on an object that is based on the need, importance and interest in the person's information on the topic of discussion. Consumers that require information and find information that is important to him, was also interested in the topic of discussion will be high-level involvement. While those who are not or are less in need of information, find the information in the topic of discussion is not important and considers the discussion is less attractive, the level of involvement will be low. The high involvement can impact high consumer brand attitude. Low involvement can impact low consumers attitude.

The quality information quality, source credibility and involvement engagement into Forum online consumer review is a power, since these factors are very trustworthy by consumer and influence their attitudes. Forum online consumer reviews are very attractive as a source of information and product recommendations. Online forum review has wide dispersive power. So consumers forum online review is an element of marketing that can be empowered as a marketing strategy that is effective and efficient.

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Facial Expression Recognition by Using Wavelet Based Approach

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Abstract—Studies about facial expression recognition have much been carried out in the field of pattern recognition. Few methods have been developed and employed. A Backpropagation neural network (BPNN) is one of approaches that mostly used to perform pattern recognition tasks. The key factor of the use of neural network (NN) is based on its characteristics. It is capable in conducting learning and generalizing, non-linear mapping, and parallel computation. In this study, BPNN were used as a classifier to classify images of facial expression into seven categories of expressions such as anger, disgust, fear, happiness, sadness, neutral and surprise. For the purpose of feature extraction tasks, two discrete wavelet transforms were used to decompose images, namely Daubechies (4) wavelet and Coiflet (1) wavelet. A facial expression recognition system was built to analyze and examine recognition rates of proposed method. The proposed method was tested on static images from JAFFE database.

Keywords— wavelet transforms, Backpropagation neural network, facial expression, pattern recognition

INTRODUCTION

Communication is the way of individual to get in touch with others in everyday life using both verbal and non-verbal ways. One of non-verbal communications is emotions which usually expressed through facial expressions. A facial expression is result of one or many movements or positions of facial muscles. The mood of people can be recognized through facial expressions. For example, a smile expresses hospitality and affection, a lift of eyebrows shows confusion, a wince of forehead portrays fear and anxiety. Ekman [1] argued that facial expressions of humans are universal and those expressions are categorized into six classes, namely happiness, sadness, disgust, anger, surprise, and fear.

Recognizing facial expression can be performed by using distinguishing traits. The traits are classified into two groups which are physical and behavioral characteristics. A facial expression is one of behavioral characteristics. The use of these characteristics enables individuals to recognize emotions of people.

Few studies about facial expression recognition have been conducted. Long et al. [1] examined facial expression recognition using Pseudo Zernike Moment Invariant (PZMI) as a feature extraction from the global information of images and the Radial Basis Function (RBF) network was employed to be a classifier. In addition, Bashyal and Venayagamoorthy [2] applied Gabor wavelet and learning vector quantization (LVQ) in their study. Kulkarni [3] established a smart system to

recognize facial expressions using committee neural network. Deng et al. [4] performed facial expression recognition study by comparing local Gabor filter bank using the approach of principal component analysis (PCA) and linear discriminant analysis (LDA). Further, Ma and Khorasani [5] carried out facial expression recognition study using 2-D discrete cosine transform (DCT) and feedforward neural networks. Abidin and Harjoko [6] analyzed facial expression recognition system using fisherface and backpropagation neural network approach.

Facial expression recognition studies mostly applied neural networks that were combined with different kinds of methods. The key factors of neural network are able to conduct learning and generalization, non-linear mapping as well as parallel computation. However, neural networks sometimes trapped into local minima that lead to slow convergence level. To dealing with neural network weaknesses, Abiyev and Kaynak [7] recommend the use of wavelet function to be applied in neural networks structure.

BPNN has been used in wide range of studies such as in system modelling [8]–[10], remote sensing [11]–[13], in time series predication [14]–[16], recognition system [17]–[19], network security [20].

In this study, a facial expression recognition system was developed by using backpropagation neural network and wavelet based feature extraction to examine the recognition rate of proposed method. The proposed method is expected achieve similar or even better performance of facial expression recognition. In particular, this study aims to investigate the influences of wavelet transforms in the process of recognizing facial expression images.

RESEARCH METHOD

The Need for System Analysis

Seven facial expressions which are anger, disgust, fear, happiness, sadness, surprise, and neutral were investigated to gauge performance of proposed method. A JAFFE database [21] was selected to examine the proposed method. A JAFFE database comprises 213 images of facial expression from 10 Japanese women. Each subject posed three or four times to get seven different facial expressions. Each image has *.tiff format with grayscale color mode and the size is 256×256 pixel. Images were divided into two groups encompass training and testing dataset with 140 images and 73 images,

respectively. The training dataset was used for learning process of BPNN, whereas the testing dataset was used to analyze the performance of a facial expression recognition system.

Each image is represented in a matrix in which element of a matrix corresponds to the intensity level of a pixel. The dimensions of representation matrix of images usually have a big dimension that can lead to time consuming and computationally expensive of the recognition process. Reduction dimension is necessary to dealing with this issue. This study used wavelet function to reduce the dimension of images.

The process on how facial expression recognition system works can be described as follows:

- 1) Image pre-processing and feature extraction. Initially, the system will detect the presence of a face from an image – it is called face detection process. Integral projection method proposed by Abidin and Harjoko [6] was used to perform face detection. An integral projection is obtained through the sum of given set of pixels along a given direction (see [6] for more details). Next, pre-processing of detected face image is carried out. In the image pre-processing, the size of images is normalized into 130×114 pixel. Afterwards, the contrast of images is enlarged through the process of histogram equalization. Finally, process of masking is undertaken by covering the four angles of images to decrease the variations appearing on them. Once image pre-processing done, the subsequent task is feature extraction. This study used two wavelet functions to extract the features, i.e. Daubechies (4) wavelet, and Coiflet (1) wavelet. Each image was performed 3-level 2D decomposition and the dimensions of images are changed into 17×15 pixel.
- 2) Training neural network model. All images in training dataset were trained using a classifier that is BPNN. The outcome of training process was stored to the database and was used to gauge the capability of facial expression recognition system.
- 3) Measuring the recognition rate of the facial expression recognition system for both training and testing dataset images.

System Design

An interface of facial expression recognition system has been developed using MATLAB to help researchers in gauging the performance of proposed method. The interface consists of three subsystems as follows:

1) Subsystem image registration

This subsystem comprises some features, i.e. the storing tool, face detector, and feature extractor. Storing tool is used to record keeping images into the system. When an image is registered into the system, the face detector will capture the face region, and perform image pre-processing.

Afterwards, the next task is feature extraction. The features are obtained by decomposing the images

with wavelet transforms, namely Daubechies (4) wavelet, and Coiflet (1) wavelet. Finally, the features are stored in the database.

2) Subsystem of neural network learning
Learning algorithm is developed in this subsystem. A BPNN's structure consists of three layers, i.e. input layer, hidden layer and output layer. The activation function for hidden layer is sigmoid bipolar while the activation function for output layer is sigmoid, hence the outcome of output layer is expected to be in the range [0, 1]. The weights of BPNN learning's result are stored in the database and will be used in the recognition processes.

The learning of backpropagation algorithm comprises two phases which are forward phase and backward phase [22]. During forward phase, the initial parameters of the network are determined, and then the input signal is propagated through the network layer by layer. In this phase, an error signal is calculated by (1):

$$e_i = d_i - y_i \quad (1)$$

Where d_i is the desired response and y_i is the actual output produced by the network in response to the input x_i .

Moreover, during backward phase, the error signal e_i is propagated through the network in the backward direction. In this phase, adjustments of weights are applied to the network parameters in order for minimizing the error e_i in a statistical sense.

In this study, backpropagation learning is implemented using pattern mode in which "weight updating is performed after the presentation of each training pattern" [23, p. 46].

3) Subsystem of facial expression recognition

This subsystem further classifies the facial expression into different categories based on the extracted data fed to it from a facial image.

EXPERIMENTAL RESULTS

Two experiments were conducted to investigate the influences of wavelet transforms on the performance of facial expression recognition system. The learning process was performed by varying on the neural network parameters. The number of neurons in hidden layer was set by 5 while the learning rate was set by 0.25. Further, the minimum error was set by 0.001 and the maximum number of epoch was set by 1000.

Facial expression recognition system was tested by using 213 images from JAFFE database. 140 images were trained and the remaining 73 images were used for testing. Because of the limitation of the number of images in the JAFFE database, the trial was performed over 5 times to get the average classification rate.

Table 1 shows the average of recognition rate for each wavelet transform with over 5 times of trial. The result shows no significantly differences in terms of recognition rate of two wavelet transforms.

Table 1. Recognition rate for each wavelet transform

| Wavelet | Recognition Rate (%) |
|----------------|----------------------|
| Daubechies (4) | 94.22 |
| Coiflet (1) | 93.08 |

The details of recognition rate of seven-class facial expressions for Daubechies (4) wavelet and Coiflet (1) wavelet are illustrated in Fig. 1 and Fig. 2, respectively. The recognition rates for each facial expression from dataset with Daubechies (4) wavelet and Coiflet (1) wavelet are more than 90%. Particularly for Coiflet (1) wavelet, the recognition rate for fear and neutral expression are lesser than other expressions.

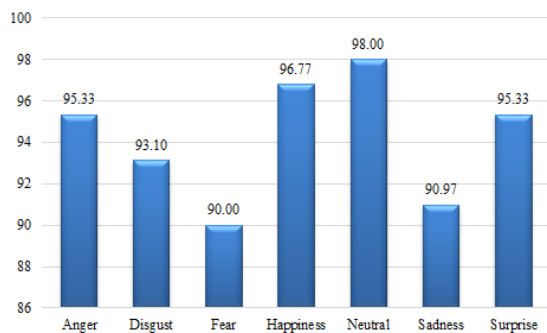


Fig. 1. Recognition rate of each facial expression for dataset with Daubechies (4) wavelet (%)

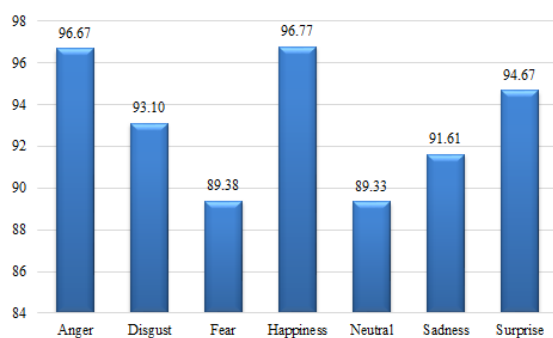


Fig. 2. Recognition rate of each facial expression for dataset with Coiflet (1) wavelet (%)

From two figures (Fig. 1 and Fig. 2), it can be seen that fear expression is always in the lowest rate. Meanwhile, Table 2 and Table 3 show that some fear expression data are dominantly recognized as surprise expression. Similarly, sadness expression is identified as disgust, happiness, and anger expression. Since facial expressions are combination of facial muscles movements, these may lead ambiguity [24].

Although some expressions might be ambiguous, six expressions, namely anger, disgust, happiness, neutral, sadness, and surprise were well classified. The recognition rates of those expressions were that over 90% meanwhile fear expression was around 89.38% to 90.00%. Convolution matrices of Table 2 and Table 3 give details information about facial expression recognition rate for each wavelet transform.

Table 2. Confusion matrix of all datasets with Daubechies (4) wavelet (%)

| I/O | Anger | Disgust | Fear | Happiness | Neutral | Sadness | Surprise |
|-----------|-------|---------|-------|-----------|---------|---------|----------|
| Anger | 95.33 | 0.67 | 0.00 | 0.00 | 4.00 | 0.00 | 0.00 |
| Disgust | 0.69 | 93.10 | 4.83 | 0.00 | 0.00 | 1.38 | 0.00 |
| Fear | 1.24 | 0.63 | 90.00 | 0.63 | 0.63 | 1.87 | 5.00 |
| Happiness | 0.65 | 0.65 | 0.00 | 96.76 | 1.94 | 0.00 | 0.00 |
| Neutral | 0.67 | 0.00 | 0.00 | 0.00 | 98.00 | 0.00 | 1.33 |
| Sadness | 0.65 | 3.23 | 0.65 | 3.23 | 1.28 | 90.96 | 0.00 |
| Surprise | 2.00 | 0.00 | 0.67 | 0.67 | 0.00 | 1.33 | 95.33 |

Table 3. Confusion matrix of all datasets with Coiflet (1) wavelet (%)

| I/O | Anger | Disgust | Fear | Happiness | Neutral | Sadness | Surprise |
|-----------|-------|---------|-------|-----------|---------|---------|----------|
| Anger | 96.67 | 1.33 | 0.00 | 0.00 | 2.00 | 0.00 | 0.00 |
| Disgust | 0.00 | 93.10 | 4.14 | 0.00 | 0.00 | 2.76 | 0.00 |
| Fear | 0.00 | 1.24 | 89.38 | 0.63 | 1.88 | 3.13 | 3.74 |
| Happiness | 0.65 | 0.00 | 0.00 | 96.76 | 0.65 | 1.94 | 0.00 |
| Neutral | 0.68 | 0.00 | 1.33 | 3.33 | 89.33 | 4.00 | 1.33 |
| Sadness | 2.58 | 1.29 | 1.29 | 0.65 | 1.93 | 91.61 | 0.65 |
| Surprise | 0.00 | 0.00 | 5.33 | 0.00 | 0.00 | 0.00 | 94.67 |

Overall, there are no significantly differences between those outcomes. In other words, both Daubechies (4) wavelet and Coiflet (1) wavelet give similar influences in categorizing facial expressions into seven group classes.

CONCLUSIONS AND FUTURE WORKS

In this paper, a wavelet based facial expression recognition system was proposed. Two wavelet transforms namely Daubechies (4) wavelet and Coiflet (1) wavelet were selected to perform feature extractions. Moreover, BPNN was chosen as a classifier. The proposed method has shown good performances in recognizing facial expression images of JAFFE database. However, the tasks of facial expression recognition are still challenging since the appearance of expressions can vary by person. Ambiguity of expressions may occur and become hard to classify.

In future works the ambiguity of expression can be taken into account to improve better performance of facial expression recognition rate. It is also important to select different wavelet function to be employed in developing neural networks based facial expression recognition system as comparative study.

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Factor Analysis of Student Motivation to Learn

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Abstract— *This study was a survey research that aimed to identify variables forming student motivation to learn especially in Indonesia. Motivation theory used is the theory of self-determination motivation. The difference of environment could make different result of self-determination motivation factors. Data retrieved through distributing questionnaires to the students of economics faculty at Gunadarma University. There were 469 respondents that participate to fill the questionnaire. Factor analysis was used to reduce the variables that make up the self-determination motivation. The stability test was used to validation factors so that the results of the analysis factors can be used in general. Stability test was done by dividing the data into two groups and then be compared to the results of the analysis of both factors. The results of data processing shows that there were seven variables that make up the motivational factors of self-determination. The stability test results also indicate seven variables which make up the self-determination motivation in the economics faculty students. Seven variables formed were intrinsic motivation, external regulation, identified regulation, regulatory integration, achievement, confidence, and amotivation. The difference of this result from another research is that this research found confidence as determining factor of motivation.*

Keywords— *motivation to learn, amotivation, identified regulation, regulation of integration, external regulation*

INTRODUCTION

Motivation is defined as the impetus that existing within the individual so that moving their behavior. Research on motivation has done a lot of the people both in the activities of individuals and organizations. They used different motivation theory. As summarized by Pintrich (2003) research on motivation based on various theories of motivation as the basic motivation theory, self-determinant theory, self-worth theories. In research of motivation on college students Castiglia, (2006) saw the motivation with the motivational theories of Abraham Maslow, Douglas McGregor, David McClelland, and Frederick Herzberg. In Indonesia Hernama, (2007) investigated the motivation to learn from the approach to the theory of Mc Clelland.

Self-motivation was one of the factors recognized by students as the most inhibiting factor studies [10], in addition to other factors such as perception and others. Some motivation theories that were usually applied in organization also applied in research of students motivation as practiced by Castiglia, but the theory of self-determinant widely used as a basis for the study of motivation in learning. Some research develop measurement instruments that were based on this theory Deci, Robert, LUG, and Ryan, 1991; Deci, Edward, and Ryan, 2000; Guay, Frederic, Robert, and Celine, 2000; Witriani, Nitya, and Sudarmo, 2015; Alivernini, and Lucidi, (2008). Measurement of motivation based on this theory has been developed in France under the name

Echelle de Motivation en Education, which was then translated into the English version became Academic Motivation Scale [5]. The development of measurement instruments has also been carried out. Alivernini and Lucidi, (2008) has made a motivation measurement instruments based on Self-determinant theory for the case in Italy. For cases in Indonesia Witriani, Nitya, and Sudarmo, (2015) have a research to developed measurement instruments learning motivation and their outcome states that Regulation Styles as apart of self determinant theory could use as an alternative theory of motivation measurements that were reliable and valid. The advantage of this instrument is in its ability to describe the motivation, both for individuals and groups.

Different environments will form different individual characteristics. Therefore, individual self-motivation can be different. This study was conducted to determine the reliability of the instruments that would be used to measure student learning motivation. Motivation theory used was self-determinant theory. The instrument was a questionnaire, arranged on self-determinant theory that have three dimensions as amotivation, intrinsic motivation and extrinsic motivation. This instruments tested to some students to saw its validation before its used in the real research.

METHODOLOGY

This study was a survey where the sample was taken by purposive sampling method. The number of respondents who used 469 respondents consisting of students of the faculty of economics levels two, three and four majoring in management and accounting. Factor analysis was used to determine the validity of instruments to measure student learning motivation. Questionnaire collated based on the theory of self-determination. Self-determinant theory consist three motivations that are intrinsic motivation, extrinsic motivation and amotivation. The most basic distinction is between intrinsic motivation and extrinsic motivation. Intrinsic motivation is more emphasis on individual behavior based on the interests or preferences, whereas extrinsic motivation refers to doing something because it leads to a separable outcome.

Self determinant theory identified four types of extrinsic motivation: external, introjected, identified, and integrated forms of regulation. External regulation refers to behaviors for which the locus of initiation is external to the person [4]. Based on the dimensions of extrinsic and intrinsic motivation and amotivasi questionnaires were developed, as many as 27 of the statement. Its enclosed statements using a Likert scale of 4 levels. Of all the questions were designed to measure the motivation and

processed by factor analysis to determine how many factors can be form with the instrument.

Although earlier questionnaire drawn up based on self-determinant theory (SDT), this research used exploratory factor analysis that was often called Principal Component Analysis. This is due to determine whether variable statements filed in the questionnaire to measure student motivation based on SDT for students in private universities in Indonesia are only six factors mentioned in SDT or not. In principle, exploratory factor analysis in which the formation of the factors or new latent variables are random, were interpreted accordance with factors or components or constructs formed. Exploratory factor analysis is a technique for data reduction of variable origin or initial variables into new variables or factors that are fewer than at the beginning of the variable. Usually this factor analysis was used if the researchers do not yet know before going to the factors or variables that will hypothesize that this analysis can be used to form a new theory. From the reduced data will be obtained fewer new factors and between factors that are formed are not correlated.

At the initial stage we would see the value of KMO-MSA (Kaiser-Meyer-Ohlin and Measure of Sampling Adequacy). The value of KMO-MSA's ranges between 0 and 1, which indicates whether a sample can be analyzed further or not. If the value of KMO-MSA were significant or smaller than 0.5, it can be said that the items whchich were analyzed in factor analysis was feasible to be factored. Next we would see the value of the existing anti-image correlation in the diagonal matrix formed. Value less than 0.5 will not be included in the analysis further factor to form the component.

To test the validity of the form factor we used principal component analysis on data sets. Data would be separate into two groups. Principal component analysis will be used in every group independently. If the result of this analysis formed the same number of factor from factor analysis before it can be said that form factor valid.

STATISTICAL RESULT

There are 469 respondents who are participated in this study. They are students od economic faculty from third level and forth level. Questionnaire to determine their learning motivation is based on self-determinate theory (SDT). According to the SDT, there are three sizes of motivation, intrinsic motivation, extrinsic motivation and amotivation. Deci and Ryan (2000) identified four types of extrinsic motivation: external, introjected, identified, and integrated forms of regulation. The questions were created to measure intrinsic motivation, external regulation, regulation of introjection, regulation of identification, regulatory integration, and amotivation.

The results showed that the KMO and Bartlett values ares greater than 0.874 and thus it can be said to be

significant and variable sample questions can be used for the next stage of factor analysis. The anti-image value of the whole question were greater than 0.5 so that all variables in this questionnaire would be followed to the next analysis.

From table 1 it is known that the number of factors that are formed into 7 factors. Some variable that has eigenvalue less than one are not included in that form factor. Rotation is done with methods varimaks. With this rotation it will be more clearly known which variable to be included in the factors.

TABLE 1 : TOTAL VARIANCE EXPLAINED

| Component | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | | Rotation Sums of Squared Loadings | | |
|-----------|---------------------|---------------|--------------|-------------------------------------|---------------|--------------|-----------------------------------|---------------|--------------|
| | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 1 | 6,620 | 24,518 | 24,518 | 6,620 | 24,518 | 24,518 | 3,322 | 12,305 | 12,305 |
| 2 | 3,073 | 11,383 | 35,901 | 3,073 | 11,383 | 35,901 | 3,162 | 11,710 | 24,014 |
| 3 | 1,739 | 6,440 | 42,341 | 1,739 | 6,440 | 42,341 | 3,159 | 11,699 | 35,714 |
| 4 | 1,425 | 5,280 | 47,620 | 1,425 | 5,280 | 47,620 | 1,971 | 7,300 | 43,014 |
| 5 | 1,184 | 4,385 | 52,006 | 1,184 | 4,385 | 52,006 | 1,657 | 6,139 | 49,152 |
| 6 | 1,036 | 3,838 | 55,844 | 1,036 | 3,838 | 55,844 | 1,616 | 5,986 | 55,138 |
| 7 | 1,011 | 3,743 | 59,587 | 1,011 | 3,743 | 59,587 | 1,201 | 4,449 | 59,587 |
| 8 | 0,920 | 3,408 | 62,995 | | | | | | |
| 9 | 0,851 | 3,152 | 66,146 | | | | | | |
| 10 | 0,812 | 3,009 | 69,155 | | | | | | |
| 11 | 0,735 | 2,724 | 71,879 | | | | | | |
| 12 | 0,687 | 2,546 | 74,425 | | | | | | |
| 13 | 0,655 | 2,426 | 76,851 | | | | | | |
| 14 | 0,641 | 2,376 | 79,227 | | | | | | |
| 15 | 0,608 | 2,253 | 81,479 | | | | | | |
| 16 | 0,559 | 2,070 | 83,550 | | | | | | |
| 17 | 0,539 | 1,995 | 85,544 | | | | | | |
| 18 | 0,507 | 1,878 | 87,422 | | | | | | |
| 19 | 0,482 | 1,786 | 89,208 | | | | | | |
| 20 | 0,479 | 1,773 | 90,981 | | | | | | |
| 21 | 0,441 | 1,632 | 92,612 | | | | | | |
| 22 | 0,376 | 1,394 | 94,006 | | | | | | |
| 23 | 0,365 | 1,353 | 95,359 | | | | | | |
| 24 | 0,352 | 1,302 | 96,661 | | | | | | |
| 25 | 0,347 | 1,286 | 97,947 | | | | | | |
| 26 | 0,326 | 1,209 | 99,156 | | | | | | |
| 27 | 0,228 | 0,844 | 100,000 | | | | | | |

Extraction Method: Principal Component Analysis.

Table 2 shows there are seven groups had formed. The first group consists of statements point 5 up to 10. The statements in this group include a statement of reasons to go to college. Some reason expressed by students like to get higher wages, get a better job, get a better salary, more decent life, and to show that he is an intelligent person and can be successful. Combined these variables is referred to as external regulatory factors.

The positive relationship that exists between the statements in this group shows that statements number 5 to 10 can be used to measure the motivation of the external regulation. The behavior triggered by the various rewards expected, is a measure of external regulation [4]. Extrinsic motivation is not simply arise because individuals want praise from the outside, but it could be due to a desired to avoid punishment for unacceptable behavior by outsiders.

TABLE 2: ROTATED COMPONENT MATRIX^A

| | Component | | | | | | |
|-----|-----------|--------|--------|--------|--------|--------|--------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| P1 | 0.160 | -0.217 | 0.166 | 0.352 | 0.017 | 0.509 | -0.148 |
| P2 | 0.078 | -0.080 | 0.231 | 0.561 | 0.010 | 0.392 | -0.030 |
| P3 | 0.202 | -0.033 | 0.138 | 0.818 | 0.081 | 0.060 | 0.087 |
| P4 | 0.169 | -0.007 | 0.213 | 0.765 | 0.055 | 0.088 | 0.082 |
| P5 | 0.709 | -0.096 | 0.164 | 0.114 | 0.085 | 0.020 | -0.171 |
| P6 | 0.756 | -0.013 | 0.118 | 0.100 | 0.167 | -0.052 | 0.090 |
| P7 | 0.761 | -0.088 | 0.194 | 0.130 | -0.106 | 0.108 | 0.123 |
| P8 | 0.800 | -0.129 | 0.284 | 0.073 | 0.037 | 0.026 | 0.005 |
| P9 | 0.586 | -0.092 | 0.176 | 0.156 | 0.331 | 0.207 | 0.043 |
| P10 | 0.482 | 0.067 | 0.048 | 0.108 | 0.542 | 0.148 | 0.114 |
| P11 | 0.281 | -0.065 | 0.411 | 0.151 | 0.170 | 0.287 | 0.436 |
| P12 | 0.011 | 0.021 | 0.012 | 0.147 | 0.091 | 0.782 | -0.055 |
| P13 | 0.066 | -0.103 | 0.403 | 0.115 | 0.162 | 0.235 | 0.155 |
| P14 | 0.197 | -0.094 | 0.715 | 0.076 | 0.080 | 0.021 | 0.056 |
| P15 | 0.198 | -0.013 | 0.758 | 0.153 | 0.058 | 0.017 | -0.081 |
| P16 | 0.205 | -0.116 | 0.711 | 0.199 | 0.013 | 0.038 | -0.041 |
| P17 | 0.190 | -0.068 | 0.636 | 0.111 | 0.191 | 0.041 | -0.013 |
| P18 | 0.134 | 0.022 | 0.271 | -0.010 | 0.652 | 0.016 | -0.092 |
| P19 | 0.040 | 0.140 | 0.094 | 0.065 | 0.736 | 0.016 | 0.042 |
| P20 | -0.025 | -0.082 | 0.459 | 0.041 | 0.292 | 0.321 | 0.202 |
| P21 | 0.245 | 0.033 | 0.368 | -0.111 | -0.129 | 0.450 | 0.404 |
| P22 | 0.037 | 0.377 | 0.043 | -0.128 | -0.018 | 0.204 | -0.724 |
| P23 | -0.059 | 0.701 | 0.066 | -0.092 | 0.088 | 0.045 | -0.282 |
| P24 | -0.019 | 0.801 | -0.019 | 0.064 | 0.041 | -0.048 | -0.060 |
| P25 | -0.034 | 0.807 | -0.110 | 0.001 | 0.079 | -0.051 | -0.051 |
| P26 | -0.084 | 0.695 | -0.138 | -0.096 | -0.046 | -0.073 | 0.172 |
| P27 | -0.133 | 0.762 | -0.162 | -0.041 | 0.034 | -0.009 | -0.117 |

Extraction Method: Principal Component Analysis
 Rotation Method: Varimax with Kaiser Normalization.
 a. Rotation converged in 15 iterations

In the measurement of student learning motivation in this research there are no questions related to the punishment for a particular behavior. The student motivation went to the College because of a desire to get compliments from the outside as recognition of achievement, larger salary or better life. If they went to college they would be able to show that they are intelligent persons who can get a better job and making life increasingly feasible.

The second factor is formed from six statements. This statement includes the statement number 23 into number 27. This statements includes a statement of unknown reasons to go to college, some doubts whether it will continue to go to college or not, they are not convinced of the benefits of college, and they are not sure that college is an activity that must be fought. No matter the reason why they should go to college also include as a statement in this second factor. All the variables that make up this factor are discription of someone who lack motivation in college. The correlations coefficient between the five statements that make up this variable are high between 0.695 until 0.807. Becuse of this reason these statements can be used to measure the variables amotivation.

Someone may not be motivated. Someone with amotivation behavior means his behavior without hope of reward from the outside but also not driven by a desire from within him [3]. In relation to the learning process, students who have a high amotivation means not understand why he had to lecture. If someone does not understand why he was doing something, he does

not know the purpose of behaving. They lecture without knowing the purpose, usefulness and what they expect in college.

The third factor which form so-called identified regulation. This factor consists of statements point 13 to 17 and point 20. Someone with identified regulation understand the reasons of his behavior. Everything done because of a desire to get better conditions that reflecting hissself. Identified regulation is done by individual behavior because this behavior has perceived value and chosen by him. Statements that can be used in this measurement are "I am happy when completing tasks quickly", "lecture helped me determine the choice of best orientation", "going to the college will allow me to enter the job market for the field that I like, "I think college helps me prepare better in choosing a career", " college improve my competence as a worker", " I took a course that prepares me for the future".

The fourth factor is intrinsic motivation. These factors consist of variables that appear within the individual that causes a behavior willingly done with grief and a sense of comfort. The intrinsic motivation arises from within the individual without the influence of others. Everything that is done is intended to meet their own needs. Because this motivation arises from himself If then used as motivation is all the fun for the individuals themselves. The statement that can be used to measure intrinsic motivation in this research are " when I am in college I can explore everything which interesting for me ", going to the college is an interesting activity" and going to the college is convenient activity".

The fifth factor was formed by two statements that reflected of student motivation. The first statement was about their needs to get a praise when they shown their ability in the classroom. Someone would got an ability if he has some practice and learning. The second statement was about their opinion that their academic quality depend on their ranking in the classroom.

Introjected regulation is an internal regulation that is capable of moving the individual behavior under pressure to avoid guilt or anxiety to get pride [8]. A praise from his friends inthe classroom was manifestation of pride in the community. To get a prise they should be had an ability. Its could not be done without their own tuition to get. If they thought that their academic quality depend on their ranking in the classroom, they should be worked hard to get it. So they get recognition from their community. Because of these reasons the fifth factor was called introjection regulatory factors.

The sixth and seventh factor has a smallest value Extraction Sums of Squared Loadings. However, the correlation between the components which formed this factor was strong enough. The correlation coefficient of the sixth factor was 0.536. The correlation coefficient for seventh factor was 0.580.

The sixth factor was formed by two statements. The first one was a statement that student prefer the more

challenging task than the moderate one. The second one was a statement that student had a high expectations from himself. These components were included in the measurement of confidence, so this factor called confidence factor. It was appropriate because as seen in Table 3 the correlation between these components was strong enough.

TABLE 3: COMPONENT TRANSFORMATION MATRIX

| Component | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|-----------|--------|--------|--------|--------|--------|--------|--------|
| 1 | 0,572 | -0,282 | 0,577 | 0,345 | 0,232 | 0,266 | 0,128 |
| 2 | 0,161 | 0,907 | 0,120 | 0,062 | 0,307 | 0,091 | -0,175 |
| 3 | -0,738 | 0,031 | 0,318 | 0,367 | -0,027 | 0,465 | 0,022 |
| 4 | 0,241 | 0,048 | -0,592 | 0,661 | -0,290 | 0,249 | -0,082 |
| 5 | 0,129 | 0,144 | 0,415 | -0,058 | -0,816 | -0,074 | -0,339 |
| 6 | 0,073 | -0,219 | -0,134 | -0,344 | 0,173 | 0,536 | -0,703 |
| 7 | 0,148 | 0,160 | -0,106 | -0,429 | -0,267 | 0,592 | 0,580 |

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization

Self determinant theory based on the basic human needs theory which consists of competence, autonomy and relatedness. All of the basic needs component will work together to motivate individual to behave. According to Ryan and Deci,(2000) the effect of this needs to be mediated by perceived competence, confidence and control style of regulation. Guay, Frederic, Robert, and Celine, (2000) said that competency requirement is a need for having an effect, for being effective in one's interactions with the environment. The research find that confidence was one of facotrs that can be used to measure student motivation. Confidence can be a strong motivation to achieve goals and get the recognition of other parties.

The seventh factor was formed from two statements. The first statement was about student awareness that they can finish college with the best values. The second one was about their belief that going to college do not waste their time. This factor was called regulatory integration. Motivated behavior of regulatory integration appears because self confidence of the value adopted. The value adopted was a value of behavioral and must be realized in his behavior. Deci, Robert, LUG, and Ryan (1991) said that integrated regulation bears some relation to intrinsic motivation because both are forms of autonomous self-regulation. However, intrinsic motivation and integrated regulation are different. Intrinsic motivation was characterized by interest in the activity itself, whereas integrated regulation is characterized by the activities being personally important for a valued outcome.

In this instruments test regulatory integration can be measured from components belief that lectures do not waste their time and students will graduate with the best value results. This component correlation was strong enough, so it can be used to measure these regulations.

From Table 3 above can be seen correlation between elements within the seven components that form factor. Every factor that was formed has a strong correlation except for third group. This group has a weak correlation. It will be examined whether the

seven factors that has been formed is right. this test was used to validation the results of the factor analysis before.

THE RESULT OF FACTOR ANALYSIS'S VALIDATION

The validation of factors which has been formed in factor analisis was done by dividing the sample of respondents into two parts. Each group data will be analized by principal component analysis. 469 respondents were used in these analysis factors. Respondents numbered 1 to 234 got into the first group and the rest into the second group. Both of the result show of the formation of seven factors. The formation of the first group shew seven factors with Rotation Sums of Squared Loadings as 61.26%. The second group had Rotation Sums of Squared Loadings as 66.848%. because of them it could be stated that this instruments structured as motivation measurement was valid. Value Rotation Sums of Squared Loadings obtained 59.58%.

CONCLUSION

The results of data processing shows that there are seven variables that make up the motivational factors of self-determination. The stability test results also indicate seven variables which make up the self-determination motivation in the economics faculty students. Seven variables formed are intrinsic motivation, external regulation, identified regulation, regulatory integration, achievement, confidence, and amotivation. Seven factors formed in this analysis have been tested and the results showed that the formation of these factor is valid. The difference of this result from another research is that this research found confidence as determining factor of motivation.

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Model Women Empowerment through the Role and Potential of Women Cadres in Political Parties and the Effect on Economic of Women

(Study on Women Cadres in Bandung area)

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Abstract-This study aims to determine the appropriate model of women's empowerment through the cadre of women in political parties to optimize the role and potential of women in political parties in order to support the family economy. This research is qualitative. The subjects of this study are female members of political parties in Bandung. Data was collected through interviews, observation and documentation. Data were analyzed with descriptive qualitative analysis obtained in the field by using the technique of triangulation. Several studies show that the empowerment model, Political Party policy has an important role for improving the quality and empowerment of women. in the political world. Another aspect that supports the increasing role and potential of women cadres in political parties is educational, structural, social, family support and environmental conditions. Support and facilitation of the political parties are expected to increase the empowerment of women in order to support the family economy.

Keywords: Empowerment of women, women cadres, Party Politics, Economy Family

INTRODUCTION

Opportunities for women to participate in national development, through the world of real politics has been accommodated by the various policies and regulations set by the government. Psychological barriers that excluded women in the world of politics is a patriarchal culture, the subordination of women and the deepest perception that the public domain (public areas) is intended for men.

Representation of women in political parties is also have a very important position in the public decision-making because it will have implications on the quality of legislation produced by a political party. In addition, female cadres are expected to have a different perspective of looking at and solving various problems of the public because women will think more holistic and has gender responsive. Presence of women in political parties will also have an impact on the formulation and decision-making. women cadres are expected to gain a better understanding of the attitudes and social needs of the community.

Empowerment of women is a systematic effort to achieve gender equality in family life and society. until today in fact gender inequality still prevalent in society that cause women to be completely underdeveloped and

backward. Thus the need for the empowerment of women as the alleviation of the problem of gender inequality.

The Increased of empowerment is expected to increase the role and position of women in many areas, of life not only take care of the family and the child alone, but to develop the potential and skills that exist in themselves, women can be more independent, more skilled and more productive. Empowerment not only women who do not have the ability at all, but also for women who have a limited amount of power to be developed to achieve their independence.

The Community empowerment approach is implemented for this is still just open the horizons of society, whereas society fecklessness covers all aspects, namely education factor, structural factors, social condition and environment .The purpose of this study was to determine the potential and role of cadres women in political party to determine the appropriate empowerment model, in order to optimize the potential and role of the model and see its effect on economic of women

LITERATURE REVIEW

(Theory of Reason Action)

Related to this research, reasoned behavior theory predicts that the intention of women to participate in politics, very relevant to the situation, and their motivation for such careers. High motivation of women to participate in politics, usually against the background of the education that their have, the circumstances or the needs of the family, economic reasons, to develop talents, and self-actualization. The participation of women to participate in politics with all its potential, will be able to advance the welfare of society and the nation. This is supported by beliefs, attitudes, education, skills and talents.

Justice of gender

Gender equity is common conditions for women and men in obtaining opportunities and rights as human beings to be able to contribute and participate in the political, economic, social, cultural, education and defense of national security and equality in enjoying the

results of the results of such development , physically with stop the matters relating to the political and social culture, which can inhibit women and men to contribute and enjoy the results.

Theory empowerment of women

The concept of empowerment is closely related to the concept of independence, participation, networks and justice. In this research will be perform exposure about the definition of empowerment in general, the concept of women's empowerment, and efforts that should be made in the framework of the empowerment of women.

In the empowerment of women in the implementation of its activities, there are at least two things need to be done. First, in the process of empowering must be emphasizes the process of distributing ability, strength, and power of women in a balanced way, so that they are more empowered. To accomplish this, we need to change the structure and culture that can hinder the empowerment of women who have been distributing the above components become unbalanced. Second, the process to stimulating and motivating women to defenseless and independent in determining the thing that become their choice in this life.

The empowerment of women should give priority to the independence of women, not to be dependent on others. This must be done so that the potential and ability of women can be actualized to the maximum. The true independence provides the power of behavior in action and independence in thinking to determine the attitude of her life.

Empowerment activities that have been traversed by someone will have impact at their lives. One of the effects of empowerment is an increase in living standards in a positive direction, where this development will provide a good impact also on the surrounding environment as well as the concern to participate in social and political activities (community development).

RESEARCH METHODS

The research approach used in this study is a qualitative descriptive approach. The data collected is in the form of qualitative data. Further, descriptive research is a form of primary research. This study aims to depict or describe phenomena that exist, both phenomena that are natural or engineering of human.

Researchers used a qualitative descriptive approach because the issues discussed in this study in the form of words written and spoken,not associated with the numbers. Researchers intend to describe and elaborates on the empowerment of women through cadres women at political parties in Bandung area.

According to Moleong (2011: 157) primary data source in qualitative research is words and actions, the rest is additional data such as documents and others. In determining the subject of the study, researchers used

sampling techniques. Sampling in question is to capture as much information from various sources and building (Moleong, 2011: 224). The subjects of the study are used to provide a description of the information or data being targeted . The data source is the subject of research from which the data was obtained.

The research will be conducted using a qualitative approach to describe the implementation of women's empowerment program through political parties in Bandung area. Data collection techniques are the most strategic step in the study, because the main goal of the research is to get data. The data collection techniques were used in this study are observation, interviews, and documentation.

Data analysis is the process of searching and compiling systematic data obtained from interviews, field notes and documentation, by organizing data into categories, describe into the units, synthesize, organize the data into a pattern, choose which is important and which are will be studied, and make inferences, making it easily understood by oneself or others.

RESULTS AND DISCUSSION

Respondents in this research were 76 female members from nine political parties in Bandung. Based on Table 1 the number of respondents consisted of two respondents (3%) of Partai Nasional Demokrasi, 20 respondents (26%) of Partai Keadilan Sejahtera, 12 respondents (16%) of Partai Golongan Karya, 12 respondents (12%) of Partai Gerakan Indonesia Raya, 12 respondents (12%) of Partai Demokrat, 12 respondents (12%) of Partai Amanat Nasional, 7 respondents (9%) of the United Development Party, 3 respondents (4%) of Partai Persatuan Pembangunan, and 5 respondents (6%) of Partai Bulan Bintang.

TABLE 1. THE NUMBER OF RESPONDENTS BY POLITICAL PARTY

| Political Parties | Frequency | Percent |
|-------------------------------|-----------|--------------|
| Partai Nasional Demokrasi | 2 | 2.6 |
| Partai Keadilan Sejahtera | 20 | 26.3 |
| Partai Golongan Karya | 12 | 15.8 |
| Partai Gerakan Indonesia Raya | 9 | 11.8 |
| Partai Demokrat | 9 | 11.8 |
| Partai Amanat Nasional | 9 | 11.8 |
| Partai Persatuan Pembanguna | 7 | 9.2 |
| Partai Hati Nurani Rakyat | 3 | 3.9 |
| Partai Bulan Bintang | 5 | 6.6 |
| Sum | 76 | 100.0 |

In Table 2 shows that cadres woman of political parties who were respondents, comprised of 8% of

respondents aged below 25 years, 34% of respondents aged between 26 years to 40 years, and 58% of respondents are aged over 40 years.

TABLE 2. THE NUMBER OF RESPONDENTS BY AGE

| Age | Frequency | Percent |
|---------------|-----------|--------------|
| < = 25 years | 6 | 7.9 |
| 26 - 40 years | 26 | 34.2 |
| > 40 years | 44 | 57.9 |
| Sum | 76 | 100.0 |

Political education by Political Party

Women who are active in politics has the capacity to fight for their interests in public policy. Political parties should conduct political education for people in accordance with the scope of its responsibilities with regard to fairness and gender equality with the aim, among others:

- Raise awareness of the rights and obligations of the community in the life society, nation, and state;
- Increase political participation, and community initiatives in the life society, nation, and state; and
- Improve the independence, maturity, and build national character in order to maintain national unity.

In order to design a model cadres women in political parties in Indonesia, it takes a design that integrates the main elements of the model of women's involvement in politics, political party models, and models of organization and management (regeneration). This is an important step that must be carried out by political parties, given based on research results, level of education possessed by the female members consist of 9% Senior high school or equivalent, 22% Diploma (D3), 57% have a Bachelor degree (S1), 4% postgraduate (S2), 4% have doctoral (S3), 4% educated D1 and D2.

TABLE 3. THE NUMBER OF RESPONDENTS BY EDUCATION

| Education | Frequency | Percent |
|--------------------|-----------|---------|
| Senior High School | 7 | 9.2 |
| D3 | 17 | 22.4 |
| Beachelor | 43 | 56.6 |
| Post Graduade | 3 | 3.9 |
| Doktor | 3 | 3.9 |
| etc | 3 | 3.9 |

Political education for women in political parties, expected can be introduce the norms, institutions, and political practices to cadres woman. Political education helps women to be able to express their aspirations, can recognize the institutions and political processes, as well as knowledge of the state and policy-making.

Political education can begin by introducing the concepts, skills, and dynamics from political parties for

women. It is very helpful for women to get to know and understand the procedures for working in a political party, function, dynamics of political parties, and general management in the regeneration. The involvement of women in political parties through party cadres are expected not only able to make women capable of overcoming structural barriers, cultural, and personal, but it can also contribute to reforms within the party and politics in general.

The results showed that in general, political parties have started to provide political education for female members, by organizing various seminars and training that are expected to improve the quality of education of women cadres.

The Barriers facing women in politics.

Most of the literature that examines the involvement of women in politics, focus on the obstacles faced by women in politics. Many growing issue, that to have ease of entry or to get involved in politics requires financial support and social networks are very strong. In reality, women are newcomers who have many limitations in mobilizing money, information, and support. Structural barriers has become one of the causes minimal or no effective involvement of women in political parties.

Many studies that focus on the obstacles related to the values, institutions, and traditions, as well as the unilateral obligations that make the motion of women in politics become limited. The Values in the family and society, traditions and institutions that put men as the leading role of the public area, will make women have no symbolically support. It is of course very inhibits the activity of women in politics. By involving women in politics, it means strengthen the capacity of women to face structural barriers, cultural barriers, and individual barriers.

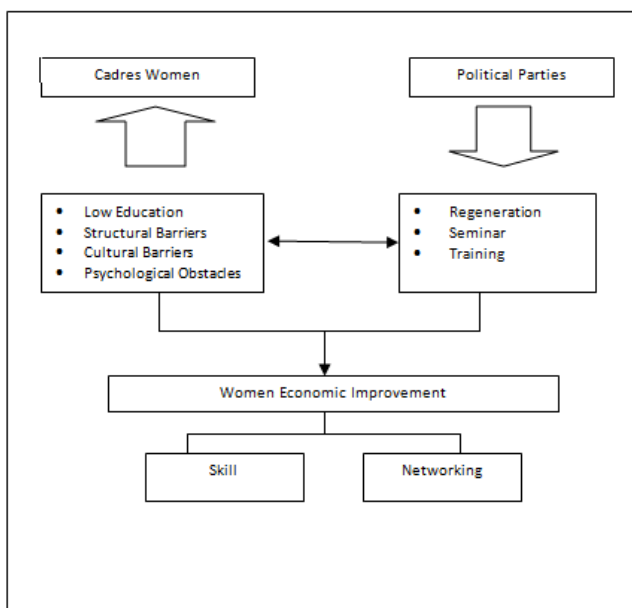
In the face of structural and cultural barriers facing women in politics, it takes a good regeneration process in efforts to conduct political transformative and motivate women to be active in organizing the party. Individual obstacles and structural barriers faced by women cadres, can be reduced or eliminated if political parties involving women in the division of power, the process of making a policy, and process of evaluation.

Cultural barriers constitute barriers which arise because of the culture and value systems, that adopted by the people of Indonesia. This greatly affects the cultural barriers and stigma society views regarding the role of women in the social system at large. The results showed that the support of the family has a very important role in supporting the success in a career in politics. Support in the form of moral and material of the family provides flexibility for women for a career in politics.

Structural barriers constitute barriers caused by the politicization of a role and existence of women in a social system in which the position of women inferior to men.

This means, that all the rules, mechanisms and standards in the system created and governed by men without involving perempuan. With this can be ascertained that in this system, women will be marginalized . The study found that, cadre of women who have a high structural position in a political party, have power and a greater opportunity to be involved in activities organized by political parties.

From the above discussion, the authors formulate the groove of model for the empowerment of women can be seen in Figure 1. With the support of political parties, namely with the implementation of regeneration, seminars and training for women cadres, is expected can eliminate the barriers that exist, and can increase women's economic empowerment through skill enhancement and expansion of women's networking cadres.



CONCLUSION

The results showed that the factors that support the increasing role and potential of the cadres of women in political parties is a factor of education, structural factors, social, family support and environmental conditions, policies Political Party, support and facilitation of political parties, also has an important role to improving the quality and empowerment of women in order to support the family economy.

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Abstract - Art initially is a process of man, and therefore was synonymous with science. Today, art can be seen in the essence of expression of human creativity. The art of also can be defined with something created human contains elements beauty. Art is a means of ourselves to expressing something, that may not be we tell you with words and can with music, can with it, can with the dance in accordance with a his trademark. The art of having various function in human life, among others having the function of religious/religious, function education, function communication, function recreation/entertainment, artistic function, function to (art applied), and functions art to health (therapy). The art is part of culture. Cultural produced by men who worth and civility (humanity). The culture that is derived from sanskrit buddhayah, is the plural of buddhi (buddhi or absurd) are defined as those things which pertain to buddhi and human reason. In english, culture called culture, derived from the latin word colere, namely tilling or working on. Culture can be defined as well as cultivate land or farming. Said culture also sometimes be interpreted as kultur in Indonesian language. Culture is the emission of than buddhi and daya. All what difikir, it is and direnung governed in the form of power of producing life. Culture is living something means nation or people. Culture be no longer seen as the emission of the science and thought high and pure of a nation but to regulate his life human people evenly distributed civilization. Hence that the relationship between the culture with humanity namely, art as part of culture and a used means to express the beauty of in the human psyche. Basically people are such culture that must be civilizing himself. Man as creature culture escape from the bonds and encouragement instinct and capable of adapting to the environment surrounding and studies the state of about with knowledge available. Are expected to man as makhluk cultured must be able to humanize man with their respective areas by based on human value. Culture play an important role for human life and be instrumental to socialize with people and eventually is typical a group of human beings. Man as creature social need instrument as a bridge which connected to human in being culture. Culture maintained the community because of their functions as guidance to behave in certain societies. According to mavis and John Biesanz, culture as a means (rescue survival kit) humanity in the land.

Keyword: Art, Culture and Humanity.

INTRODUCTION

Background

Said the art is a word that all the make sure know him , although in the different understandings. Said art reputedly derived from the word seni which means soul that sublime/sincerity soul . In english with the term art (artivisial) which means that goods or the works of a activities. Opinion from aristotle about art is the ability of making something in conjunction with efforts to achieve a goal that has been determined by certain ideas.

Culture is a way of life that develops and jointly owned by a group people and passed along from generation to generation. Culture formed from many sides complicated, including the system of religion and political, customs, language, a utensil, clothing, building, and works of art. Language, as also culture, is part no parcel of man.

Opinion Edward B .Tylor, about a whole culture is a complex, who in it contained knowledge, trust, artistry, moral, law, customs, and other capabilities obtained a person as a member of society .

Human being is a noun concrete and humanity is abstract nouns. Thus people ca not divorced with a humanitarian. Means the nature of humanity and properties of typical man creaturs high valence and dignity. Describing an expression of humanity will be the nature and properties are supposed to be possessed by a creature named human. Humanity is the principle of or the value which contains necessity or demands to suitability with the essence of the human.

According to views idealism about human described in three views among others,

- a. Idealism of rationalism , man is a thinking being.
- b. Idealism ethical, humans are not fully sacred, but humanity in him should be sacred because it is the subject of the law of decency.
- c. Idealism æsthetical, regard people made his life as a result work of art .Human being have to grow according to their talents and to be in harmony with the outside world.

The relationship between arts and a culture with humanity namely, that art as part of culture and a means used to express think the beauty of in the human psyche. Besides expressing think the beauty of in the human psyche, the art of also has the functions of another. For example, myth serves determine a norm to conduct regular and continue the customs and the cultural values of. In general that , art can to repair a bond solidarity a society.

According to movies and John Biesanz, culture is a rescue (the survival kit) humanity in the face of the earth .It is based on human inability to act instinctive fellowship. Hence, man reached the ability other, namely ability to learn, communicate, and control physical objects. In other words, understanding is the source of culture developed by man for survive. Indonesian is a nation that compound, famous with the and the specificity of. Consisting of the different nations, inhabiting tens of thousands of islands .Each ethnic origin having diversity arts and culture of its own produced by men

who containing the value of humanity. Human being is the creator of culture for man awarded sense and cultivation. With reason and cultivation that is man created and develop culture. Because people is the creator of culture and human beings are cultured. Culture is an expression existence people in the world .People do not just homo, but must be increased to human by means of having its , values and humanity attached to himself. Humanizing man means human behavior to cherish and respect valence and the degree of man in a manner not oppressive fellow , does not have a rough , did not hurt , and behavior other bad. Hence to be able to cultural, must have science, was technology, culture and industrialization and moral high (of cultural values) as a continuity a good synergy. But need to underlined that every culture will last when he as a society capable of performing norms that is in accordance with of the rules and regulations in a society, the nation and the country. In this paper will be explained about understanding of art, culture and humanity and function of art and culture against humanity and the relationship between art, culture and humanity.

PROBLEMS

In in this paper the , with the theme the ar , culture and humanity will simple into three problems

1. What the meaning of the art , culture and humanity !
2. What the function of art and culture against humanity !
3. What is the relationship between the art, culture and humanity !

DISCUSSION

Art initially is a process of man, and therefore was synonymous with science. Today, art can seen in the essence of expression of human creativity.The art of also can be defined with something created human contains elements beauty. Art is a way of ourselves for expressing something , that may not we can argue with words and could with music, can with painting, can with the dance in accordance with a peculiar.

Said the art is a word that all the make sure know him, although in the different understandings. Reputedly said art derived from a art which means people sublime/sincerity people. In english with the term art (artivisial) which means that goods or the works of a activities. According to the concept of art Bhineka Tunggal Ika, that the people of indonesian as countries that variegated culture, which simultaneously is typical and asset of indonesian nation, indeed most of the younger generation is plenty of the kinds of culture owned the indonesian nation forgotten generation of memory nation, not many people care with the existence of culture, whether will grow or shrink in, and the provision of appreciation to lovers of art and culture not much, as if the desire to develop no culture in mind the caped nation. Should not we forget because time progress and influence from western culture which highly similar to the roots of culture is built ever since the independence.

The processing the art is not pass on cultural is already hereditary from an ancestor the heir culture , but the desire of of the successor who are reluctant to and in that art his fathers in indonesia , is not the level of again to behavior leading almost transmissivity from exposure the change of era. If we harkening kemasa ago where indonesian culture very proud of and in love, as well as their appreciation (the community and locomotion art), side by side along and for the sake of staging implemented culture, once so proud and very significantly different once with existence now increasingly was cornered and underdeveloped.

Different but one purpose Bhineka Tunggal Ika with variegated art and cultural but still indonesian, if this culture hereditary would be lost by the storm erratic, and when the indonesian culture would be back in claims by all indonesian people, and a shield indonesia to gentiles that indonesian are worth it to him.

The concept of art continue to grow in line in the culture and community life a dynamic .Some opinion about understanding the art:

- a. Encyclopedias of indonesia: of art is fashioning objects or everything that because of its beauty its shape, people glad to see and hear.
- b. Aristotle: art is the ability of making something in conjunction with achieving a purpose set by some ideas.
- c. Ki Hajar Dewantara: art is beautiful, according to him art is what man arising and live her feelings and was in nature is beautiful until can move soul human feeling other
- d. Akhdiat k.Mihardja: art is human activities that reflect the fact in something work, who thanks to the form of and its contents has its to excite experience every spiritual nature the receiver.
- e. Erich kahler: art is a human activities who explored, created that reality with symbol or an allegory of wholeness little world that reflects the great world.

The of sense can be concluded that art had to include three elements value, among others value beauty, value knowledge and the value of a life.third the value of the debt will always synergize into one whole.

At a discussion next namely about the meaning of culture .Culture is a way of life that develops and jointly owned by a group people and passed along from generation to generation. Culture is formed of numerous elements of the complicated, including the system of religion and politics, customs, language, utensil, clothing, building, and works of art. Language, as also culture, is part inseparable from human self so many people tend to think of it inherited genetically. When someone trying to communicate with people who berbada culture and adjust differences, prove that cultures are learned.

Culture is a thorough lifestyles. Spatially complex culture, abstract, and broad. Many aspects culture to determine behavior communicative. Elements social-culture were spread and covering many social activities man. Several reasons why people had trouble keeping communicate with a person of culture can be seen in definition cultures: Culture is a tricky devices values polarization by an image containing a top view especially own. Image force took forms different in different cultures as individualism rough in the united, alignment individual by natural in Japan and compliance collectively in China. The images that are forcing the members made with a guideline on behavior and decent set the world meaning and value logical that could be borrowed by members most earthy to obtain the dignity and ties with their lives. Thus, culture who provides a frame of coherent to organize activity of a person and be able to predict the conduct of others.

Culture or culture derived from Sanskrit namely *buddhayah*, which is the form the plural of *buddhi* (*buddhi* or intelligence interpreted as matters relating to *budi* and human reason. In English, culture called *culture*, that is derived from a Latin *colere*, namely process or done. Can also be interpreted as tilling the land or farming. Said culture also occasionally translates as *kultur* in Indonesian language.

Culture in a broad sense than is the emission of prudence and resources. All what think and mused are considered to be governed in the form of power of producing life. Culture is way of life a nation or nation. Culture be no longer seen as the emission of the science and thought high and pure of a nation to regulate his life evenly distributed civilization.

Culture are closely linked with the community. Melville J. Herskovits and Bronislaw Malinowski suggested that all that they found in society determined by culture owned by the community itself. Term for that sentiment is cultural-determinism. Herskovits looked at culture as something that hereditary from one generation to the another, being then called as superorganic.

According to Andrew Eppink, culture containing a whole understanding, value, a norm, science and a whole the structures social, religious, and others, means all statement intellectual and artistic which is typical a society.

Ceremony maturity of the tribe of wayao in Malawi, Africa. According to Edward B. Tylor, culture is a complex whole, in which contained knowledge, trust, art, moral, law, customs, and capabilities other obtained someone as a member of society. According to Selo Soemardjan and Soelaiman Soemardi, culture is a means the work of, think, and copyright the community.

Of various that definition, can be obtained understanding about a culture where it will affect the level of knowledge and includes system an idea or ideas that is in the human mind, so that in daily life, culture that is abstract. While embodiment culture be things that are created by man creatures cultured, in the form of behavior and things that are real, for example patterns of behavior, language, equipment

life, social organization, religious, the art, and others, which were all devoted to help a man in conducted the social life.

According to Koentjoroningrat (1986), culture are divided into three system, first system culture the usual called customs, either system social at which is a circuit the act of being patterned from men. Third, technology system as capital equipment man to connect limited physical.

Based on its sociocultural context, variety of art occurs because the the history of age to age. The types of art certain have a support group having functions different. The change in a function can effect change that outcomes his art caused by the social dynamics, creativity, and the pattern behavior in the context of community. Koentjoroningrat said, national culture Indonesia is the work of the son of Indonesia of any ethnic origin, important distinctive and high quality and most Indonesians can identify themselves and happy with his work. Indonesian culture is one condition compound because he capital various culture, that develops according to demands its history singly. The experience and the ability of the area provide an answer for each challenges give shape art, that is part of culture.

At a discussion next namely about the meaning of human or humanity. Man viewed from the perspective of the science *eksakta*, man is a collection of particles atoms that form a network system owned by man (chemistry). Man is a collection of various physical system that intertwined each other and is a collection of energy (physics). Human being is biological creatures that characterizes groups (sentient mammals biology). In the social science, is creature who want to get advantage or takes account of any activity, often called *homo economicus* (the science of economics). Is creature social that cannot stand alone (sociology), a species of always wanted to any power (politics). And others.

In terms of scientific there are several views on the nature of man. Here be raised by some opinions from various the flow of, among others materialism, idealism, classical realism, humanistic and behaviorism.

1. Views materialism

To a materialism matter is the only reality and salism assume that the soul all the incident occurred since the process of this material. This view produce statement:

- a. La Metri said that human beings are no different from an animal
- b. Ludwig Feuerbach who argued that the nature of this world have a material.
- c. Molem Schott argue that the relationship between the brain and mind as the relationship between urine with the kidney.
- d. Karl Marx think that the true nature of human beings it is always changing hanging from history in its path and policies which set the state.

2. Views Idealism

Idealism assume that the soul is actual fact

- a. Idealism rationalism, man is a thinking being.
- b. Idealism ethical, people do not fully holy, but humanity in in he needs to sacred because it is the subject of law decency.
- c. Idealsime aesthetically, regard people make his life as a result work of art .Human being have to develops in accordance with their talents and to be in harmony with the outside world.

3. Views Realism Klasik

- a. John wild, assume that the soul is actual fact.People are seen as creature psychiatric.
- b. Hyle and Morphe, that human being is a creature that hylomorpkestis , is made up of material and the soul.

4. Views Teology

Theological distinguish man from the other being owing to its conjunction with the lord.

- a. He was created by god and composed of the body and spirits , as expressed in al-quran.
- b. Man is of all things weak, depending on the lord, and has only been inconstant.
- c. Man is the person in sin, as expressed in the gospel.

5. Humanistyc

Rogers, humanistic figures, held that men have encouragement to direct himself into a positive thing, man rational, socialized and in some a thing may be determine his destiny own. According to rogers man in the process realized, be, never stopped, never finished or perfect.

6. Behaviourism

Menganggap that men fully are such reactive whose behavior her ways controlled factors of outside. Environment dominated single human behavior. This theory criticized act of dehumanizing men for disavo features features important thing as the ability choose, set goals and create.

Humans are not only does become homo, but had to raise myself being human. Mankind must have the principle, value and humanity inherent in himself. Human beings have humanity, but an animal could not is said to have barbarian. It is because the animal not having a mind and heart , while human beings have a mind and heart that can raised taste or humanity. Behavior this is that encourages good behavior as human beings .Humanizing human means human behavior to always appreciate and respect women, dignity and

the degree of another human being. Means the nature of humanity and properties of typical man creatures high valence and dignity. Virtually human bias in of view in a segmental or in the sense of partial. The true nature of the indonesian people based upon pancasila (partaking of monopluralis), consists of.

- a. Monodualis the arrangement of human nature consisting of the aspect of diversity, covering a form of material anorganis inanimate objects, vegetates and animalis .As well as psychological aspect covering copyright, taste and intention.
- b. Monodualis of the nature of human nature consists of the perspective of individuals and social aspect.
- c. Monodualis a partaking covering the perspective of human existence creatures jesting merdeka (stand alone) as well as also menunjukanm the limitation creatures the lord. So that we can conclude that human being is a noun concrete and humanity is abstract nouns.. Thus man cannot isolated with the word humanity. Humanity means subtle sifat-sifat typical man as the high and dignity states. Describing humanity will the nature of expression and the trait of being supposed to be in have these creatures named man .Humanity is the principle or value that contains the requirement or demands to correspond to the nature of from men.

On problems the second will be discussed in the function of art and culture against humanity, the following on the functions of the arts:

a. Function religious

Works of art as a message religious or religious .Example: calligraphy, fashion moslem women, and songs spiritual art used for a ceremony that deals with ceremony birth, death, or marriage. Example: gamelan played in a ceremony ngaben in bali namely gamelan luwang, angklung, and gambang .Gamelan in java gamelan kodhok ngorek, monggang, and ageng.

b. Function Edukation

The arts as media education for example music .Example: ensemble because there are cooperation in it, angklung and gamelan also worth education because the music it has value social, cooperation, and discipline .Lessons use

- some help work of art .Example the images illustration textbooks, scientific or documentary film, posters, song children, props IPA.
- c. Function communication
Art can be used as a means of communication as message, social criticism, policy, the idea, and introduce products to the community. Through the medium of the art of some, wayang kulit, puppet people and the art of theater, can also the lyric of a song have a message, posters, drama comedy, and banners.
- d. Function rekreation
The art that serves as a means of the release of the surfeit or mitigate grief, a show specifically to of expression or containing entertainment, without the arts which associated with a ceremony or by other culture.
- e. Function artistic
The art that serves as a medium of expression artist in presenting his work not to regard that commercial, for example it is present in contemporary music, contemporary dance, and the fine arts contemporary, not biased enjoyed a listener/visitors, can only be enjoyed artists and their communities.
- f. Functioning/(Art applied)
Works of art made without reckon its usefulness except as a medium of expression called as of works of art pure , but if of creation artists have to considering the aspect of uses , the work of this art called the art to or art applied .Example: kriya, works of art that can be used to equipment/household appliances derived for earthenware and rattan.
- g. The function of art to health (therapy)
A treatment for patients disorder physic or medical can stimulation through therapy music, a kind of music adapted to background life patients. Therapy music has been proven capable of being used to cure people autism, a psychological disorder trauma to an event, and others. According to Siegel (1999) stated that classical music produce waves alfa that which soothes that can be stimulating limbic system network of neurons brain. According to Gregorian that gamelan can sharpen thinking. In conclusion that art having some function in human culture , among other religious/religious function, education, communication, recreation, artistic, to, and functions health.

For function culture or cultur namely that culture have function it for human and the people, whole range of the forces to be faced as the forces of nature and the power of another. In addition to this man and the community requires satisfaction both a spiritual agency and materiil .Human being is a creature of a civilized, through human can reason develop cultures. This is also lifelike and depends on what culture as a result creation. Culture giving rules for mankind in process of the environment to the results of his technology .And culture also expected to education who is developing and generate cultur first, that art and culture not extinct and awake for forever. Hence, with the philosophy, we can know about the outcome of the work of human that will lead to technology have the main use in protecting the humans against nature environment. So that culture having the function of/ the role, among others a relationship between humans guidelines or his group, a container to channel feeling and the ability other, as tutors life and the life of humankind, distinguishing people by binatang, hints of how have to act and behaving in intercourse (humanizing human referring to human value), arrangement so that people can understand where supposed to act, do, decisions if connect with each other, as the capital base of the development .The people of culture was mostly filled with culture are to of society itself. The work of the community delivery technology or cultures who have the main use of in protect communities to the environment in it.

On the third will be discussed on the relationship between the culture against humanity, following on the relationship between the culture of man/humanity. Art is part of culture and a means used to express think the beauty of in the human psyche. Besides expressing think the beauty of in the human psyche, art also has the functions of another .For example, myth serves determine a norm to conduct regular and continue the customs and the cultural values of .In general, art can a bond solidarity a society.

Art referring to value beauty (aesthetic) derived from expression desire people will beauty enjoyed to the eye or ears. Creatures have full-flavored high, humans generate various art pattern ranging from the simple that embodiment the arts which complex. Is opinion in world philosophy , the art that these human beings are worshiper of beauty. Through faculty the senses enjoy the beauty and at each time could not parting with it , and tried get sit on. If cannot find it man is looking for more here that can find and gratify the taste thirst will beauty.

Man each time embellish self, clothing, house, vehicles and forth that everything looked fascinate and fun for see. All this is proof that humans are so happy and love beauty. As if beauty including consumption vital to the senses. Apparently mutual consent of people spend funds relatively much for the beauty of their and drain personnel and wealth to enjoy it, as an excursion to a distant place even dangerous, it became even more impressive how big function and meanings beauty for someone. Would seem that the higher knowledge, more large concern for and interest to cherish beauty and also

increased selective to assess and what to issued for appreciate it, and this is pride its own for a person who can involve beauty.

The relationship between humans and culture is closely related each other, in human language derived from a word manu sanskrit, mens (latin), which means think, understands or creature of understanding. Culture derived from a culture of which is the form a compound word said buddhi-dayah which means copyright, intention, and taste. In sanskrit culture called with budhayah namely the plural of the buddhi which means buddhi or sense. Essentially humans are sentient culture that must be civilizing himself. Man as creature culture escape from the bonds and encouragement instinct and capable of adapting to the environment surrounding and studies the state of about with knowledge available. Culture also taught to man several important things in life to such as ethics polite & amp; manners made typical culture Indonesians. Culture also have joined the elements of society who formerly stretch due to conflict a prolonged and can also used as a means communication between the community. Mutual respect and respect will grow when between your neighbor upholding culture as an instrument unifying life, a means of communication between people and as typical a community groups. Many a thing may be the restriction on man and culture, can be used as a lesson for the people about the relationship closely man and culture that is not actually can be separated each other. Culture play an important role for human life and be instrumental to socialize with people and eventually is typical a group of human beings. Man as creature social need instrument as a bridge which connected to human in being culture. Culture maintained the community because of their functions as guidance to behave in certain societies. According to Mavies and john biesanz, culture is a rescue (survival kit) humanity in the land. It is based on inability man to act instinctive. Hence, man reached the ability other, namely ability to learn, communicate, and control physical objects.

In other words, understanding is the source of culture developed by man for survive .Suria Sumantri in his book philosophy knowledge said, an introductory popular stated that understanding man induce to develop the relation between meaningful with their surroundings by a gracious assessors towards an object and the chain. Choice the value of the debt be the goal and fill culture.

CONCLUDING

Conclusion

From the writing of this paper we can conclude that of art is of goods and or the works of a activities, while culture is the way of life of a nation or people who are no longer seen as the emission of science and the kind of thinking that high and pure of something of the nation to regulate civilization life evenly distributed .Human awarded sense and cultivation be able to create and develop culture, so that these human beings are cultured.

Suggestion

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Writer only can give advice to the reader behold art and culture still it is needed for life without art will not beautiful and live without know culture often fallen at who mired life. In this paper the there may be errors and flaws hence writer asked may the reader also provided criticism and sugestion that may papers this could be more perfectly.

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Ornaments in Mantingan Mosque and Tomb: Analysis of Form, Function, and Symbolic Meaning

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Abstract - Ornaments on the Mantingan Mosque and Tomb is one of the contextual facts that still has a function and a very important value. Mosque and the Tomb of the early Islamic heritage in Java became one of the historical tourism assets in Jepara. This study seeks to answer the problem: 1) factors and the role of Queen Kalinyamat to the existence of ornaments, 2) How the form, function, and meaning of symbolic ornaments, and 3) Why ornament has elements that are acculturative nuanced blend of art nuanced style of Hindu art, China, and Islam.

This study used a qualitative research method with a multidisciplinary approach to determine the depth of the structure and aesthetic value, functionality, and the symbolic meaning contained in the art ornaments. The main study of the ornament is using denotative-connotative semiotic theory by Roland Barthes.

The results showed that, 1) the role of Queen Kalinyamat to the creation of complex ornaments on Mantingan Mosque and Tomb is as initiators or drafter by the executor is Tjie Wie Gwan (Patih Sungging Badardawung) and on the advice of Sunan Kalijaga. 2) Ornaments in the complex Mantingan Mosque and Tomb have varying shapes such as circular shape (mendalion) with a pattern of living things (organic) or geometric, rectangular, hexagonal with curly braces, also bat form similar with the letter " W ". Each ornament has the function of aesthetic, social, and symbolic related to the philosophy of life. Raised by the symbolic meaning ornaments include meanings that are religious, philosophical, and mysticism (Sufism), 3) Acculturation in ornaments occurred after the emergence of Islam to Java in the early XV-XVIII. Prohibition depiction of living creatures came into force because it is associating partners with God. This prohibition does not necessarily eliminate the influence of other faiths such as Hinduism, Buddhism, and Chinese, so bring acculturation that already exist with the new doctrine.

This study recommended the need for an assessment of traditional ornaments using the right methods. Thus necessary to develop an appropriate methodology in analyzing the sort of cultural products of traditional ornaments.

Keywords: *Ornaments, denotative-connotative, Acculturation*

INTRODUCTION

Mantingan Mosque and Tomb complex is located 5 kilometers south of Jepara city, in the Mantingan village. Mantingan Mosque and Tomb is the early Islamic heritage in Java and became one of the historical assets in Jepara for tourism. The complex consists two core building, namely the mosque and the tomb. Mantingan mosque was built in 1481 *Saka* or 1559 AD based on the

instructions on *Condro Sengkolo* engraved on Mantingan mosque mihrab, which reads "*Rupo Brahmana Wanas*" derived from sankrit language.

Mantingan Mosque and Tomb complex is located on higher ground than the surrounding (on the hill). It is related to the Java traditional belief that become a tradition since the arrival of the Hindu. The belief is that someone must giving honor to ancestors by placing them in high areas. Ancestral spirits dwelling in trees, hills, and mountains that are high. After Javanese Hindu society, the trust does not disappear (Ajatrohaedi, 1969: 34).

Mantingan name is not associated with the concept of a hill or mountain (such as Imogiri name derived from the word "*limo*", "*mega*" and "*giri*". The word Imogiri itself has meaning "towering mountains that reach clouds"). Some of the famous saint also burried on a hill or a mountain such as Sunan Gunung Jati, Sunan Muria, Sunan Bayat, and Sunan Giri. Boarding schools and mosques which they built partly built on a hill or mountain (Ajatrohaedi, 1969: 35).

Mantingan Mosque and Tomb have Bentar temple building with gate which got influence from Hindu culture. There are many parts of space which includes cupola, tomb and tombstone. The mosque building consists of porch, main room, *pawestren*, *mihrab*, ablution and warehouse mosque. Shape and physical structure of the building architecture of the Mantingan Mosque and Tomb, is a mixture of architectural styles of Javanese, Chinese, and Hindu.

Mosque on the east side accompanid by purification, collection or museum space and *paseban* or *pasowanan* place. Mosque Mantingan functioned as a place of worship pilgrims, also serves as a place to pray daily for the people around. Entering the Mantingan mosque complex, must pass through the main gate of the temple-shaped Bentar at south of the buildings complex.

Until now Mantingan Mosque has been amended several times so that it looks like a new mosque. The last change occurred in the years of 1976-1977 which includes the replacement of shingles, the extension of the porch of the mosque, the restoration of the tomb and the fence around the Mantingan mosque and Tomb complex. The mosque building take rectangular shape with 22 meters length of and 17 meters width. Generally Mantingan Mosque structure vertically divided into three parts: foot,

body and roof of the building, horizontally divided into two parts: the front porch and the main room.

A variety of ornaments mounted on the wall of the mosque porch, *pawestren*, *mihrab*, at the top and bottom of the mihrab, minbar, and at the mustoko of the Bentar temple. Ornaments are also found in the walls of the complex and several tombstones. On the walls of the mosque are carved ornaments Jepara fashioned floral, plants, animals, and so forth. Now most ornaments are stored in a warehouse belonging to the mosque and Kartini Museum, Ronggowarsito museum in Semarang and Central Java Grand Mosque. Ornaments have shaped of circles, triangles, rectangles, and so forth.

Mantingan tomb complex is located in the west Mantingan Mosque, which is divided into two parts, east for the old tombs complex and on the western side for new tomb complex. The second tomb complex bounded barbed wire fence, to enter the first page of the tomb complex must pass through two gates that shaped temple with the Bentar octagonal ornament with round shape on it. On the first page there are several tombs new and old tombs. In the old tombs, tomb and headstone made of rock that almost have a same shape to another.

The most important tomb is the tomb of Queen Kalinyamat. This tomb as old as the tomb of *wali* on the northern coast of Java at the beginning of Islam or about the 16th century. Queen Kalinyamat tomb have archaic structure. Kalinyamat queen was buried along with her husband. As well as the tombs of the early days of Islam, Tomb of Queen Kalinyamat has a unique design.

Overall Mantingan Mosque and Tomb decorated with ornaments that are remnants of the Islamic period. In addition to the ornaments found on the walls of mosques and tombs, there are also many ornaments with irregular form found on mustoko, *mimbar*, *mihrab* wall, the main gate door (Temple Bentar) and tombstones. Ornaments are works of art that are the architectural ornaments, handicrafts, paintings, jewelery and so on.

Another term or ornament are the art of decorative ornaments, decorative arts, art ornament (art of ornament, ornamental art), and a decoration. Decorative arts, for example, comes from the translation of decorative art. Ornament is defined as actions designed to add beauty to an object. Visualization ornament opposite to realistic and expressive representatives (Munro, 1951: 122-123)

Ornament is somekind of art that developed along with architecture, sculpture, and painting. Historically, ornaments present accompanies with all forms and patterns that applied by humans to buildings, to ornament the weapons, furniture, textiles, and clothing and even the human body, which has existed since prehistoric times (Trilling, 2001: 14). Basically all ornaments are decorations, but not all of the decorations are ornaments. The forms of the ornament decoration has a primary function as a means to beautify the objects, products, or goods decorated. Many products may have been beautiful,

but after adding by ornaments expected to become even more beautiful (Sunaryo, 2009: 3).

Geometric motifs on the Mosque and Tomb Mantingan Ornaments show mixing between Chinese motifs and *lung* as a Java motif character. Carved ornaments and motifs that became source for Jepara community to develop the motive element of engravings until now. In addition, people Jepara also combine and create geometric patterns and motifs *lung* thus create various forms of carving patterns beautiful and well-known as it is today (Jams and Ina, 2007: 121).

In addition to the ornaments found on the walls of the mosque and tomb complex, there are also areas of irregularly shaped ornament on *mustoko*, *mimbar*, *mihrab* wall, the main gate door, and tombstones. Beautiful ornaments besides various forms and fields of motive, the whole ornament also has aesthetic value and a certain symbolic significance in it. The ornaments appear to have compositions of stilistic animal forms that created for special purpose.

AIMS

The objective of this study is to describe the role of the Queen's Kalinyamat for the existence and development of the Mantingan Mosque and Tomb ornaments. The second objective was to describe the form, function and meaning of ornaments. The third objective is to describe the process and outcome acculturative ornament which is a blend of Hindu art styles, Chinese and Islam.

MATERIAL AND METHOD

This study used qualitative research methods with a multidisciplinary approach (Soedarsono, 2001: 194). Research directed to examine the structure and aesthetic value, functionality and symbolic meaning contained in art ornaments. The object study is the ornament on the Mantingan mosque and the tomb which attached to the wall gates, *mihrab*, tombstones, and *jerambah* mosque.

Data collection techniques used literature study of the sources of the problems associated with the research. This technique aims to know the history and background of the creation of ornaments and the factors that influence the creation of ornaments. Field observations carried out directly on the object under study so that researchers know the shape and types of ornaments based on location, composition, and function. Interviews were conducted to several sources who live around the mosque compound and Tomb of Mantingan. Interviews are meant to get information directly to the source in order to determine the effect and public appreciation of the existence of such ornaments. Technical analysis of the data in this study using an interactive model that was developed primarily for research with qualitative (Miles and Huberman, 1992: 15-21).

RESULT AND DISCUSSION

The Queen Kalinyamat role in Mantingan Mosque and Tomb Ornaments Development

Queen Kalinyamat is a phenomenal female figure, not only flawless but valiant (De Kranige Dame, brave woman). Kalinyamat greatness described by the Portuguese writer Diego de Couto as Rainha de Japara Senhora paderosa e rica (Queen of Jepara, a rich and powerful woman). In addition, during the 30 years in power he has managed to bring Jepara to its peak.

Queen Kalinyamat role towards the creation of the ornaments on the mosque compound and the Tomb of Mantingan very important, because it acts as the originator or drafter. Queen Kalinyamat in addition, also have a figure who played a major role carpentry, namely Patih Sungging Badarduwung (Tjie Wie Gwan). The role of Queen Kalinyamat in the art can also be seen in the results of its cooperation with Patih Sungging Badarduwung and Sunan Kalidjaga in designing and implementing various development programs. They are Arabic calligraphy art designers. The results are used to decorate mosques and tombs, both in Demak, Jepara and Cirebon.

They are also known as the architect who has an outstanding reputation in building mosques and tombs, including the royal buildings and homes of the nobility. In a further development, their architectural style later imitated by ordinary people. Patih Badarduwung on the orders of Queen Kalinyamat and landing Sunan Kalidjaga create Mantingan Mosque and Tomb ornaments. Queen Kalinyamat and Sultan Hadlirin construction empire to made many progress in various fields, including religion, trade economic, social and cultural notably, sculpture, defense, and security.

Besides versed in government affairs Patih Badarduwung also good carve. A field of expertise that is brought from China. In the midst of busy life as Mangkubumi Kingdom of Jepara he often carve on the stone, which was imported from the land of their ancestors. He taught the craft to residents of Jepara. Stone in Jepara not suitable for carving, stone was imported from China is not self-sufficient, therefore, residents of Jepara made it with wooden media. From this, sculpture slowly growing among people of Jepara.

In his reign, the Queen Kalinyamat build a mosque and a tomb for her late husband. Mosque and the tomb was built with ornate Queen Kalinyamat beautiful ornaments, as an expression of love and respect for her husband. At the time of Queen Kalinyamat died also buried beside her husband's grave. Mosque and tomb complex is a historic relic in Central Java's northern coastal region known as the Mantingan Mosque and Tomb complex. The above description show, that the influence of an ideological, cultural, social, and politics is a very important factor for ornaments development.

Form, Meaning and Function of Ornament On Mantingan Mosque and Tomb

Ornaments studied visually shows that there are three kinds of common markers that distinguish ornament such as Arabesk medallion motif, motifs of plants and animal motifs.

Arabesk Motifs

Arabes motifs containing religious values. Form braid motif on patterned ornaments Arabes, a braid-shaped geometric motif with a blend of elements of the lotus plant. Arabes motif combined with lotus flowers and geometric interwoven elements that are connected to one another.

This ornament has a circular field. Starting from the midpoint of the circle there is an element of a blooming flower petals. Shape of the petals are octagonal geometric lines. In the octagonal geometric lines, there are also motifs that make up the fabric tape as a line positive sign or a plus sign. The braided shape beautifully surrounded with many elements of motifs of plants, tendrils, and lung motif.

Placement of ribbon motif that forms the fabric, has a balanced placement or also called symmetric. Harmonious impression on interwoven winding ribbon of perfection and unity to form a field of ornaments and motives. Lung motif that is used to form curved lines, making the overall structure and composition of the motive appeared to have unity and harmony if looked at broader view.



PICTURE 1. ORNAMENTS WITH ARABESQUE MOTIFS

Plants Motifs

Herbs and flowers is a motif which uses naturalistic elements. Naturalistic motifs on the ornament using elements of foliage and lotus motif that symbolizes life. These elements are usually depicted with forest elements, plants, animals and mountains (Sunaryo, 2006: 59). Ornaments on the porch wall of the mosque and the walls of this tomb complex, has elements of different motives. The motives have elements blend of herbs and flowers in almost every ornaments.

Most of these ornaments are elements of a lotus flower, while in the surroundings are filled with foliage shape. In addition there is a motif of lotus flower motif necklace, which is on the right and left there is also an element of the stalk that extends upward with a mix of foliage. The foliage elements large and small looked like the leaves of roses. The job descriptions of the elements surrounded by leaves, roses bloom, fruit squash and water contained lotus flower in the middle. At motif that satisfies the field has a mix of small-lung lung motif. Stalk on the motive element propagates meet the field, so it looks united and harmonious.



PICTURE 2: ORNAMENT WITH HERB AND PLANTS MOTIFS

Motif Animals

Animal motifs are motifs that takes the forms of animals that have been composed and stylized. Animal motifs usually depicted animal shaped birds, monkeys, crab, elephants and so forth. Animal patterned circle ornament phoenix motif combined with lung meaningful symbol of Hindu culture which means that symbolize the world over. Animal patterned ornaments on Tomb and Mosque Mantingan describe the majesty of God in creating beauty which has various benefits. These benefits are intended to provide guidance to men, so that men are required to always be thankful and remember the name of Allah.

Ornaments many animals lies in the walls of the tomb complex and has been stylized animal motifs. The animal motifs meet pembidangnya like shape carvings in general,

using motifs lung. This ornament has a unique field of motive. In the lung form a motif of a bird that has been stylized. One ornament featuring the shape of a bird that has a patterned head lung that has been stylized motifs that spread to the lower left to the shape of a bird's head and body shapes spread also on the right. The motifs were curved upwards and downwards. Lung motif that forms the curved, shaped like the wings of birds that have been stylized. The motifs form if the note does not resemble the shape of a bird's wings. When considered from the bottom left and right up to the top, until the whole bird motif would seem that a pair of wings and tail.

Techniques used the same techniques that have been described previously. The difference is in the form of hollows and part of the motive element. At this animal motifs, a little looser than with the motif Arabes and the like, so that the impression of spaces generated tidaksekitarumit on ornament patterned plant or Arabesque. Ornaments patterned this animal has a unique shape lies in the motive that has been stylized. Each arch form of engravings, has the dynamism that makes an impression on the overall flexibility of the ornament.



PICTURE 3. ORNAMENTS WITH ANIMALS MOTIFS TRIANGLE MOTIFS

This type of ornament resembles to a bat wing so that people Mantingan call ornaments Bats (interpreted as an eagle). Ornaments applied to the mihrab of the mosque and at the top of the mihrab, the right and left. These ornaments have different sizes. The job descriptions of ornament formed like the wings of birds that use the motif scrolls in it.

This ornament has a triangular shape as indirect form of ornaments on the field if it made the chart image is a form of an equilateral triangle that has been turned into a bat-wing shape. The ornament has a motif that blend into a harmonious shape and has a unity between job descriptions and the element of motive. Based on visual form, using a triangular ornament motif necklace combined with tendrils. The symbolic meaning implied that symbolizes the hope of a better future (Sunaryo, 2006: 52). Areas of triangles of the ornament found on the porch wall of the mosque. This ornament was made of limestone or yellow-brown rocks which brought from China. (Hartojo and Budiman, 1982: 45).

Ornaments surface field fields form an equilateral triangle in which the field has protrusions resulting from arch engravings. Indentations motif, giving the impression of a thin thickness of the shape carving. Overall ornaments field gives the impression of dynamic resulting from the structure and shape design motifs used. Ornament has a motif similar to the motif of Majapahit. Ornaments that gave the impression of a beautiful and dynamic styling of pembedangannya the motif used.



PICTURE 4. ORNAMENTS WITH TRIANGLE (BAT) MOTIFS

Rectangular Motifs

This ornaments motif also called Majapahit code. This ornament is applied on the walls of the foyer, *pawestren* on the right and left walls of the mosque. Motif used to use geometric patterns with a mix of motives tendrils and scrolls. This ornament looks a little different from the other ornaments motif for scrolls used more prominent motif Majapahit style.

One rectangular ornament area using *kala* motifs. The stage consists of a motifs form scrolls that make up the human face images/ giants. This motif forms have meanings associated with the symbolism of the world over as a repellent reinforcements (Sunaryo, 2006: 46). The emblem is similar to the symbol of the circle patterned ornaments field of animal has the same meaning with ornaments triangular field. The symbolic meaning can found in this ornament using geometric patterns with a blend of lotus flowers and tendrils. Motif used above the

main entrance door of the mosque. The motif usually has the shape of a human face or the face of a scary giant. However, because the motive this time was camouflaged so this motif does not seem creepy, even give an impression of a dynamic, and harmonious.

Ornaments parts looks like the shape of a pair of eyes, mouth, and face the giant. Lung motif used in this stage motif makes a beautiful impression of the arch carvings. The ornamental motifs customarily used in the forms of temples in Bali or Yogyakarta. Ornaments rectangular area is a stylish ornament Majapahit. The elements of the motive value the beauty of the universe, because the motive of natural motifs in the form of leaves and motifs lung gives flexibility of engravings.



PICTURE 5. ORNAMEN WITH RECTANGULAR MOTIFS

Hexagon Motifs

Ornaments hexagon porch is applied to the wall of the mosque on the sidelines of ornaments medallion. According to Shafi'i (2014) another name for this ornament is hand brace. The ornaments form a hexagon with sides called intricate (which form a curved line) (Sumalyo, 2000: 16). Edge line or lines forming the periphery of this ornament curved lines that are usually used on doors and windows of the mosque in general. Ornament was applied on the walls of the front porch of the mosque far right. Motif used in this ornament using the motifs of plants, flowers, and animals that have been stylized.

At ornaments with animal motifs monkeys and crabs indicates that the motif is the symbol as the beginning of

the year or a marker of the new year, while the animal motifs lion symbolizing courage or strength. The ornament that uses animal motifs of elephants just giving meaning as a symbol of sengkalan Memet (Sunaryo, 2006: 130). In the monkey motif ornament with crabs and crabs, have a shape that is not so clear on the whole. Overall motif image is combined with a pattern of creeping plants that meet its field. This motif is a blend of Hindu culture motif.

An elephant ornament ornate with an animal that has been stylized. An elephant was in the middle of a lotus flower decoration (Hartojo and Budiman, 1982: 47). Plants contained in these ornaments, the handle element is an embodiment of bamboo trees form vertical stripes. From the bottom to the top of the bamboo tree that form a motif which is a form like an elephant leg up to the body, trunk, head to tail. Parts of the motif is a motif of plants from the elements girlfriend leaves banyu or in terms of the Javanese language is Omben-Omben doro. Elephant motif is not made in full and real because Islam forbids making craft objects such as human or animal forms that resemble its original form.

Ornaments hexagon with a brace either side of the other depicts "bale floating" or a roofed building on the water a place to have fun. In the face there is a "temple Bentar". Ornate motif of vegetation meets the fields among other things seem lotus, pandan, frangipani trees, and a palm tree with three leaves (Hartojo and Budiman, 1982: 49). Natural motif shows a few trees and a building such as the pavilion building and building pagas. In the middle there is a form of temple.

Lotus ornament ornaments still the same with hexagons that have been described previously. Featuring ornate plant gourds. One more example of the protrusion of the Chinese influence on the ornaments on Tomb and Mosque complex of Mantingan. Pumpkin carving ornaments water in it is very similar to the actual embodiment of gourds (Hartojo and Budiman, 1982: 52). This ornament has an element of pumpkin with leaves that have distilir is a wonderful form of movement of vine-sulurnya. Impression of spaces resulting from the technique gives a dynamic composition and symmetrical that used.



PICTURE 6. ORNAMENTS WITH ANIMAL AND LANDMARK MOTIFS

Forms of these motifs are from the aesthetics of Islam which is the unity and balance of shapes in the form of an ornament (Triyanto, 2006: 90). The overall aesthetic value of the ornament is a form of artwork that has an element of form, motive, job descriptions, and harmonious design.

Cultural Acculturation in Ornament On Mantingan Mosque and Tomb

Tombs Bbuilding of the kings of Islam in Indonesia also shows the results of the process of acculturation.

Tomb of Islamic Javanese kings built hilltops prehistoric beliefs influenced aspects of Indonesian society. As noted in the previous chapter, the tomb of ancestors built in the top of hill and then worshiped by the locals. Long tradition as it seems to be forwarded by the many kings of Islam in Java in many years ago.

The tomb building adorned with various ornaments of Java, such as found in the temple. Cemetery lies the Javanese kings in Imogiri (Yogyakarta) and Solo is an example of the embodiment of acculturation. Kings of Islam as a religious leader who holds Khalifatullah felt compelled to bring his leadership in the form of building a place of worship or mosque that can be used by the king and his subjects. The large size of the mosque will probably show his greatness concerned with it function.

When elements of Islamic architecture does not coincide with the inclusion of elements of the teachings of Islam to Indonesia, the kings of Islam take long style of architecture that has evolved in society, namely local style. For example, the buildings of ancient mosques, such as the Great Mosque of Banten, Cirebon, Demak, Kudus, Jepara, and others which are generally built since the 16th century shows the result of acculturation.

Characteristics are forms terraced roof, schematics square, has a front porch or side and surrounded by fortress-like temple and arch-shaped gate. Building Demak Mosque and the Holy Mosque Tower is a classic example of the alkulturasi process. There are many other examples of acculturation of Islamic culture with the culture of Indonesia. In general, these examples can be said that culture acculturation, either physically or ideas, has been accepted and owned by the people of Indonesia and Indonesian culture.

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Determinants of Upper Secondary School Dropout in Central Java Province, Indonesia: A Gender-differentiated Approach

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Abstract — Indonesia is regarded as a success story in Asia and the Pacific due to major political, economic and social changes that have taken place since the deep economic crisis in 1998. However, the country still faces a serious dropout problem, especially at upper secondary school level. The aim of this research is to provide better understanding of the causes that determine gender differences in dropout at upper secondary schools in Central Java Province. Unlike most previous studies, we have collected primary data enabling more in-depth and systematic analysis of the issue. 421 former upper secondary school students and 842 parents/guardians participated in the research. The samples are divided into subsamples based on gender. Logit regression is employed as the preferred regression technique in this research. Our preliminary results show significant differences between females and males in the factors determining the probability to drop out. Statistically significant determinant variables for females are mostly related to family characteristics, including mother's academic support, sibling rank, socioeconomic status and number of siblings that have dropped out. For males (but not for females) having good perception of education and having a mother who is not working influences the decision to stay in school. As expected, government cash transfers significantly reduce the probability to drop out for both males and females.

Keywords— Dropout, Gender, Logit regression

INTRODUCTION

After recovering from the deep economic crisis in 1998, Indonesia has seen tremendous improvements due to major political, economic and social changes. Nowadays the country is regarded as a success story in Asia and the Pacific. World Bank classifies Indonesia as a lower middle-income country (World Bank, 2015) with gross national income per capita gradually increasing from \$1,011.5 in 2000 to \$1,682.5 in 2012 (in constant 2005 prices). However, not everyone has been able to gain from this great achievement. UNICEF (2012) states that poverty is still a major problem. Half of Indonesians do not earn more than US\$1.75 a day. One of the major impacts of poverty is on education. According to an official report, almost 50% of children aged 7–17 in 2011 did not attend school or left school because of financial problems (Ministry of Women Empowerment and Child Protection & Indonesian Central Statistics Agency, 2012). However, the report has some shortcomings: First, it is clearly an aggregate report for all school levels. Second, the respondents of the survey also include those who did not attend school. Third, the official upper secondary

school age of students in Indonesia is 16 – 18 year olds, while the report limits respondents to up to 17 year olds only. Thus, it is not clear from the report whether students at upper secondary school left school mainly because of financial problems or not.

Numerous previous studies have demonstrated a strong relationship between gender and dropout, but little research has been carried out that investigates whether the factors affecting students to drop out vary by gender and how they compare. There are only a few previous studies that examine the causes of dropout at upper secondary school level in Indonesia and, to the best of our knowledge, there is no extensive study on dropout according to gender. Therefore, further research that investigates the decision for school dropout based on gender is needed⁴.

Our systematic and in-depth research focusses specifically on upper secondary school dropout in Indonesia. It improves on previous studies in several ways. It covers a bigger set of explanatory variables and uses a more precise definition of dropout. It also employs an innovative approach in questionnaire design and a better probability sampling technique for primary data collection on student dropout.

The principal findings so far are as follows. We demonstrate that some factors that contribute to dropout differ by gender. For example, getting low grades at lower secondary school level, low socioeconomic status (SES) and being bullied by peers and/or teachers contributes to a higher probability for females to drop out, while better mother's academic support, higher sibling rank and having good relationships with teachers are associated with lower probability to drop out for females only. Conversely, some factors only affect males, and are found insignificant for females. They are good perception of education, household head with at least upper secondary school education and having nonworking mother.

⁴ This paper extends the research reported in our paper presented at the 2015 Annual Conference of the New Zealand Association of Economists, Wellington, 1-3 July 2015, by focussing on gender-specific regressions. The earlier paper can be found at: http://cdn-asset-lax-1.airsquare.com/nzae/library/andryan_setyadharma_jwd.pdf?201506190707.

Meanwhile, there are some factors, like government cash transfers, that impact on both males and females.

The paper is organized as follows. Section 2 briefly elaborates previous studies on school dropout at all school levels. Section 3 presents the data and methodology used in the analysis. The main findings are discussed in Section 4. Section 5 contains concluding comments.

LITERATURE REVIEW

In some countries, poverty is no longer the main reason for upper secondary school dropout. A recent survey in Latin America shows that students in Chile, Costa Rica and El Salvador express lack of interest in education as a main reason to drop out (Inter-America Development Bank [IADB], 2014). A 2006 national survey in the US also reports that almost half (47%) of students drop out because they are uninterested in classes and feel disconnected from high school (Bridgeland, DiIulio Jr. & Morrison, 2006). However, a 2012 survey in the US presents information that lack of parental and educational support is the main reason American students drop out of high school (Globe Newswire, 2012). IADB's survey also shows that in some countries in Latin America (such as Honduras, Panama and Paraguay), poverty is still a main reason for dropping out. In Indonesia, government agencies inform that having financial problems is the major cause of dropout (Ministry of Women Empowerment and Child Protection & Indonesian Central Statistics Agency, 2012). Not surprisingly, students report a variety of reasons for dropping out of school and they are different from country to country.

In the case of Indonesia, previous studies on dropout (e.g. Sparrow, 2007; Cameron, 2009; Toi, 2010; and Ha & Mendoza, 2010) have not presented a clear definition of dropout. Also, the definition used by the Indonesian Central Statistical Agency (BPS) is ambiguous and simplistic. For example, the BPS includes students' mortality factor in the calculation of dropout rates. If the mortality factors are included, the dropout rate seems larger than is the case.

As stated by Hunt (2008), most previous studies view dropout as an event rather than a process. However, the decision to drop out of school is often influenced by a series of correlated problems. To address this issue, some studies apply longitudinal data to capture the dropout process (e.g. Alivernini & Lucidi, 2011; Fall & Roberts, 2012; No & Hirakawa, 2012; South et al., 2007). Although longitudinal data are useful, unfortunately they also have their weaknesses. As explained by Schroder and Borch-Supan (2008), the inconsistencies of answers from respondents in longitudinal data may negatively influence the quality of the research. No and Hirakawa (2012) confirm this problem. During their second wave of collecting data, they randomly selected students from the first wave and asked them to answer the same questions as in earlier field work. They found some answers changed.

One of the weaknesses of using secondary data is the fact that researchers do not meet the respondents and collect data from them directly. It is difficult to assess data from a third party in order to clarify whether the dropout student is permanently or just temporarily leaving school. The assumption that people who have dropped out will never complete school and people who have not graduated must be dropouts is wrong. Some previous studies (e.g. Chatterji & DeSimone, 2002; Roebuck, French & Dennis, 2004; South et al., 2007) only determine the status of students who drop out of school based on a particular point in time. In the US, a person who drops out of school can eventually complete high school, either by completing the requirement for a diploma or by examination (Rumberger, 2001). Therefore, a person's status in the US can change over time. A researcher must be aware of this when defining dropout status in countries where there are possibilities for dropouts to get a certificate which is equivalent to a high school diploma. In Indonesia, there is a program for dropout students to get an upper secondary school diploma by completing the examination named Package-C.⁵

Some studies use students who are still enrolled in school in comparison to those who dropped out (e.g. South et al., 2007, at high school level and Hanushek, Lavy & Hitomi, 2008, at primary school level). In our opinion, using currently enrolled students is incorrect because there is no guarantee they will definitely complete or graduate from school. If enrolled respondents leave school before they graduate, the results will be biased. Therefore, it is better to use graduated students, instead of still enrolled students, in comparisons with dropout students.

Rumberger and Lim (2008) review the past 25 years of research on dropouts and propose two types of factors that predict whether students drop out or graduate from high school: (1) Factors associated with *individual characteristic*, such as students' attitudes, behaviors, school performance; (2) factors associated with *institutional characteristics* that are characteristics of their families, schools, and communities.

Rumberger and Lim (2008) believe that students' demographic background plays an important role in dropout. With respect to gender, for example, in western countries males are significantly more likely to drop out than females (see Bergeron, Chouinard, & Janosz, 2011, for Canada; Blanchard & Sinthou, 2011, for France; South et al., 2007, and Suh & Suh, 2011, both for the US; Mo et al., 2013, for China). Conversely, there are a higher percentage of dropouts among female students in Nigeria (Ajaja, 2012) and Bangladesh (Shahidul, 2012). In China, Diyu (2001) finds that parents deliberately push their

⁵ The Package-C program is a non-formal program equivalent to an upper secondary education program which provides both general and vocational education to junior secondary school graduates and to upper secondary school dropouts.

daughters to leave school because they think that sending females to school wastes time and money. In under-developed countries the opportunity cost of sending females to school is higher than that for males (Diyu, 2001; Thanh & Long, 2005; No & Hirakawa, 2012). Based on previous studies, it seems that, in developed countries, male students tend to drop out more than female students, while in developing countries, female students are more likely to drop out than male students.

There are only a few studies on gender differences in the determinants of several schooling indicators. For example, Tomas, Solis and Torres (2012) in Spain find that an absent father has an impact on male students dropping out and an absent mother impacts on female students dropping out. They also indicate that higher educational achievement by parents causes lower school dropout and has a greater impact on females than males. A study for West Africa (Glick & Sahn, 2000) reports that an older daughter who has siblings less than 5 years of age tends to quit school. The study also shows that higher father's education impacts positively on both males and females and higher mother's education only positively affects females but not males.

Previous research has identified several types of family resources and how they impact on student development (Rumberger & Lim, 2008). The most used indicator of family resources is financial resources. Students in families with lower incomes are more likely to drop out (Blanchard & Sinthon, 2011; Diyu, 2001; Roebuck et al., 2004; Shahidul, 2012), while other studies indicate that a higher level of a family's SES tends to be associated with staying at school (Amadi, Role & Makewa, 2013, for Kenya; Makwinja-Morara, 2009, for Botswana; Mo et al., 2013, for China; Traag & van der Velden, 2011, for the Netherlands). Research in the US finds that students from high SES are almost 50 per cent less likely to drop out than students from average SES families (Rumberger & Thomas, 2000). Human resources of parents, as reflected in their education, play an important role to improve cognitive development of their children. Some studies show that the probability to drop out decreases as parental levels of education rise (Blanchard & Sinthon, 2011; Shahidul, 2012; South et al., 2007; Terry, 2008; Tomas et al., 2012). More specific to China, fathers' education, but not mothers' education, is found to be significantly correlated with lower dropout (Yi et al., 2012).

Rumberger and Lim (2008) also conclude that structural characteristics of schools contribute to students' performance. School location can contribute to student dropout, for example in rural areas (see Ajaja, 2012, for Nigeria; Blanchard & Sinthon, 2011, for France; Suh & Suh, 2011, for the US). There is a variable that seems to be tested only in developing countries, namely distance to school (Mason & Rozelle, 1998; Mike, Nakajjo & Isoke, 2008; Sabates, Hossain & Lewin, 2010). The particular type of school can also contribute to student dropout, e.g. General High School versus Vocational High School (see

Blanchard & Sinthon, 2011, for France), private school versus public school (see Rumberger & Thomas, 2000, for the US), male versus female single sex school and mixed versus single school (see Ajaja, 2012, for Nigeria).

Only a few previous studies examine the causes of dropout at upper secondary school level in Indonesia. Most of them examine the effect of the Social Safety Net Scholarship to prevent students from dropping out (Cameron, 2009; Ha & Mendoza, 2010; Sparrow, 2007). This scholarship was part of Indonesia's Social Safety Net Program in response to the Asian financial crisis in 1998. Sparrow (2007) analyses the effect of the scholarship program to help students during the crisis and one of his empirical results shows that 13% of scholarship holders would have dropped out if they had not got the grant. For primary school, the effect is 10%. He also estimates that the effect for junior secondary school is 12%. However, Sparrow concludes that there is no effect of scholarships on student dropout at the upper secondary school level. Cameron (2009) uses a linear probability model and concludes that scholarship grants effectively decreased the probability of dropout only for junior secondary school but had no impact at all in primary school. Moreover, Cameron fails to find an effect of scholarships on student dropout at the upper secondary school level because the samples are too small to create fixed effects. Sparrow (2007) explains that the insignificant impact of scholarships may occur because the scholarships have been allocated to poor students in primary and junior secondary school only. Primary school students from the two poorest quintiles received 70.7% of the scholarships, while 3.2% was received by the richest quintile. Also 56.8% of the scholarship allocations to junior secondary schools were received by the two poorest quintiles, while 6.9% went to the richest quintile. In contrast, distribution of the scholarship at upper secondary school was totally not pro-poor, because it was distributed quite evenly among household per capita expenditure quintiles.

A more recent study of the impact of the crisis is Ha and Mendoza (2010). Although they also examine the impact of scholarships on primary and junior secondary school dropout, they use aggregate level data, as does Sparrow (2007), while Cameron (2009) uses individual level data. Using Probit regression, their findings suggest that Indonesia's Social Safety Net Program contributed to keeping students in class at primary school level, but not at junior secondary school level. This contradicts Cameron's (2009) finding. However, Ha and Mendoza (2010) argue that Cameron's study was conducted in the first few months of the scholarship's activity and that it was impossible to determine the accurate impact by observing those few months. They also point out that the data used by Cameron (2009) are not representative of the national population.

Awareness of the significance of education needs to be increased in society. If the dropout trend is not terminated, or at least reduced, the future of high school dropouts is likely to be grave (Ingrum, 2005). Therefore,

Ingrum (ibid) emphasizes the importance of research on high school dropouts. The outcome of further research is expected to prevent the most vulnerable students from dropping out and help them to stay and finish high school. As a result, this could improve their economic achievement in the future.

Analysing the determinants of upper secondary school dropout in Indonesia in respect to gender is vital because it can help government agencies, universities, school practitioners and other interested parties develop effective policies and responsive strategies aimed at preventing dropout. Furthermore, the correct strategies and policies will, in the long-run, help to eradicate poverty, improve people's welfare and, in addition, will increase the nation's growth and development.

DATA AND METHODOLOGY

Survey

The primary data collection was conducted in Central Java Province, which is located in the central part of Java Island, the main island in Indonesia⁶. Central Java Province area is 32,548 km² or approximately 25% of the area of the island of Java. Administratively, Central Java Province consists of 29 regencies and six cities. Samples were collected from all regencies and cities.

In this research, an upper secondary school dropout is defined as an individual who: (1) was officially enrolled in an upper secondary school at grade 10 but left school permanently before completing upper secondary school, (2) is not observed to be enrolled in other formal education, (3) does not hold a package-C certificate, and (4) is not temporarily absent from school due to suspension or illness.

The intended participants for the questionnaires are ex-students who were initially enrolled in grade 10 in the 2010/2011 academic year in Central Java Province and their parents or guardians⁷. During July to September 2014, two types of questionnaires were distributed, one to

ex-students (who had either graduated or dropped out) and another to their parents/guardians, in 29 regencies and 6 cities throughout Central Java Province. In our analysis we include the 421 ex-students (253 females and 168 males) whose parents (i.e. both mothers and fathers) answered the questionnaires (842 parents/guardians).

Methodology

The goal is to examine the impacts of individual, family and school characteristics, as well as Indonesian government policy and macroeconomic conditions variables, on the probability of an individual to complete or drop out of an upper secondary school education in Central Java Province, Indonesia. The analysis is conducted separately for each gender.

First, the model specification for the dropout decision in general form is as follows:

$$D_i = f(I, F, S, GM)$$

Where D is a dichotomous measure of whether an individual i has completed upper secondary school or has permanently dropped out of an upper secondary school education, I is a vector of individual characteristics variables, F represents a vector of family characteristics variables, S denotes a vector of school characteristics variables and GM is a vector of government policy and macroeconomic conditions variables.

The model specification is an extension of the conceptual model of high school performance proposed by Rumberger and Lim (2008). As mentioned earlier, they propose two types of factors that predict whether students drop out or graduate from high school. They include factors associated with *individual characteristic* and factors associated with *institutional characteristics*. The latter are characteristics of students' families, schools and communities. However, two aspects are missing from Rumberger and Lim's conceptual model. First, they did not include government policies. Some previous studies have examined how the impact of certain policies reduces student dropout. For example, it is found that an increase in government expenditure on education will reduce the dropout rate (Chaudhuri & Maitra, 2008). Also, Heckman, Humphries, LaFontaine, and Rodriguez (2008) evaluate the effect of General Education Development (GED) test policy innovations on high school graduation rates in the US. GED certification is equivalent to the traditional high school diploma. They conclude that the GED program encourages students to drop out of school because students simply take the GED test instead of attending school. Dearden et al. (2009), based on their study in England, suggest that a conditional cash transfer (CCT) to high school students is an effective way to reduce dropout. Second, beside policies, macroeconomic conditions also influence students to drop out. A study for Canada suggests that the decision to drop out is affected by high minimum wages and lower unemployment rates (Montmarquette, Viennot-Briot, & Dagenais, 2007).

⁶ Java Island accounts for only 6.8% of the total land area of Indonesia, but the country's economic activities are predominantly located on this island. Six provinces on Java Island contributed 58.95% to Indonesia's gross domestic product (GDP) in 2000 and only dropped slightly to 57.5% in 2012. This high contribution was mainly driven by industrial sectors (Kuncoro, 2013). Moreover, Java Island is the most populous island, with 57.5% of the Indonesia population residing on the Island in 2010. It is said to be the 'heartland' of Indonesia's economic activities (ibid).

⁷ Every student at upper secondary school level in Indonesia must follow 3 years of education (from grade 10 to grade 12). At grade 12 there is a final examination to determine whether a student is eligible to finish their education or not. In general, upper secondary school's National Final Examination is held in May every year and the results are announced in June. So, the grade 10 students of the 2010/2011 academic year had finished their education by June 2013. During a student's 3 years of education, it is possible to drop out of school at grade 10, grade 11 or grade 12. Therefore, by June 2013, grade 10 students of the 2010/2011 academic year could be classified into three types, i.e. those who (1) had graduated, (2) repeated a grade (but graduated in 2014) and (3) had dropped out of school.

Therefore, this study also includes government policy and macroeconomic conditions in the analysis.

The next step is to turn the general model into an empirical model:

$$D_i = \beta_0 + \beta_1 I + \beta_2 F + \beta_3 S + \beta_4 GM + e_i$$

Where:

β_1 ; β_2 ; β_3 and β_4 = Vectors of parameters to be estimated.

e_i = Error term.

$D_i = 1$ if individual i is a dropout, and 0 otherwise.

The empirical model is estimated separately for female students and for male students.

The vector of individual characteristics (I) contains 10 explanatory variables: gender, age at first entry, working experience, perception of education, grade repetition, student's home location, previous academic performance, changing school experience, deviant behaviour and health. The vector of family characteristics (F) consists of 12 explanatory variables: family's SES, household head education level, father's academic support, mother's academic support, family size, sibling rank, sibling's dropout experience, non-working mother, time helping family with household chores, time helping family with daily business/work, father's participation in household decision-making and mother's participation in household decision-making.

The vector S contains 8 explanatory variables: school location, relation with teacher, bullied by peers and/or teachers, school curriculum (general upper secondary school versus vocational upper secondary school versus Islamic upper secondary school), school type (public versus private upper secondary school), distance to school, student's schooling expenditure, and teacher quality. The vector GM consists of four explanatory variables: government's cash transfer to poor students, real minimum wages, unemployment rate and spatial dummy.

There are three important variables widely used in dropout prevention in the US. They are known as the ABC's of disengagement: attendance (i.e., number of absences), behaviour and course performance (or academic achievement) (Hoff, Olson, & Peterson, 2015). The US National High School Center only focuses on two variables, attendance and course performance, because these two variables are considered to be the most powerful predictors of dropout (Heppen & Therriault, 2008). However, attendance and course performance are not included in our analysis. Our pilot project indicated that respondents cannot remember exactly how many times they were absent from class during their study. As the proxy of academic performance, we only use lower secondary school final examination grade. We were not able to gather official academic reports from respondents.

Rumberger & Lim (2008) conclude that Logit and Probit regressions have been employed widely for high school dropout research. These methods of analysis are suitable for binary response variables such as dropout or graduation. Kinney and Dunson (2006) argue that Logit regression is preferred to Probit regression because it has a more 'intuitive' interpretation of regression coefficients in terms of odds ratios. This problem is also pointed out by Hailpern and Visintainer (2003). They argue (ibid: p. 213) that the Probit model "lacks natural interpretation of regression parameters".

Pohlman and Leitner (2003) suggest that OLS regression can also be used if the dependent variable is binary. However, Logit regression has advantages for binary response variables compared to OLS. The main problems with OLS are: (1) predicted probabilities from OLS can lie outside the 0 – 1 interval, (2) the normal distribution will likely be violated with a binary dependent variable, and (3) heteroskedasticity problems. It also overcomes heteroskedasticity problems (Hosmer & Lemeshaw, 2004). A study by Pohlman and Leitner (2003) tries to compare OLS and Logit regression in explaining high school dropout. They conclude that Logit regression provides more precise estimates of probabilities of the dependent outcome, and strongly advise researchers to use Logit regression when modelling the probability of binary outcomes. Therefore in this study, Logit regression is employed as the preferred regression technique. In addition, average marginal effects are also provided.

Main Results

Table 1 reports the regression estimates.⁸ Pseudo R^2 s are also reported. They are obtained by maximizing the log likelihood function. Pseudo R^2 for the female only regression is about 0.43. The Pseudo R^2 for the males only regression is about 0.76. McFadden (1977, p. 307) suggests that values of 0.2 to 0.4 for R^2 represent an excellent fit.

The estimates indicate that many of the explanatory variables have the expected effect on the probability of students' dropout. Some explanatory variables have a significant impact for either females or males only. Few factors contribute to the decision to drop out for both females and males.

⁸ In addition, we also estimated another five models for both females and males. Model 1 is the benchmark model. It includes 12 explanatory variables that are considered important in the case of Indonesia. Model 2 includes the benchmark model and other individual characteristics, model 3 consists of the benchmark model and other family characteristics, model 4 contains the benchmark model and other school characteristics, model 5 consists of the benchmark model and other macroeconomic conditions variables. The regression results are available upon request.

Looking at individual characteristics, we find strong evidence that it is important for males to have a good perception of education, but there is no evidence for females. A possible explanation is that there might a lot of unskilled jobs available only to males (such as especially physically demanding jobs) that do not require a high education level. It is therefore easy for males to take the opportunity and leave school permanently. However, the opportunity costs of education are high for males if they undervalue the importance of education. From the average marginal effect it is found that male students who have a good perception of education are 37% less likely to drop out in comparison to other male students that have a bad perception of education. We also find that home location matters for males. Male students who reside in rural areas are more likely to drop out compared to male students who reside in urban areas.

In contrast, for females, all statistically significant individual characteristics variables have negative impacts on dropout. For instance, based on the average marginal effect it can be seen that females who failed a class are 34% more likely to drop out compared to females who did not repeat classes. This might be because failing class is not common for females. Those who repeat a class will have a psychological burden they cannot easily overcome. Moreover, females who had low academic achievement at previous level of schooling also had a greater probability to drop out. In short, it can be concluded that academic performance, both in terms of repeating a grade and having low academic achievement, are likely important factors for females, but not for males. Complementary to these factors, a female's deviant behaviour will highly influence her decision to drop out.

This study does not find evidence that individual characteristics variables such as student's age at first entry, working experience, changing school experience and health status affect the dropout decisions of males and females.

In accordance with the study by Tomas et al. (2012), our regression results show that most of the significant variables that influence the probability to drop out are associated with family characteristics. First, it is found that poverty, proxied by the lowest SES, significantly increases the probability to drop out for females only, but there is no evidence that it affects males. On average, females from very poor families are 14% more likely to drop out than females from wealthier families. The finding that lowest SES has no significant impact on males might be due to parents in some rural and remote areas putting higher economic value on males than females, pushing females to give up their education.

Role of mothers affect females and males in different ways. For females, it is important to get academic support from their mothers. A higher level of academic support from their mothers decreases females' probability to drop out. While for males, nonworking mothers being physically present in the house reduces the probability to

drop out. A possible explanation for this is that mothers who are not working will have more time to look after the family, thereby influencing their sons, especially reducing their antisocial behavior.

For females, helping family with household chores makes dropping out less likely. The most reasonable explanation is that it requires females to spend more time in their home than outside and therefore reduces the probability to misbehave outside parental control. Helping family with household chores is also good for females to foster their sense of responsibility. The variable is not statistically significant for males. This also seems to make sense, as females are expected to do more domestic work than males. In contrast, helping family with daily business and work pushes females out of school. A possible explanation is that females' time allocation to help in family businesses physically exhaust them and affects their devotion to study.

Also, having siblings who dropped out of school is likely to increase the probability to drop out, but only for females. The presence of siblings who dropped out is likely to provide a role model which encourages their sisters to leave school as well.

Having a household head with at least an upper secondary school degree education reduces the probability to drop out, but only for boys. The evidence shows that parental human capital mainly affects boys, not girls. Also, a higher level of participation of fathers in household decision-making reduces the probability of boys to drop out, but it has no significant impact on girls' probabilities.

Only one of the family characteristics variables, i.e. having a higher number of family members, has a significant impact on both males and females, and in the same direction. The variable significantly increases the probability to drop out. This finding supports previous studies by Suh and Suh (2011), Yi et al. (2012), and Traag and van der Velden (2011). It can be seen from the average marginal effect that the risk for females of dropping out increases by approximately 4% for every additional member in a family. On the other side, the risk for males of dropping out increases by approximately 6% for every additional member in a family.

TABLE 1. LOGIT REGRESSIONS OF SCHOOL DROPOUT BY GENDER

| Variable | Female | | Male | |
|--|-------------|-------------------------|-------------|-------------------------|
| | Coefficient | Average Marginal Effect | Coefficient | Average Marginal Effect |
| Individual Characteristics | | | | |
| Age at first entry | 0.33 | 0.03 | 0.67 | 0.03 |
| Working experiences (Yes = 1, No = 0) | 0.47 | 0.04 | 2.99 | 0.12 |
| Perception of education (Good = 1, Bad = 0) | 2.06 | 0.12** | -8.81** | -0.37** |
| Home location (Rural = 1, Urban = 0) | 0.38 | 0.03 | 3.17** | 0.13** |
| Repeat a grade (Ever repeated a grade = 1, No = 0) | 3.14** | 0.34** | 4.34 | 0.18 |
| Lower Secondary School's national final examination grade: | | | | |
| Low (Between 5.01 – 7.00) | 2.58*** | 0.23*** | -0.30 | -0.01 |
| Average (Between 7.01 – 8.50) | Reference | Reference | Reference | Reference |
| High (Above 8.50) | 0.81 | 0.07 | -3.18 | -0.13 |
| Number of changing school since primary school | 0.25 | 0.02 | 1.11 | 0.05 |
| Deviant behaviour | 2.08*** | 0.17*** | 1.51 | 0.06* |
| Health (excellent health = 0 up to poor health = 4) | -0.24 | -0.02 | 1.43 | 0.06 |
| Family Characteristics | | | | |
| Lowest socioeconomic status | 1.56** | 0.14*** | 1.43 | 0.06 |
| Household head with at least upper secondary school degree education | -0.06 | -0.01 | -3.29* | -0.14* |
| Father's academic supports (No support = 0, Max support = 15) | 0.06 | 0.005 | -0.27 | -0.01 |
| Mother's academic supports (No support = 0, Max support = 15) | -0.24** | -0.02** | -0.18 | -0.01 |
| Family size | 0.45** | 0.04** | 1.53** | 0.06* |
| Sibling rank in family | -0.70** | -0.06*** | 0.81 | 0.03 |
| Nonworking mother (Not working =1, Working = 0) | 0.15 | 0.01 | -5.99** | -0.25*** |
| Number of siblings dropping out | 1.20*** | 0.10*** | 6.61 | 0.28 |
| Helping family with household chores (Yes = 1, No = 0) | -2.84* | -0.24* | 3.72 | 0.16 |
| Helping family with daily business/work (Yes = 1, No = 0) | 1.24* | 0.10* | -0.34 | -0.01 |
| Father's participation in household decision making | -0.002 | -0.0002 | -0.34** | -0.01** |
| Mother's participation in household decision making | 0.06 | 0.01 | -0.35 | -0.01 |
| School Characteristics | | | | |
| School location (Urban = 1, Rural = 0) | 2.06*** | 0.16*** | 5.18** | 0.22** |
| Relation with teacher: | | | | |
| Not good | -4.57*** | -0.17*** | -1.61 | -0.07 |
| Neutral | Reference | Reference | Reference | Reference |
| Good | -1.21** | -0.11** | -3.22 | -0.13 |
| Bullied by peers and/or teachers (Yes = 1, No = 0) | 6.18*** | 0.66*** | 2.23 | 0.09 |
| School's curriculum: | | | | |
| General | Reference | Reference | Reference | Reference |
| Vocational | 0.09 | 0.01 | 0.38 | 0.02 |
| Religious | -0.26 | -0.02 | 4.13** | 0.17** |
| School's type (Private school = 1, Public school = 0) | 0.20 | 0.02 | -1.77 | -0.07 |
| School distance more than 10 km (Yes = 1, No = 0) | 1.00 | 0.09 | 0.81 | 0.03 |
| Log school expenditures | -0.39 | -0.03 | 1.39 | 0.06 |
| Teacher quality (Good = 1, Not good = 0) | 0.49 | 0.04 | -0.39 | -0.02 |

| Variable | Female | | Male | |
|--|-------------|-------------------------|-------------|-------------------------|
| | Coefficient | Average Marginal Effect | Coefficient | Average Marginal Effect |
| Government Policy & Macroeconomics Conditions | | | | |
| Receive government's cash transfer to poor students | -1.44** | -0.11** | -7.91** | -0.33* |
| Part of Central Java Province: | | | | |
| North | Reference | Reference | Reference | Reference |
| Central | -0.23 | -0.02 | -0.36 | -0.02 |
| South | -2.07 | -0.13** | -3.64 | -0.15 |
| Log real minimum wages | -9.54* | -0.008* | -28.73 | -0.01 |
| Unemployment rate | 0.14 | 0.01 | -0.03 | 0.00 |
| Wald χ^2 | 81.62*** | | 96.09*** | |
| Pseudo R ² | 0.43 | | 0.76 | |
| Log Pseudolikelihood | -67.77 | | -21.51 | |
| Number of observation | 253 | | 168 | |

Notes: Dependent Variable: School dropout (Dropout = 1, Graduated = 0); ***p ≤ 0.01; ** p ≤ 0.05; * p ≤ 0.10. Constant is also included. Reference = reference category

This study does not find statistically significant estimates for some family characteristics variables, such as father's academic support, parents being divorced, and mother's participation in household decision-making.

Several of the school characteristics variables are statistically significant, and more so for females than males. For example, females who are bullied by their peers and/or teachers tend to drop out. It can be seen from the average marginal effect that they are about 66% more likely to drop out in comparison to females who are not bullied. For males, there is no evidence that bullying by peers and teachers increases the probability to drop out. Having a good relationship with teachers will encourage female students to stay in school. This is not applicable to males. Surprisingly, and seemingly contradictory, female students who have a bad relationship with teachers also have a lower probability to drop out (in comparison to those who have a neutral relationship with teachers). This might be due to omitted variable bias, for example the absence of a student attendance variable. The evidence indicates that being a religious school student increases the probability of males to drop out, compared to students from general schools.

Only one school characteristics variable is significantly related to the decision to drop out for both males and females. Urban school location strongly increases the probability that males and females will drop out. From average marginal effect on Table 1, it can be seen that female students from urban schools are about 16% more likely to drop out in comparison to female students from rural schools. Male students from urban schools are only about 22% more likely to drop out in comparison to male students from rural schools.

Further, this study does not find any evidence that being a student at a private school, school distance, school expenditure and teacher quality have significant impacts on the probability of students to drop out.

As expected, government scholarship for poor students significantly reduces the probability to drop out for both males and females. This result is consistent with previous studies for Indonesia, i.e. Sparrow (2007), Cameron (2009) and Ha and Mendoza (2010). The associated average marginal effects indicate that males who receive the scholarship are about 33% on average less likely to leave school than those who do not get any scholarship from government. Moreover, females who get the scholarship are on average 11% less likely to abandon school than females who do not receive a scholarship from the government.

Unlike Montmarquette et al. (2007), this study finds that real minimum wages significantly reduce the probability of females to drop out. This might indicate that when real minimum wages are higher, parents have more money to spend on education, especially for their daughters.

This study does not find any evidence that supports significant relationships between, on the one hand, the probability of males and females to drop out of school and, on the other hand, specific regional characteristics (part of Central Java Province) and the unemployment rate.

CONCLUSION

The central theme of this study is to investigate whether there are gender-specific factors that contribute to students dropping out of upper secondary school in Central Java Province, Indonesia. Unlike previous studies on gender differences, this study covers a bigger set of explanatory variables, enabling us to obtain a better understanding of the dropout decision. The regression results reveal significant gender differences in the probability of dropping out.

Some explanatory variables only have strong impacts on females' decisions to drop out or not. We find that all statistically significant individual characteristics variables for females increase their probability to drop out (repeating a grade, low academic achievement at previous level of schooling and deviant behaviours). We also find that most of the significant variables that influence the probability of females' to drop out are associated with family characteristics. There is strong evidence that lowest SES is associated with a higher probability to drop out for females only. We also find that a higher level of mothers' academic support reduces females' probability to drop out, as does helping family with household chores. In contrast, the estimates show that, spending more time helping family with daily business and work increases females' probability to drop out. Some school characteristics variables also have strong impacts on the decision to drop out. One important result is that having been bullied by peers and/or teachers contributes to a higher probability for females to drop out. It suggests that bullying behavior in school has adverse psychosocial consequences for females, more than for males. Moreover, female students who have a good relationship with teachers have a higher probability to stay in school. Unexpectedly, and seemingly contradictory, this is also the case when they had a bad relationship with teachers. This might be a case of omitted variable bias, due to the exclusion of a student attendance variable. Therefore, we suggest that such a variable should be included in future research. Another variable significantly affecting only females are minimum wages. They diminish their probability of dropping out. This suggests that parents' additional wages lead to a larger allocation of funds to their daughters' education.

There are also statistically significant some strong explanatory variables that influence only males' decisions to drop out or not. Male students' good perception of education reduces their probability to drop out. The availability of unskilled jobs sometimes attracts young men to leave school. It is important to show that education will produce benefits for them in the future. This study also finds that parental human capital - proxied by household head with at least an upper secondary school degree education - affects males', not females', decisions to drop out. Further, we conclude that mothers who are not working and are physically present in the house reduce the probability of their sons to drop out. We find only one school characteristics variable that affects

only males. Being a student at a religious school increases their probability to drop out.

Only three explanatory variables significantly affect the decisions of both females and males. First, having a higher number of family members significantly increases the probability to drop out. This might be due to financial issues. Having a larger number of children requires more financial support from parents and unfortunately some parents cannot afford to pay school expenses for all of their children. Second, being a student at an urban school increases the probability of males and females to drop out. This raises the question what is wrong with urban schools? One possible reason might be the costs of transportation. Because not all students possess their own transportation, the longer distance creates problems for some of them. Last, we find that government scholarship policy for poor students significantly reduces the probability to drop out for both males and females. It suggests that this government policy aimed at reducing dropout is on the right track.

It has been shown that there are clear gender differences in terms of factors contributing to drop out. Therefore, it seems important to set up different, gender-specific, strategies aimed at preventing dropout at upper secondary school level. We believe that one essential element in dropout prevention is the identification of students with high risk characteristics for dropping out. Thus, we encourage the government and educators to create an early warning system - to the best of our knowledge, such a system has not yet been developed in Indonesia - to pinpoint students at risk and provide appropriate intervention to prevent students from dropping out. It is also important to design and develop specific interventions not only for students at risk, but also for their parents and teachers. The intervention strategies aimed at parents is to improve the relationship between schools and parents and to raise awareness of mother's role in children's academic activities. It is also suggested that teachers should become aware of the importance of having good relationships with students and become a second parent in school so students will feel comfortable at school.

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The Development of Visual Media-Based History Room with Semarang Local History Theme in History Learning

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Abstract - Main aim in this study was developing of history room based visual media and themed local history of both Semarang Regency and Semarang City. Especially, the aims of this study were (1) developing prototype model of history room based visual media and themed local history in history learning; (2) prototype model was developed to be history room model based visual media and themed local history in history learning; (3) doing effectiveness test of history room based visual media and themed local history which was implemented in learning praxis. Outcomes in this study were, (1) prototype model of history room based visual media and themed local history; (2) history room model based visual media and themed local history; (3) scientific publication was associated with result of previous studies in seminar and accredited journal. This study was conducted by using Research and Development (R&D) approach. In this study, it was conducted to produce history room model based visual media and themed local history. Development of history room was really necessary by history teachers. It provided a chance to utilize visual media optimally. History room was able to be used for supporting successful implementation of Curriculum 2013. By history room, scientific approach in history learning was easier to be implemented. Utilization of history room had several advantages. The first, it was able to provide "home" to the history teachers. The second, existence of history room was able to establish and to keep the learning atmosphere more effective. The fourth, history room was able to save the learning time because the media in history room had been provided and utilized as soon.

Keywords: history room, visual media, local history, learning

INTRODUCTION

Learning history will be more effective if its implementation is able to create an appropriate learning atmosphere (Kochhar, 2008 : 374). The appropriate learning atmosphere can make the students become closer to the materials delivered emotionally; therefore it can be able to create the meaningful learning. One of the efforts to create supported atmosphere is by creating history room. Room used in learning history needs to be developed and arranged well; therefore it can support learning activities and increase the students' history learning motivation.

Kochhar (2008) mentioned that there were some advantages of the development of history room in history learning. The first advantage was the room history can provide "a house" for history teachers. It meant that history teachers can express and explore many sources and media in history learning. The second advantage was the existence of history room would be able to build and keep the effectiveness of learning atmosphere because the function of history room as time machine that brought the

past situation became closer to the students' life. Third advantage was history room was be able to make history learning became more effective because there were many media that were able to ease the students' understanding in the past time. Fourth advantage was history room could save the learning time. It happened because the media in history room was existed and could be used directly. In addition, the teacher could use the media in history room for long term.

The important meaning of history room in history learning has been also discussed by Assistant Masters Association (1975), Widja (1989), and Kasmadi (2001). All of them argued that history room has important role in history learning especially for bringing students became closer to the materials given. Beside it, the existence of history room supported the implementation of the curriculum of 2013, especially in bringing the students to learn history using scientific approach. In which history room, the students would become history researchers through the use of many sources provided.

However, based on the history teachers interview and the observation at Senior High School in Semarang district and Semarang city, the use of history room there was not optimal, and there were schools that did not have history room representatively. It was caused by some cases. First, there was no representative room as history room yet. Second, the teachers' abilities were not optimal yet in developing history room. Third, the media displayed in history room was limited.

From the taught above, it was necessary to develop research and program that gave facilities to history teachers in developing history room. This case was done by giving an easy and cheap development alternative media for the teachers to develop history room.

Widja (1989 :73) explained that the definition of history room was a special room that was used as modeling and stabilization room to history subject. The provision of history room was expected to make teaching history became interactive teaching and reflective to the students' soul and build perspective for the present and the future time. Therefore, it was necessary to support the students' creativity in managing, filling, and using the history room.

One of the purposes of creating history room in every school and learning source center was to build students' motivation in learning (Kasmadi, 2001: 17). History room

had also some functions as laboratory, workshop room, and history learning source room. History room was a room that had an important role in every school. It was equal with the function of the laboratory of natural science, chemistry, physics, or language. It meant that history room had to full fill the purpose of classroom, library, workshop room, bioscope miniature, and supplies room in one place (Kochhar, 2008: 381). However, not all the school could be able to provide supplies needed in arranging history room, therefore the students and the teachers needed high creativity.

The preparation that had to be done in managing history room was choosing the existed room or making a room at least 30 x 21 meter if there was no existed room before. The room was completed by cupboard, projection room, discussion room, limited teaching room, workshop room, and teacher room or headmaster room. The wall was arranged well; therefore it could be used to hang panel or pictures on (Kasmadi, 2001: 225).

Based on its function as laboratory or workshop room, history room had to be completed with history learning aids. Kochhar (2008: 217) classified learning aids into four types, there were as follows, (1) printed aid, such as daily issues, book, and newspaper; (2) visual aids, such as slide, filmstrip, model, graphic, scheme, picture materials, globe, and map; (3) audio aids, such as tape-recorder, cassettes, disk gramofon, and radio; (4) audiovisual aids, such as animation and television.

Wadja (1989: 74) figured out the activities that were done by students in history room; they were, (1) in school holiday, the students would be given a task to compile the materials that had historical value, (2) make some history learning media such as make a history building like a temple from mud, time scheme, or the other sketches, (3) the stimulation activity or drama about history. One of history activities that was important to be supported in history room was projection activity that was the implementation of problem solving method.

One of the cheap and easy alternative development history room was the development of visual media-based history room. In this case visual media was chosen because it was accessible and easy to be found. Moreover, the use of visual media did not need additional tools like projector. Therefore, this activity aimed to give accompaniment to the teachers in the development of visual media –based history room.

The main purpose of this research was to develop visual media-based history room model with local history theme in Semarang District and Semarang City. Particularly, the purposes of the research were as follows: (1) to develop the prototype model of visual media-based history room with local history theme in history learning; (2) prototype was developed to visual media-based history room model with local history theme in history learning; (3) to test the effectiveness of visual media-based history room with local history theme applied in learning process.

RESEARCH METHODOLOGIES

This study used Research and Development approach. According to Borg and Gall (1989: 782), research and development model was a process used to develop and validate educational product. In addition, to develop and validate educational products, research and development aimed to find new knowledge through basic research or to answer particular questions about problem through applying research used to improve education practice. In this study, research and development model used to create visual media-based history room with local history theme.

According to Borg & Gall (1989), there were four main activities conducted in research and development model, there were as follows; (1) introduction study consisted of preparation step, survey, and needs analysis; (2) the arrangement of conceptual model design; (3) validity step or conceptual verification; and (4) implementation step through research and try-out. Operationally, those four steps could be explained in five main activities, they were; (1) the needs analysis; (2) prototype design of history room; (3) the arrangement of history room; (4) the evaluation of history room prototype implementation; and (5) the corrected history room model.

RESEARCH RESULT AND DISCUSSION

There were some previous studies about the use of history room and room arrangement for learning process. The study conducted by Ustri Rusmiyati (2010) resulted that history learning at school did not gain good responses from the students. The students' interest of history materials was low. Therefore, it needed an effort to solve that problem. One of the ways was the use of history room. The research discovered that the students' history achievement taught using history room gained average score of 82.38 with minimum score of 70 and the maximum score of 93. In other case, the students' history achievement taught without using history room gained average score of 79.00 with minimum score of 70 and the maximum score of 87. Based on hypothesis test, it showed that there was a significant different achievement of the students taught using history room and whom taught without it.

The other study about the development of room design in learning was conducted by Kaup, Chan Kim & Dudek (2012). In their paper entitled "Planning to Learn: The Role of Interior Design in Educational Setting" inferred that the designed room was able to influence the learning goals. They developed rearrangement of school environment and classroom at Mahattan Catholic School, United States. They have developed an appropriate and relevant design for learning purposes there through environment analysis steps, programs, and schematic arrangement. A good learning was supported by design interior factor because it was interesting and appropriate; therefore it influenced the students' learning situations.

The study about room design was also conducted by Obeidat & Al-Share (2012). They wrote their result studies in an article entitled "Quality Learning Environments: Design-Studio Classroom. They argued that the special learning room arrangement for certain purpose was needed. In other word, the certain materials or subjects needed specific interior design in order to make the comfortable learning situation for the students. The interior arrangement that was appropriate with the characteristic of the subjects would support the effective learning.

The previous studies strengthened the important meaning of the history room development in learning. However, the previous studies explained about design in general and explored the history that has been existed. Therefore, in order to differentiate this study with the previous studies, the researchers concerned in the development of visual media- based history room reproduced from the related digital archives with local history existed in Semarang city and Semarang district.

The development of history room was a case needed by history teachers. There were some advantages of the development of history room for the teachers while the training was held. First, history room gave the opportunity to the teachers in using visual media optimally. Second, history room could be used to succeed the implementation of the curriculum of 2013. The scientific approach in history subject would be easy to be implemented through history room.

In the first step, the researchers analyzed the teachers' needs related to history room. From the results of questionnaire, it was found that the history teachers in Semarang district did not have special room for history learning yet. All of the teachers that became the respondents agreed about the development of history room. They argued that the role of history room arrangement was more interesting for the students in history learning. Sri Indah Purnamasari (Interview, 11 June 2015), a teacher of Kartika Senior High School of Banyubiru argued that,

By the existence of particular room for history learning, the students can understand clearly about the examples of historical sites surrounding. In addition, around Banyubiru or Ambarawa there are many cultural sites that can be learnt by the students.

According to the teachers, the use of history room made the students had more concentration in learning and it made the teachers easy to monitor them. Therefore, history learning was interesting and it was not monotonous, so that the students would understand the materials well.

In order to solve the limited room, the researchers tried to look for alternative room that could be used as history room. They were as follows; (1) computer room, (2) multimedia room, (3) auditorium, and (4) classroom.

The development of history room needed the existence of the supported tools. They were; (1) computer and internet network, (2) projector (LCD), (3) poster of the sequence history from pre-history until contemporary history, (4) documentation or photos about Semarang district in the past and in the present time, (5) poster of history sites in Semarang district recently, (6) cupboard, and (7) simple tools to make media: printer, paper, glue, stationary, ruler, and scissors.

Main media needed in history room based on the development aspect were poster and historical pictures. The results of questionnaire asserted that the teachers did not have either historical paper or historical pictures in teaching process. Therefore, this study focused on the effort to add the existence of poster media and historical pictures in history room.

The researchers trained the teachers became research partners in developing history room. The urgency of history room in learning process was strengthened by materials given in the training. There were some steps delivered in the training. First step was the delivery of materials about the important role of history room in learning process. Second step was the delivery of materials about visual media-based history room arrangement strategies. Third step was the practice of the development of visual media used in history room.

The first and second steps were delivered in the presentation and also in question and answer session. In addition, the team gave also the explanation about the strategy of history room arrangement that has been developed by History Major, Faculty of Social Science, Semarang State University. By delivering photos and displays about history room, the teachers obtained the knowledge about an important role of history room and its arrangement used in learning process.

The third step was practice step in the development of visual media-based history room. Visual media chosen in the development of history room were the photos of Semarang district in XIX century and in the beginning of XX century. The photos were selected because they were so many in KITLV, Trope museum, and Gahetna. The photos were relevant to the basic competence of 3.5 class XI, "identifying politic, culture, social-economy, and education effected by West colony era to the Indonesian life in the present time". In addition, the use of photos was also relevant to the basic competence of 4.5, "reasoning politic, culture, social-economy, and education effected by West colony era to the Indonesian life in the present time and deliver in the form of history story".

The first step in the training was to strengthen the teachers about the relevance of historical room development as the supported tool in history learning. The aim of the first step was to make the teacher had an equal understanding in the development of history room. The use of history room was based if an on the argument that history learning would be more effective if an appropriate learning atmosphere was created. Therefore, one of the

efforts to create supported atmosphere was by creating history room.

The use of history room had some advantages. First, history room could provide “a house” for history teachers. Second, the existence of history room could build and keep the effectiveness of learning atmosphere. Third, history room could make history learning became more effective. Fourth, history room could save learning time because the media in history room have been provided and could be used directly.

The materials about historical photos visual media-based history room strategies were delivered after the session of giving understanding about history room. In this case, the team practiced using method with the participants. However, because of the lack of the internet network at the research location, the participants were permitted to pay attention to the team in making visual media. First step was to open one of the sites that provided historical picture. In this case, the site that could be a reference was <http://kitlv.nl>. It was owned by culture studies and Dutch Institution.

After open that site, the following step was to open the menu of images and music. After the menu was opened, put keywords on search column. The keywords were suggested to be related to Semarang district such as Oengan, Ambarawa, Toentang, Salatiga, etc.

After the searching was done, the related historical photos would be appeared. The following step was to choose and open the photos needed. After that, the participants could download the photos by pressing the button of “print screen” or “PrtScSysRq”. After screenshot procedure was done, the pictures would be managed using Microsoft Publisher program.

The setting of the pictures could be done firstly by setting the size of the paper became A3. After that, screenshot pictures were copied by pressing the button of ctrl+v. The next step was cropping the pictures. After that, the researchers adjusted the size of the paper. The last step was giving note to the photos as it was available on metadata photos. In this training, the participants were also given the understanding about the important of mentioning the sources in order to make the participants respected to all rights and they would ignore plagiarism.

The activity that involved teachers in developing history room was one of new cases that was relevant to the curriculum of 2013. Therefore, the teachers had high enthusiasm. It was proved by there were teachers reserved some photos to be printed. It because of the team only gave 50 printed photos to MGMP. Generally, the research has run well; however there were some problems faced in this research came from technical aspect. First problem happened because the moving class system was not applied at all of the schools in Semarang district, therefore the teachers still confused in developing history room. The second problem happened because the internet skill

was not mastered by all of the teachers yet, therefore it was difficult to find historical pictures in the internet.

There were some solutions as alternative ways to solve the problems. First solution was by arranging a portable media. It meant the visual media could be rearranged, therefore it was flexible. The second problem could be solved by giving the guidance in searching pictures in the internet based on simple steps.

The development of history room had some strategic meanings. First, this activity strengthened the teachers about the important of the use of media especially visual media in learning process. Second, the teachers understood about the ways to make visual media from historical pictures in the internet by the development of history room training. Third, the development of history room was relevant to the scientific learning applied in the curriculum of 2013. Through this training, the teachers were able to develop history room, therefore they were supposed to make the history learning became dynamic, reflective in students’ soul, and build the perspective to the present and the future time.

The participants also understood about the important of visual media in the form of historical pictures through this training. There were some advantages in using this media. They were; (1) It was concrete photos or images could be seen by the students clearly and it was realist object that showed the materials or the messages given. (2) It solved room and time cases. It could display historical photos to contrast with the development of history around Semarang district. (3) It reduced the limited eyes observation and explained certain object that was difficult to be observed. This case was important especially to observe the events and locations that have been changed in the present. (4) It explained a problem clearly. (5) It was cheap and easy. The photos or images could be made by the teachers themselves with less expenses and it could be used easily.

CONCLUSION

The development of history room is one of the cases needed by the history teachers. History room gives the opportunity to the teachers to use visual media in history learning optimally. History room could be used to succeed the implementation of the curriculum of 2013. Scientific approach in history learning becomes easier to be implemented through history room. The use of history room has some advantages. First, history room could provide “a house” for history teachers. Second, the existence of history room would be able to build and keep the effectiveness of learning atmosphere. Third, history room can make history learning becomes more effective. Fourth, history room can save learning time period because media in history room have been available and they can be used directly.

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Student's Mental Health Problems Assessment and Teacher's Mental Health State at Primary School

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Abstract- Indonesian Mental Health data has poor resources since Government does not pay too much attention in mental health issues. Moreover, lack of study in mental health also represents deprive priority to focus on society's mental health improvement. This research intended to assess student's mental health problems. Thus, there was a scientific data resources found and be formed as the basis of children mental health solutions. In addition, the teacher's mental health state were measured to ensure the quality of psychological condition. The following reason, if the teacher is healthy then student is of good mental health. Descriptive method was utilized to analyze the data. The research instruments applied Focus Group Discussion, Mental Health scale and open-ended questioner to reach the data. The result showed that 50,63% of teacher's mental health was in a very good state. However, 44,30% had good condition in mental health and only 5,06% of them were placed at middle in mental health. Second analysis illustrated that mental health's problems were found at students in primary schools. First rank of mental health's problem were dominated by poor concentration in following lessons at 30,23%. Academic problems came as the second portion in mental health's problem at 29,07%. However, social problem placed the third composition in mental health's disorder at 17,44%. In addition, low motivation were indicated as the symptoms of mental health problem at 10,47%. Aggressive behaviour(4,66%) and others (8,14%) were listed as the two bottom of mental health's problem.

Keywords : Assessment, Mental Health, Student, Teacher

INTRODUCTION

World Health Organization (WHO) has issues about Global Mental Health (GBH), especially in some developing countries. The purpose of GBH program is to strengthen world mental health community by providing some informations about the state of mental health in all countries, identifying the need for mental health care, and developing effective and appropriate treatment, thus mental health community can be improved (Minas, 2015). A study released by WHO showed that government in developing countries have low attention about quality of mental health community, furthermore there is lack of government services that related to mental health. Government in some poor and developing countries only give 0.44% by their budget to improve mental health. The figure emerged in southeast Asian countries, including Indonesia that has minimum priority in mental health. In contrast, government in

several developed countries allocate nearly 5% of their budget to build, maintain and care for the citizen with mental disorders.

Low priority on mental health consequences of poor data that reveal about Indonesian mental health. Only few researchs on mental health by government, it can be concluded the they do not serious about mental health. However, the manifestation of unhealthy mental can be seen in some communities. For example, data from Transparency International (TI) (ROL, 2014) showed that Indonesia has ranked 64th for most corrupt country in 2014. Another facts are increasing crimes in children, as reported by Sindonews in 2015, there were 107 children in Depok as actors in crime (Virhdhani, 2015).

The process of mental health needs several elements, start from families, schools, neighborhoods and government (Christner & Mennuti, 2009). By explore data about the problems of mental health in community society, include in family and school community are very important. Thus, it can be made the treatment to solve that problems. This study focus on assessing mental health problems of students and measure the mental health of teachers in primary school. The reason why choosing school as the first step in forming healthy mental is because the interaction for approximately 5 hours each day sufficients to build and maintain and build healthy mental. This research will especially assess the areas of primary schools, because primary school is a foundation for student to grow and develop.

Preliminary study of mental health problems assessment at one of Islamic Elementary School in Gunungpati showed that 30% students of population has a mental health disorder. By using the Focus group discussion (FGD) with teachers obtained information about the form of mental unhealthy behaviors of students, like stealing food, ditching, shows inappropriate behavior, bullying, slow learner, low motivation and concentration problems. In addition, teachers said that they do not know how to overcome that problems. Therefore it can be concluded that the teacher's knowledge about trigger factors of unhealthy behaviors and how to handle it are very poor. Furthermore, there has been no special

training for teachers about how to detect and handle some symptoms of mental health disorders. In addition, there is no sufficient data that can be used as a guideline to intervene. So, the main purpose of this study is to assess forms of mental health issues related to chronological age of student. The next goal is to present scientific data that can be used as a reference for the government to make solutions for children problems. Finally, the next goal is to measure whether teachers as educators have a good mental health, it is important to know because teachers will guide students to learn.

Mental Health Theories

Some experts define the concept of mental health. According to the psychiatrists, mental health is avoiding individuals from symptoms of neurosis and psychosis (Semium, 2006: 50). These experts focused on understanding mental health as a condition in individual that free from mental disorders, there is no symptoms of mental disorders.

Mental health is a state not only based on presence or absence of symptoms of psychological distress, but also about characteristics of psychological well-being like feeling excited, interested in some activities, and be able to enjoy her/ his life (Viet & Ware, 1983: 730). In line with explanation from Kartono (2000: 4), mental health is not only free from any symptoms of mental disorders but also has a good personality.

Riyanto et al (2009) mentioned that mental health is similar with psychological well-being that was developed by Ryff. On the contrary, Viet and Ware (1983), mentioned that mental health and psychological well being are not the same concept. It can be separated because psychological well-being is one aspect of mental health. According to Ryff (1995a: 720), psychological well-being is related to individual's ability to accept themselves, has a good relationship with others, show that they are independent person, able to control their circumstances, and able to actualize their potency.

Based on aforementioned discussions, it can be concluded that mental health is a state of individual not only based on the presence or absence of psychological stress symptoms but also based on some characteristics psychological well-being in their life.

Mental Health Dimensions

Aspects of mental health that used in this study is based on preview research by the Viet & Ware (1983) about developing measurement tools MHI-38. Mental health consists of two aspects, there are Psychological Distress and Psychological Well-Being.

Psychological distress is a state of individuals in a negative mental health. Negative mental state of health measured by the presence of some clinical

symptoms on individual. Symptoms that arise would affect personal and social life. First clinical symptom is anxiety, second symptom is depression (or depression as form of excessive sadness). Third symptom is loss of behavioral or emotional control.

Psychological well-being describes individuals who have a good mental state of health that can be seen from some indicators like life satisfaction, emotional ties, and general positive affect. Individuals who have a good psychological well-being would satisfy to themselves, have emotional attachment with habitant, and have realistic goals.

Mental Health Factors

Notosoedirdjo and Latipun (2007: 71) mentioned that there are four factors related to mental health, namely biological, psychological, and socio-cultural environment. Some experts believe that biological factors related to mental health, like brain system, the endocrine system, genetic aspect, sensory aspect, and maternal factors during pregnancy. Then, psychological factors like early experience, learning process, and what people need. Third, social and cultural factors like social stratification, social interaction, family, social change, and local culture value. And the last is environmental factors, such as healthy environment, nutrition for body, physical environmental, chemical environment, and biological environment.

School

Primary School Definition

Law of Education no.20 in 2001 explained that primary school is basic level of formal education for Indonesian with age 7 to 12 years. Primary school is underlying for secondary school or high school.

School plays a significant role as an institution that delivers a good quality of human resources since students could learn how to enhance their competency, characteristic and also to gain life skill improvement (WA, 2012:18).

Students is defined as the person who acquire to get knowledge. During the learning process, student needs to be supervised from the experts in order to have self development progress. In contrast, teacher is described as the person who has responsibility to educate students. Teacher is used to act as the centre of learning process. Thus, teacher has several roles, such as to be education resources and also as knowledge transfers values to students (Agung, 2010:1). In addition, other expert believes that teacher possesses some important duties such as a) student's mentor, b) environment's controller, c) participant, d) motivator and e) evaluator (Wijaya in Setyawan, 2013:12).

RESEARCH METHOD

Quantitative method was applied to collect research's data. Researchers defined mental health as a state when individual has psychological well being like self satisfaction, positive emotion to others and own life goals. Moreover, mental health was illustrated also as a free from psychological distress such as anxiety, depression and emotional loss control. Participants of this research involved 86 primary teacher in Semarang.

Focus Group Discussion (FGD) was utilized to assess primary students mental health problems. The participant was asked about mental health disorder symptoms that they found along teaching students. While a few numbers of participants were invited in this discussion, others participants were explored by open-ended question. However, The Mental Health Inventory is applied to measure teacher mental health state. This scale was modified from the Mental Health Inventory (MHI-38) from Viet & Ware (1983). MHI-38 has two global dimensions for examples are psychological distress and psychological well-being. Moving to more detail analysis, both dimensions have five sub dimensions. For instance, the psychological distress is structured by anxiety, depression, loss of behavioural or emotional control. Yet, emotional ties and general positive affect are formed into well-being dimension. Thirty eight items were demanded to participant by MHI-38 scales.

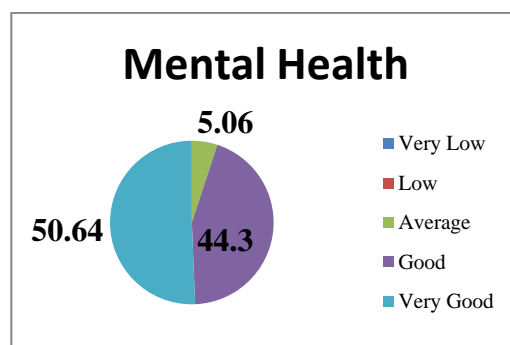
Two techniques were utilized to analyze the data. First, FGD and open ended questions results were reviewed with axial coding, preliminary coding, categorization and cross tabulation followed what Primasari and Yuniarti (2012) had accomplished in their research. Axial coding step was exercised to identify participants answers for familiarity. Having been identified, the answers were grouped into similar responses, this method was known as preliminary coding. Afterward, those closely responses were examined more detail by words or sentence from the answer. After coding, the answers were categorized into the same cluster and then researcher decided the categorization into frequency data. Second, descriptive technique was practiced to see the teacher mental health state.

RESULT AND DISCUSSION

The Research's Participants number were 86 primary school teachers in Gunung Pati residents and others. All participants data was valid to be examined as assessor in students mental health problems. FGD was held in Graha Wiyata Patemon with MI Roudlotul Huda's teachers as participants, however only eleven participants were attending. Open ended questioner was considered also to collect data from others participants. On the other hand, only 79 participants data were legitimated their mental health

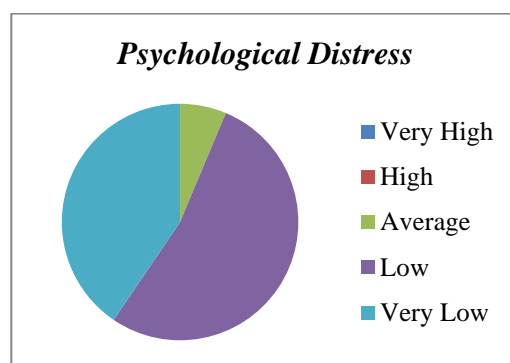
state since 7 participants did not have complete answer.

The result revealed that a very good state of teacher mental health came as the largest portion at 50,64%. A 44,3 % of teacher witnessed a good mental health condition level and only 5,06 % of them was claimed in average level of mental health state. Overall, it was noticeable that participants have a very good state in their mental health. More detail, it was explained at the pie chart below.



MENTAL HEALTH'S DEPICTION FROM PSYCHOLOGICAL DISTRESS FACTOR

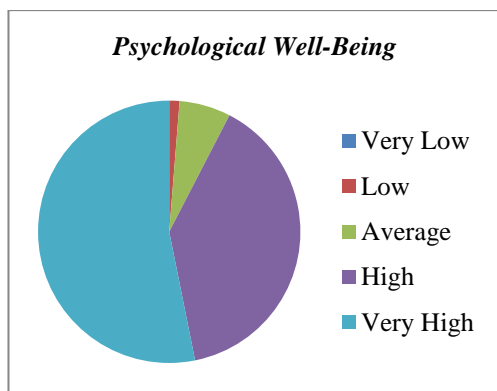
Mental Health state was measured by using Mental Health Inventory own by Veit and Ware (1983). Overall, it can be seen that psychological distress reached the low level for all participants. Moving to more detail, the biggest proportion of participant's psychological distress showed at a very low level at 53,16 %. In addition, the second list of percentage of participants's mental health touched at 40,51%, it was categorized into low level. Finally, the least percentage of participant's mental health was ranked into average level, it only at 6,32%. Furthermore, it is described in the pie chart below.



MENTAL HEALTH'S DEPICTION FROM PSYCHOLOGICAL WELL-BEING FACTOR

The result revealed that participants experienced psychological well-being as one of mental health indicators. Overall, the state of psychological well-being was dominated by a very high percentage at 53,16%. Moreover, a high state of psychological well-being came second as the highest score at 39,24% of the number of participant. On the contrary, only

6,33% of participants possessed an average psychological well-being. However, low of psychological well-being was found at 1,2% of participants. The pie chart presents the complete view of the percentage.



FGD AND OPEN ENDED QUESTIONER RESULT

Generally, it can be noticed that mental health problems that came up from students were dominated by low of concentration at 30,23%. Academic problems reached the second rank of mental health disorder at 29,07%. A 17,44% of mental health problems was owned by social problems. Furthermore, demotivation was placed as the fourth rate of mental health problems. Aggressive behaviour and others were put consecutively at 4,66% and 8,14%.

Moving to more detail analysis, it can be seen that six dimentions of mental health problems were represented by several problems. To begin, poor concentration factors were built up from many symptoms, these were listed in the table 1 below.

TABEL 1
POOR CONCENTRATION

| Indicators | Total | Percentage |
|------------------------------|-------|------------|
| Talk too much at class | 2 | 2,33 |
| Deprive attention in lessons | 7 | 8,14 |
| Low attention | 11 | 12,79 |
| Crowded class | 2 | 2,33 |
| Plays too much | 2 | 2,33 |
| Making their own world | 1 | 1,16 |
| Rowdy class | 1 | 1,16 |
| Total | 26 | 30,23 |

Secondly, academic problems were fulfilled by the symptoms that rise from the learning process, start from the way students effort to understand the lessons to difficulties in writing. Table 2 represents for those who were included into academic issues.

TABEL 2
ACADEMIS ISSUES

| Indicators | Total | Percentage |
|-------------------------------------|-------|------------|
| Writing and reading | 5 | 5,82 |
| Incomplete task/Homework | 11 | 12,80 |
| Sluggish receive lessons | 4 | 4,65 |
| Incapable understanding information | 5 | 5,82 |
| Jumlah | 25 | 29,08 |

Next analysis was social problems appeared in educating students. The percentage of sub dimensions of social problem is written on the table 3.

TABEL 3
SOCIAL PROBLEMS

| Indicators | Total | Percentage |
|------------------------------|-------|------------|
| Inrelevant questions | 1 | 1,16 |
| Lack of communication | 4 | 4,65 |
| Social Problems | 1 | 1,16 |
| Deficit of Parents attention | 3 | 3,49 |
| Selfish students | 1 | 1,16 |
| Truancy | 2 | 2,33 |
| Impolite students | 3 | 3,49 |
| Total | 15 | 17,44 |

Fourthly, Low motivation in learning came up at 10,47%. Thus, table 4 illustrates the components of demotivation difficulties.

TABEL 4
LOW OF MOTIVATION

| Indicators | Total | Percentage |
|--------------------------------|-------|------------|
| Deprived motivation to study | 3 | 3,49 |
| Pressured by learning process | 1 | 1,16 |
| Shortage of learning awareness | 5 | 5,82 |
| Total | 9 | 10,47 |

Next, sub dimensions was aggressive behaviour. These offensive behavior was indicated by several symptoms that illustrated at table 5.

TABEL 5
AGGRESSIVE BEHAVIOR

| Indicators | Total | Percentage |
|-------------------------|-------|------------|
| Naughty | 2 | 2,33 |
| Fallen | 1 | 1,16 |
| Crush to other students | 1 | 1,16 |
| Total | 4 | 4,65 |

In conclude, others categorization represents the unique symptoms that difficult to organized them into the same cluster. Then, table 6 describes those answer.

TABEL 6
OTHERS

| Indicators | Total | Percentage |
|-------------------------|-------|------------|
| Confuse teacher | 3 | 3,49 |
| Many problems | 1 | 1,16 |
| Over active students | 1 | 1,16 |
| Low Economic | 1 | 1,16 |
| Weak physical condition | 1 | 1,16 |
| Total | 7 | 8,14 |

DISCUSSION

Researcher believes that partisipants experience very good mental health state is caused by several reasons. Firs of all, it relates with the reward system. Participants receive nearly double salary since the goverment apply certification policy for teacher. Consequently, those payroll rule is not followed by a significant workload added, therefore this regulation allegedly come as an external motivation for them to regulate their psychological distress problems. In addition, participants think that they have been paid balance with their workload, thus work satisfaction at hand. Fairness perception in payroll will gain work satisfaction and also conduct to life satisfaction (Robbins, 2003:78). This feeling has lead to mental healthyness.

Other explanation that influence participant's mental health state is teacher's adaptation skill. Adaptation is self adjustment to environtmental load to maintain life (Sarafino, 2005). When stressor is coming up, psychologucally human would adapt on it. Successfullness in adaptation will rise welfare, on the contrary failure in adaptation will cause psychological distress such as anxiety, depression etc. Participants experienced appropriate adaptation, then gained psychological well-being. Those adaptation skill is taken from work experiences, thus teacher applied self regulation to be adaptive.

Poor concentration come as the highest portion of children mental health problems. This Symptoms are caused by several factors such as deprived nutritious food until it ruins children endurance to keep their concentration. Following this reason, physical fatigue also influence children to maintain their attention.

Academic problems appears as the second rank of mental health symptoms. This problems involve intellectual performance and learning technique in receiving information at school. Low capacity of intellectual appears as a barrier for children to understand lessons. On the other hand, Social

problems are induced by personality and parenting model. Inferior personality doesn't flexibel to interact to others. An authoritarian or permissive parenting model tends resulting intollerance and impolite children. Next, aggressive behavior is emerged by low attention from parents. Finally, other categorize involves economic and physical problems.

CONCLUSION

To sump up, there were two conclusions found. First, the result revealed that a very good state of teacher mental health came as the largest portion at 50,64%. A 44,3 % of teacher witnessed a good mental health condition level and only 5,06 % of them was claimed in average level of mental health state. Overall, it was noticeabled that participants have a very good state in their mental health. Second, it can be noticed that mental health problems that came up from students were dominated by low of concentration at 30,23%. Academic problems reached the second rank of mental health disorder at 29,07%. A 17,44% of mental health problems was owned by social problems. Furthermore, demotivation was placed as the fourth rate of mental health problems. Agressive behaviour and others were put consecutively at 4,66% and 8,14%.

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The Development of Badminton Agility Test

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Abstract — Demands agility in every sport are very different, and agility measurement was supposed to be different. However, existing measurement tools agility is considered not valid and reliable for measuring agility in badminton. The purpose of this study is to create agility test which is valid and reliable for badminton. For the purpose of this study, we recruited twenty students (10 badminton students of sport faculty and 10 professional badminton athletes, age range between 17 – 21 yr) by using R & D method. There are six stages; (1) analysis needed; (2) design; (3) prototype; (4) testing; (5) revision; and (6) validity and reliability of the test. Min K. Chin test was adopted to create a Badminton Agility Test (BAT) then inserted additional tools of computer software and hardware to facilitate the operation. Result of the quality and feasibility testing are: (1) the panel was slippery; (2) avoid confusion when start. The solutions are; (1) to replace the tread surface with non-slip material, rubber carpet is the most logical choice; (2) adding a sound signal when to start the test. The reliability value of BAT was 0.884, and validity of each item (r^{count}) were 0.864; 0.884; 0.869; 0.867; 0.858; 0.885; 0.862; 0.863. Statistical analysis revealed calculate the correlation coefficient is greater than the correlation coefficient table ($r^{\text{count}} > r^{\text{table}}$), suggesting that the BAT is reliable and valid to measuring badminton agility. Due to movement specificity, the BAT has significance for badminton agility assessment.

Keywords— Development, Badminton, Agility, Fitness Test

INTRODUCTION

There are two components forming physical abilities, physical fitness and motor fitness. Physical fitness consists of muscular strength, muscular endurance of respiratory-circulatory, and flexibility. While motor fitness components are build by motion, speed, coordination, agility, and balance (Sajoto, 1988; Tancred, 1995; Davis, 2000).

Badminton requires short bursts of energy for quick movements and changes of way. In consequence, agility is important to a successful player (Karren, 2008; Tohar, 1992; Grice, Tony., 2008). Even though badminton is the fifth most popular sport in the world and played by over 200 million people (www.officialbadminton.com Retrieved 3.2.2012), apparently there has been no study done to measure agility in badminton among college students. Agility is an important component of many sports but it has not been extensively researched (Young & Farrow, 2006).

Agility has been a difficult area to be measured. The agility demands for different sports are very specific, in terms of the speed and direction of turning, in badminton it include extra factors like controlling a shuttlecock or swinging a racket. Many tests involve complex movements, what is actually being measured may not be clear, and a good score may conceal deficiencies in some aspect of agility. In a

recently published agility literature review, it was reported that sport scientists have yet to agree on a clear definition of agility (Sheppard & Young, 2006). Agility has traditionally defined as speed in changing direction (Chelladurai & Yuhasz, 1977; Sheppard et al., 2006; Young et al., 2002). However, more recently it was argued that agility requires not only ability to change direction with speed, but also some perceptual skill. This argument suggests that agility is multifaceted and that agility itself requires an interaction of a number of components of fitness (Young et al., 2002). In many field sports, such as rugby, changes of direction are often executed in response to stimuli such as on attacking or defending opponent and therefore agile maneuvers may not be explicitly preplanned (Besier et al., 2001; Farrow et al., 2002; Sheppard et al., 2006). Thus, consistent with Young et al. (2002), agility as previously thought, a closed motor skill that simply requires change of direction speed—that is, a skill executed in a stable environment and able to be planned. However, agility may be considered an open motor skill that requires perceptual skills and the ability to react quickly; open motor skills are executed in a constantly changing environment or in response to an unpredictable stimulus requiring constant performer adaptation. With this in mind, Sheppard and Young (2006) have defined agility as “a rapid whole body movement with change of velocity or direction in response to a sports specific stimulus”.

Agility measurement used until today are as follows: burpee test (squat thrust); side step test; shuttle run; quadrant jump; SEMO agility test; right boomerang run; LSU agility obstacle course; Illinois agility run; zigzag test (Garry L. Johnson & Jack K. Nelson, 1979); 505 agility test; hexagon test; T-test; 10 m shuttle; quick feet test; side step test; 20 yard shuttle; agility cone drill; 3-cone drill; box drill; AFL agility test; around head test; 20 yard agility; balsom agility run; 8 foot up & go; AAHPERD agility test; lane agility drill; and shuttle cross pick up (Top End Sports, 2012).

The measuring instruments have a wide range of weaknesses, as described by Johnson & Nelson (1979). Some of the weaknesses are described as follows:

- a. the surface area and the type of footwear; requires considerable time to administer certain agility tests to large groups
- b. many agility tests involve running ability or ability to change body position
- c. some agility tests do not distribute scores widely enough to give a clear distinction between good and poor performance

- d. advantages for taller student; agility is quite specific to the type of agility measured.

Some researchers supported the need for specific measurement tools to measure agility for every sport (Benjamin et al., 2010; Ming Kai Chin et al., 1995; Farrow et al., 2005; Keane et al., 2010; Sheppard et al., 2006).

Badminton has a unique movement style and specific fitness demands. One of the key thing to remember is the size of a badminton court. It has a smaller area compared to Tennis, Football, Rugby, Hockey and Netball. This smaller area means that players do not have a chance to build up their maximum speed. Because of this, explosive movements such as jumping, turning, speed off the mark, lateral movements and agility, are extremely important (Badminton Australia, 2012). Footwork is the foundation to be able to produce quality hitting stroke, which, if it is done in a good position. To be able to hit with a good position, an athlete must have a movement speed. Footwork speed cannot be achieved if the footwork is irregular. The focus of good footwork is reaching the bird as quickly as possible with as little effort as possible. Good footwork gets player into the best position to execute shots while maintaining good balance and body control (Tony Grice, 2008; Tohar, 1992; Ming Kai Chin et al., 1995).

Several researchers have made the agility instruments in badminton. There is a specific fitness testing for badminton that controlled the intermittent flashes of light bulbs designed to represent the physiological response in badminton, devised by Min Kai Chin et al. (1995) and tested in a badminton court. A low correlation ($r = 0.65$) was found between the results of the field test and the rank-order list of subjects, based on an objective on-field physiological assessment and subjective ranking. The researchers concluded that this sport specific test provides reliable estimates of badminton players' fitness levels. The aim of this study is to create a new test of Agility for Badminton in a modified version of Ming Kai Chin et al. (1995) sport specific agility test, with the addition of several new technologies that can facilitate the calculation of measuring agility in badminton and also to do evaluation on the new agility test with validity and reliability.

METHODS

Modification of research and development (R & D) of Borg and Gall (1989) is used to do this study. There are six stages in this study; (1) analysis required; (2) design; (3) prototype; (4) testing; (5) revision; and (6) validity and reliability test. First, analysis required in the development of instruments agility is the exact timing from the center to the corner of the court and vice versa. And total time of the task given to the measurement of agility, focus group discussion is used to collect data in this stage. Second, design of instrument agility by selected version modification, which was the main choice as the result of focus group discussion at the previous stage of analysis requirement and application of computerized technology. Third, creating a prototype in accordance with the design intended in previous stage, where the instrument agility was executed in one-half of badminton

court. Fourth, after the product is completed, the next stage is to examine the design of badminton agility test. Five students from the faculty of sport of Semarang State University are served as subject for this study and three badminton experts are assigned to assess the tool feasibility. This experiment is used to anticipate any possible errors, as well as to analyze the obstacles that may be encountered and tried to mitigate these constraints. Moreover, the next stage was product revisions; it aims to improve the product before the product is ready to be used. Revisions are made based on review and input from experts and coaches, as well as the test results.

Validity and reliability of test is the final stage, twenty well-conditioned agility students (10 badminton students of sport faculty and 10 professionals badminton athletes, age = 17 – 21 yr) were recruited for this study. First group (BS) were recruited based on these requirements: students who take badminton class; qualified in badminton; have the correct badminton footwork; and are available for all testing occasions. Second group (BA) were recruited based on these requirements: a professional athletes at the provincial level; has provincial achievement within the last two years; and are available for all testing occasions.

Procedures

After badminton agility tool is finished, it is necessary to know the validity and reliability. Test started with getting the subject in the middle of the field, the operator entering data into the computer: name, age, height and weight. Then pressing the start button, which is marked with colored light bulb: red, yellow, blue, and green (start). Participants in accordance with the light footwork order: red = step forward (left and right); yellow = to the side (left and right); green = backward (left and right); and blue = front and back (middle). The commands were controlled by computer, with 25 variations, with the same amount of comparison for each participant. Indicator light turns off when the participants were instructed to step on the panel, and it will be able to further order if the participant returned to the center (step on the center panel). Measurement completed after eighteen commands, and the results shows on a computer screen, which includes the whole process time; time to get to the destination panel; and back to the center panel of the destination panel.

Statistical Analyses

Validity testing using *Corrected Item - Correlation*, that is correlating each item score with a total score and make corrections of overestimated of the correlation coefficient values. Whereas reliability testing using Cronbach's Alpha (Azwar, 2007; & Arikunto, 2002). Counting statistics was used SPSS 17 programs.

The criteria of validity are:

If $r_{\text{count}} \geq r_{\text{table}}$ (test 2 sides with sig. 0.01), the instruments are correlated significantly to the total score (declared high validity)

If $r_{count} \leq r_{table}$ (test 2 sides with sig. 0.01), the instruments are not correlated significantly to the total score (declared invalid)

For reliability, testing typically uses certain restrictions such as 0.6. According to Sekaran (1992), the reliability of less than 0.6 is not good, while 0.7 is acceptable and above 0.8 is good.

RESULTS

This study reported in six major stages in building a measuring instrument that is ; (1) analysis required; (2) design; (3) prototype; (4) testing; (5) revision; and (6) validity and reliability analysis.

Analysis Required

This stage produced a badminton agility test (BAT) in order to measure agility badminton footwork character. Ten coaches and five sports scientists are participated in focus group discussions. Burpee Test, Side Step Test, Shuttle Run, Quadrant Jump, Right Boomerang Run, SEMO Agility Test, LSU Agility Obstacle Course (Johnson & Nelson, 1979:215), Illinois agility test (Cureton, 1951; Hastad & Lacy, 1994) and 505 tests compared to choose the most appropriate to the characteristics of badminton. The results are:

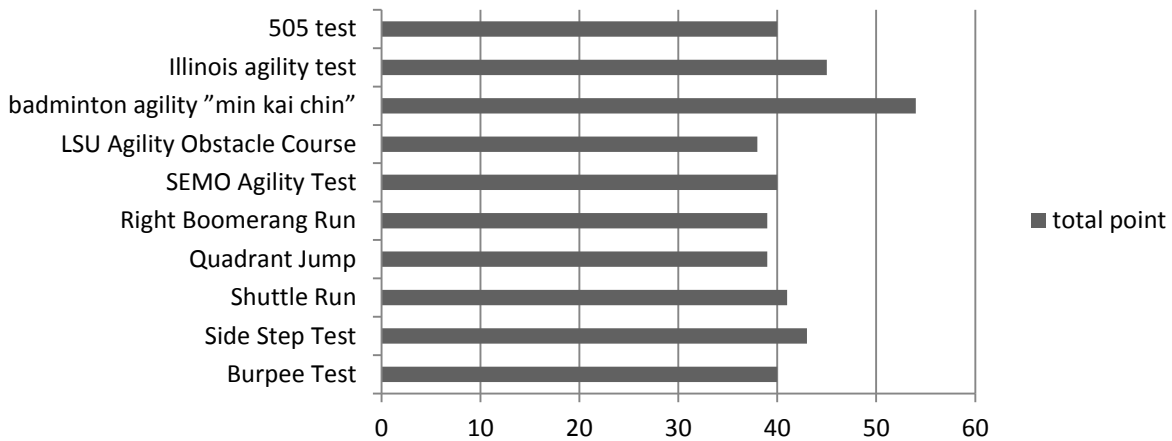


FIGURE 1. COMPARISON AGILITY MEASUREMENT.

Design

To choose the design, the results of the first stage were used. Badminton field test of Min K. Chin et al (1995) was-

adopted (see figure 2) and adding some computerized technology to simplify the operation and calculations.

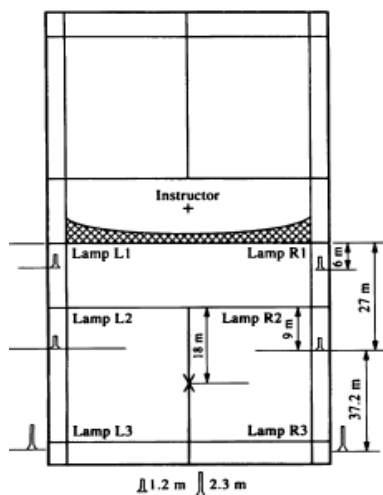


FIGURE 2. BADMINTON FIELD TEST (MIN K. CHIN ET AL., 1995).

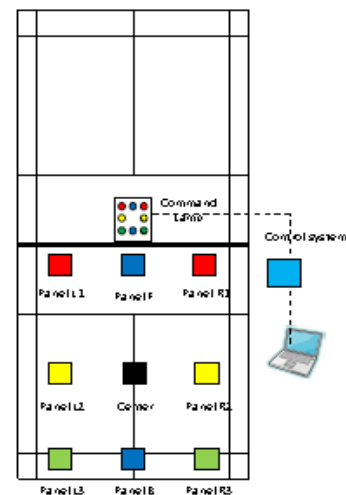


FIGURE 3. BADMINTON AGILITY FIELD TEST.

Prototype

Adding some support equipment and computer programming will facilitate the operation of the tool and

calculating the value of agility in badminton. Instrument agility executed in one-half of badminton court; nine pedal sensors of video game were individually mounted on posts,

with one shuttle at the lower end of each post. Lighting circuits command placed in the middle of the top of the net. The pedal sensors are connected to a programming device located outside the court (Steininger and Wodick, 1987). The layout of the test is illustrated in figure 3.

Testing and Revision

Eight participants (Five students and three badminton experts) are involved in the quality and feasibility testing. After undergo the test, participants were given an open questionnaire to comment, and the results are: (1) the surface underfoot panel is very slippery and complicated the movement; (2) avoid any confusion of the test starting time. These results can

be solved with: (1) replacing the tread surface with non-slip material, rubber carpet became the most logical choice, because it is strong and can preserve electrical parts inside and also rugged on shoes materials; (2) adding a sound signal to start the test.

Validity and Reliability Testing

The results obtained in the field test are presented in Table 1. The maximum (total) individual data recorded during the field test was 18.47 seconds, and minimum (total) was 10.85 seconds. Mean times required to move front left was 1.80 s; central/middle front was 1.69 s; front right was 1.72 s; left side was 1.59 s; right side was 1.62 s; rear left was 1.89 s; middle rear was 1.81 s; and rear right was 1.83 s.

TABLE 1. RESULTS OF THE BADMINTON AGILITY TEST (BAT) FOR INDIVIDUAL PLAYERS (IN SECONDS).

| No. | Front Left (A) | | | Central Front (B) | | | Front Right (C) | | | Left Side (D) | | | Total |
|-----------|----------------|--------|------|-------------------|--------|------|-----------------|--------|------|---------------|--------|------|-------|
| | leave x | back y | Σ xy | leave x | back y | Σ xy | leave x | back y | Σ xy | leave x | back y | Σ xy | |
| 1 | 1.19 | 1.23 | 2.42 | 1.12 | 1.08 | 2.20 | 1.22 | 0.97 | 2.19 | 0.84 | 0.94 | 1.78 | 17.77 |
| 2 | 0.66 | 0.63 | 1.29 | 0.75 | 0.77 | 1.52 | 0.93 | 0.92 | 1.85 | 0.92 | 0.94 | 1.86 | 15.60 |
| 3 | 1.21 | 0.66 | 1.87 | 1.16 | 1.11 | 2.27 | 0.99 | 0.97 | 1.96 | 0.66 | 0.63 | 1.29 | 13.58 |
| 4 | 1.01 | 0.92 | 1.93 | 1.11 | 1.16 | 2.27 | 1.20 | 1.14 | 2.34 | 0.78 | 0.77 | 1.55 | 15.48 |
| 5 | 1.03 | 0.66 | 1.69 | 0.66 | 0.63 | 1.29 | 0.76 | 0.69 | 1.45 | 0.70 | 0.72 | 1.42 | 12.35 |
| 6 | 1.19 | 0.78 | 1.97 | 0.78 | 0.79 | 1.57 | 0.78 | 0.77 | 1.55 | 0.71 | 0.63 | 1.34 | 13.00 |
| 7 | 0.76 | 0.66 | 1.42 | 0.86 | 0.93 | 1.79 | 0.78 | 0.70 | 1.48 | 0.72 | 0.77 | 1.49 | 13.40 |
| 8 | 1.28 | 1.27 | 2.55 | 1.22 | 0.97 | 2.19 | 0.73 | 0.74 | 1.47 | 0.73 | 0.75 | 1.48 | 15.98 |
| 9 | 0.89 | 1.12 | 2.01 | 0.58 | 0.70 | 1.28 | 1.18 | 1.19 | 2.37 | 1.17 | 1.16 | 2.33 | 16.38 |
| 10 | 1.21 | 1.37 | 2.58 | 1.09 | 1.06 | 2.15 | 1.02 | 0.92 | 1.94 | 1.02 | 1.01 | 2.03 | 18.47 |
| 11 | 0.81 | 0.82 | 1.63 | 0.78 | 0.80 | 1.58 | 0.69 | 0.70 | 1.39 | 0.70 | 0.78 | 1.48 | 12.10 |
| 12 | 0.66 | 0.63 | 1.29 | 0.77 | 0.77 | 1.54 | 0.72 | 0.72 | 1.44 | 0.76 | 0.77 | 1.53 | 11.86 |
| 13 | 0.72 | 0.66 | 1.38 | 0.63 | 0.63 | 1.26 | 0.78 | 0.79 | 1.57 | 0.66 | 0.63 | 1.29 | 11.21 |
| 14 | 0.73 | 0.92 | 1.65 | 0.78 | 0.77 | 1.55 | 0.84 | 0.84 | 1.68 | 0.78 | 0.77 | 1.55 | 12.98 |
| 15 | 0.76 | 0.66 | 1.42 | 0.66 | 0.63 | 1.29 | 0.66 | 0.63 | 1.29 | 0.60 | 0.62 | 1.22 | 10.85 |
| 16 | 0.80 | 0.78 | 1.58 | 0.78 | 0.78 | 1.56 | 0.78 | 0.77 | 1.55 | 0.71 | 0.63 | 1.34 | 12.35 |
| 17 | 0.76 | 0.66 | 1.42 | 0.86 | 0.63 | 1.49 | 0.78 | 0.70 | 1.48 | 0.72 | 0.77 | 1.49 | 11.94 |
| 18 | 0.91 | 0.95 | 1.86 | 0.73 | 0.75 | 1.48 | 0.73 | 0.74 | 1.47 | 0.73 | 0.75 | 1.48 | 13.22 |
| 19 | 0.89 | 0.99 | 1.88 | 0.58 | 0.70 | 1.28 | 1.01 | 0.98 | 1.99 | 0.89 | 0.90 | 1.79 | 14.33 |
| 20 | 1.02 | 1.04 | 2.06 | 1.09 | 1.06 | 2.15 | 1.02 | 0.92 | 1.94 | 1.02 | 1.01 | 2.03 | 15.87 |
| Mean | | | 1.80 | | | 1.69 | | | 1.72 | | | 1.59 | |
| Total Max | | | | | | | | | | | | | 18.47 |
| Total Min | | | | | | | | | | | | | 10.85 |

| No. | Right Side (E) | | | Rear Left (F) | | | Middle Rear (G) | | | Rear Right (H) | | | Total |
|------|----------------|--------|------|---------------|--------|------|-----------------|--------|------|----------------|--------|------|-------|
| | leave x | back y | Σ xy | leave x | back y | Σ xy | leave x | back y | Σ xy | leave x | back y | Σ xy | |
| 1 | 1.21 | 1.02 | 2.23 | 1.21 | 1.02 | 2.23 | 1.12 | 1.08 | 2.20 | 1.22 | 1.30 | 2.52 | 17.77 |
| 2 | 1.01 | 0.66 | 1.67 | 1.17 | 1.14 | 2.31 | 1.28 | 1.27 | 2.55 | 1.28 | 1.27 | 2.55 | 15.60 |
| 3 | 1.03 | 0.78 | 1.81 | 0.92 | 0.63 | 1.55 | 0.66 | 0.63 | 1.29 | 0.75 | 0.79 | 1.54 | 13.58 |
| 4 | 1.19 | 0.60 | 1.79 | 0.66 | 0.77 | 1.43 | 0.92 | 0.94 | 1.86 | 1.16 | 1.15 | 2.31 | 15.48 |
| 5 | 0.64 | 0.60 | 1.24 | 0.78 | 1.21 | 1.99 | 1.02 | 0.87 | 1.89 | 0.68 | 0.70 | 1.38 | 12.35 |
| 6 | 0.78 | 0.79 | 1.57 | 0.98 | 1.01 | 1.99 | 0.78 | 0.78 | 1.56 | 0.70 | 0.75 | 1.45 | 13.00 |
| 7 | 0.79 | 0.63 | 1.42 | 1.20 | 1.03 | 2.23 | 0.66 | 0.63 | 1.29 | 1.12 | 1.16 | 2.28 | 13.40 |
| 8 | 0.82 | 0.77 | 1.59 | 1.22 | 1.19 | 2.41 | 1.03 | 1.07 | 2.10 | 1.22 | 0.97 | 2.19 | 15.98 |
| 9 | 1.19 | 1.25 | 2.44 | 0.99 | 1.11 | 2.10 | 0.98 | 1.02 | 2.00 | 0.93 | 0.92 | 1.85 | 16.38 |
| 10 | 1.09 | 1.11 | 2.20 | 1.22 | 1.30 | 2.52 | 1.28 | 1.27 | 2.55 | 1.27 | 1.23 | 2.50 | 18.47 |
| 11 | 0.60 | 0.61 | 1.21 | 0.82 | 0.82 | 1.64 | 0.90 | 0.91 | 1.81 | 0.68 | 0.68 | 1.36 | 12.10 |
| 12 | 0.70 | 0.66 | 1.36 | 0.90 | 0.91 | 1.81 | 0.72 | 0.72 | 1.44 | 0.73 | 0.72 | 1.45 | 11.86 |
| 13 | 0.73 | 0.78 | 1.51 | 0.70 | 0.63 | 1.33 | 0.66 | 0.63 | 1.29 | 0.79 | 0.79 | 1.58 | 11.21 |
| 14 | 0.80 | 0.79 | 1.59 | 0.66 | 0.77 | 1.43 | 0.92 | 0.94 | 1.86 | 0.84 | 0.83 | 1.67 | 12.98 |
| 15 | 0.50 | 0.54 | 1.04 | 0.78 | 1.21 | 1.99 | 0.66 | 0.67 | 1.33 | 0.60 | 0.67 | 1.27 | 10.85 |
| 16 | 0.69 | 0.68 | 1.37 | 0.98 | 1.01 | 1.99 | 0.78 | 0.77 | 1.55 | 0.70 | 0.71 | 1.41 | 12.35 |
| 17 | 0.79 | 0.63 | 1.42 | 0.72 | 0.72 | 1.44 | 0.66 | 0.78 | 1.44 | 0.89 | 0.87 | 1.76 | 11.94 |
| 18 | 0.82 | 0.77 | 1.59 | 0.73 | 0.73 | 1.46 | 1.03 | 0.91 | 1.94 | 0.97 | 0.97 | 1.94 | 13.22 |
| 19 | 0.85 | 0.85 | 1.70 | 0.99 | 0.89 | 1.88 | 0.98 | 0.98 | 1.96 | 0.93 | 0.92 | 1.85 | 14.33 |
| 20 | 0.79 | 0.79 | 1.58 | 1.08 | 1.07 | 2.15 | 1.12 | 1.10 | 2.22 | 0.88 | 0.86 | 1.74 | 15.87 |
| Mean | | | 1.62 | | | 1.89 | | | 1.81 | | | 1.83 | |

| No. | Front Left (A) | | | Central Front (B) | | | Front Right (C) | | | Left Side (D) | | | Total |
|-----------|----------------|--------|-----------|-------------------|--------|-----------|-----------------|--------|-----------|---------------|--------|-----------|-------|
| | leave x | back y | $\sum xy$ | leave x | back y | $\sum xy$ | leave x | back y | $\sum xy$ | leave x | back y | $\sum xy$ | |
| Total Max | | | | | | | | | | | | | 18.47 |
| Total Min | | | | | | | | | | | | | 10.85 |

Table 2 displays the SPSS 17 reliability statistics values for the badminton agility test (BAT). This data indicate that badminton agility tool is reliable, because the value obtained by Cronbach's alpha is 0.884, and since the value is greater than 0.8, it can be concluded that the measuring instrument is "reliable". According to Sekaran (1992), the reliability of less than 0.6 is bad, while 0.7 is acceptable and above 0.8 is good.

TABLE 2. RELIABILITY STATISTICS.

| Cronbach's Alpha | N of Items |
|------------------|------------|
| .884 | 8 |

Table 3 displays the SPSS 17 validity statistics values for the badminton agility test (BAT). Correlation results shows in the *Item-Total Statistics* output in the *Corrected Item-Total Correlation* column. This value is compared with the value of r^{table} . Look at the r^{table} at the 0.05 significance level of two sides test, the amount of data was (n) = 20, then obtained r^{table} for 0.444 (see r^{table} on Priyatno, 2010). The analysis results can be seen that items A, B, C, D, E, F, G, and H values were more than $r^{table} = 0.444$, it can be concluded that the item was "valid instrument".

TABLE 3. ITEM-TOTAL STATISTICS.

| I tem | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Correlation | Item-Total | Cronbach's Alpha if Item Deleted |
|-------|----------------------------|--------------------------------|-----------------------|------------|----------------------------------|
| A | 12.1410 | 3.575 | .702 | .864 | |
| B | 12.2505 | 3.899 | .502 | .884 | |
| C | 12.2160 | 3.824 | .662 | .869 | |
| D | 12.3475 | 3.888 | .702 | .867 | |
| E | 12.3195 | 3.626 | .773 | .858 | |
| F | 12.0420 | 3.941 | .487 | .885 | |
| G | 12.1295 | 3.538 | .720 | .862 | |
| H | 12.1060 | 3.474 | .714 | .863 | |

DISCUSSION

The developing badminton agility test (BAT) adopted from Min K. Chin et al (1995) is used for early prototype, in a manner of similar work. Agility of the various instruments does not represent the character of badminton movement, a movement that carried only a limited run, changing direction, and jumping. For example, "Illinois agility test" test and "505 test", participants are required to run fast and zigzag to change direction (Hastad & Lacy, 1994; Draper & Lancaster, 1985). While badminton footwork consists of Step-close-step or crossover step, shuffle step, and Chasse step Three-step recovery sequence (Grice, 2008; Bernd, 2010; Anderson, 2013).

In addition, the FGD results shows a high trend towards the Min K. Chin instrument, which is amount of 54 points, followed by *Illinois agility test* by 45 points, and the lowest *Quadrant jump* and *Boomerang run* both of 39 points. An outline of the essays in this study consists of two main sections, namely; (1) *hardware*, which covers; detectors

touch / panel; the touch detection reader; command panel, and (2) *programming software*.

Originated from the touch panel is made from the former part of video game "dance pad" (TPUSB638) which is arranged in eight corner (front left, front right, central front, left side, right side, rear left, rear right, and middle rear) and one in the middle/base of the badminton court, with synthetic carpet to protect the components inside. Then it is connected by cable to the "detection reader" which is located outside the badminton court. The panel's work the same way with video games, whenever receiving pressure it will automatically send a signal to the reader / detection reader

Command panel consists of eight light bulbs, which lit in accordance with the variation of a computer program. Red light bulbs for forward step, yellow to side stepping, and green to step backward. Each time the touch panel trampled, "detection reader" will detect the time and the command lights will turn on again if participants return to the panel base / center. It is located the middle of the net and being on the net.

“MySQL” is used for computer programming which is, to control hardware performance (touch panel, command panel), and the main thing that the time is measured for both partially footwork’s and total time of testing. MySQL is a [relational database management system](#) (RDBMS), and ships with no [GUI](#) tools to administer MySQL databases or managing data contained within the databases. Users may use the included [command line](#) tools (Wikipedia, 2014) or use MySQL "front-ends", desktop software and web applications that create and manage MySQL databases, build database structures, back up data, inspect status, and work with data records (Wikipedia, 2014). It is based on the structure query language ([SQL](#)), which is use for adding, removing, and modifying information in the database. Standard SQL commands, such as ADD, DROP, INSERT, and UPDATE (Techterm, 2007).

The field test was executed in one-half of a badminton court. Eight light bulbs were individually mounted on

command panel (mounted on top of the net), and nine pedal panels were affixed on the floor in each corner badminton courts. The first trios of pedal panels (A, B, C) were located near the forecourt, the second trios (D, center, and E) at midcourt, and the third trios (F, G, H) at the rear (see figure 3). Officers entered data of participants into a computer database, including name, age, gender, height, leg length, body length. Participants were instructed to step (badminton footwork) from central panel/black panel towards each shuttle as soon as the corresponding bulbs (command lamp) was lit and to strike the shuttle in a technically appropriate manner. For the forecourt and midcourt light flashes, subjects performed a front and side lunge. For the rear court flashes, it is necessary to imitate a backward jump smash and land between the court lines, and then return to the central panel. The test consists of eight time steps and there are 25 different variations.

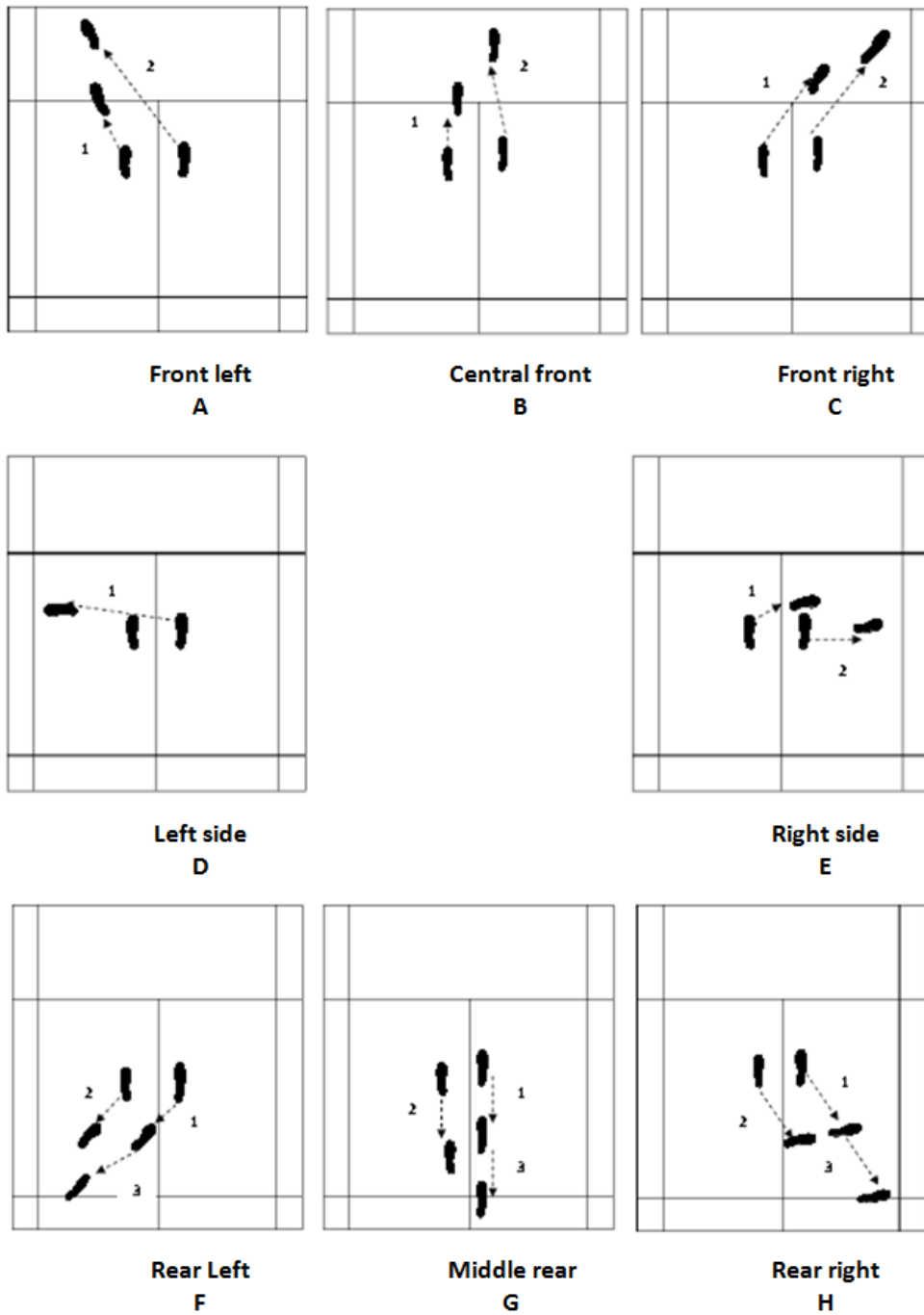


FIGURE 4. BADMINTON FOOTWORK (ANALYSIS OF: GRICE, 2008; BERND, 2010; ANDERSON, 2013).

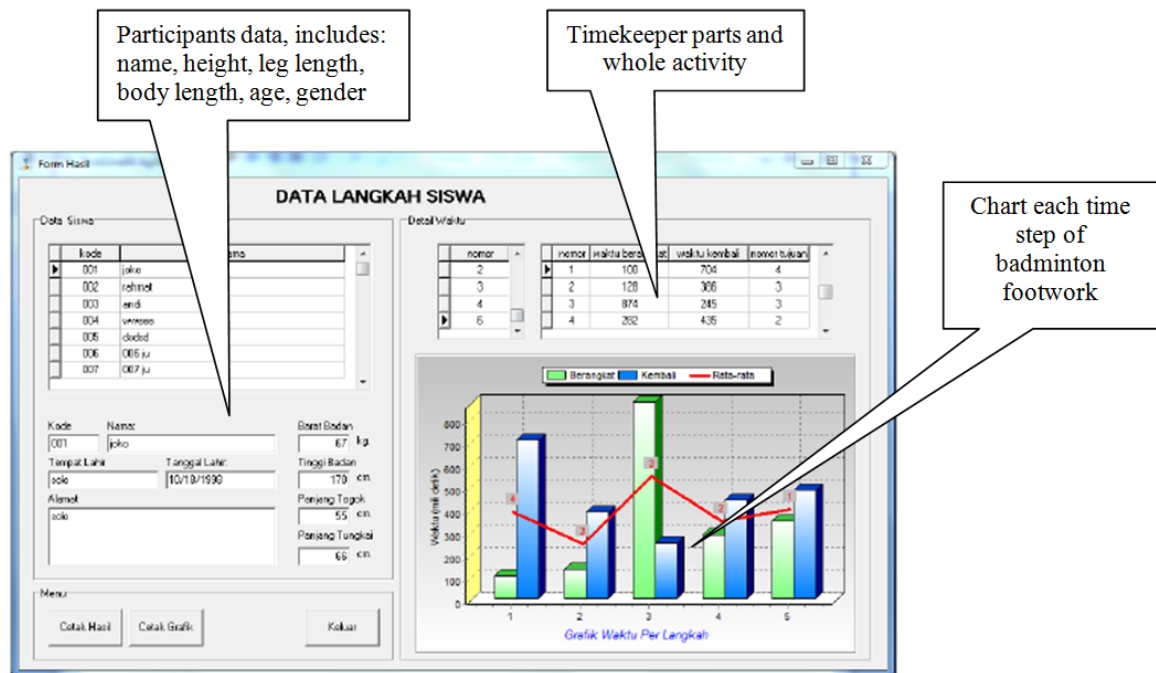


FIGURE 5. DISPLAY RESULTS OF BADMINTON AGILITY TEST.

Figure 4 shows the final view of the computer, which shown the results of badminton agility tests (BAT). The result includes data from the participants (name, height, leg length, body length, age, gender), timers (each step / footwork and total time), and a graph of the record time. The display is presented in a clear and precise of individual records of participants and the performance records of each participant. The display also shows the time achieved by the participants at each step is done, the time of the position in the middle/base of the court (central panel) to the angle (each panel) of the destination, and from the point of destination (each panel) back to the middle / base court (see figure 5).

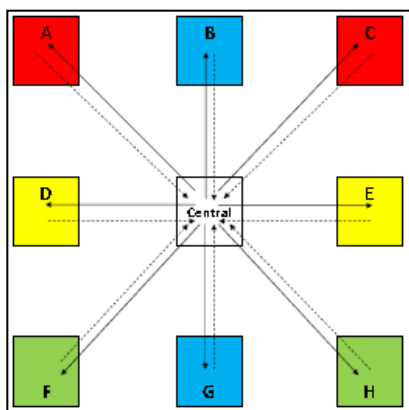


FIGURE 6. ILLUSTRATION OF BADMINTON AGILITY FOOTWORK.

As submitted by Borg et al (1989, 2003), a revision of product is carried out by testing the product. By analyzing weaknesses identified during the trial the deficiency occurred can be corrected immediately. There is variety of shortcomings during the trials in this study, obtained from the results of discussions with badminton experts, and the results of the questionnaire analysis. Obtained problems are (1) the surface of underfoot panel is very slippery and complicated the movement; (2) confusion when the participant can start the test.

Surface panels made from synthetic carpets and chosen because it is easy to come by. Nevertheless, this only creates the problem in accordance to the safety of the participants; the surface becomes slippery because it does not conform to the surface of badminton shoes which are made of rubber. Surface that is suitable for badminton shoes are made of rubber carpet. Therefore, the entire surface of the panel replaced with rubber made in such a way so as not to impede when stepped on.

Second problem, participants is confused when to start the test. Some participants only concentrate on officers, not paying attention to the lights command, so they started late and the test need to be repeated. In the testing phase, the measurement tool only indicates the command to start the test with flaring lights command simultaneously. There should be some improvement for participants to be able to concentrate, and know when the test starts. Giving special tones embedded in the device, the tone sounds is similar with the starting of motor or car

race. There are three different tones, the first tone follows flaring red light simultaneously, which means participants stand in the middle panel. The second tone by flaring yellow light simultaneously, which means that participants get ready. Last tone is green light which means participants can begin to move / step according to the direction given. With this revision, the measurement tool can be used to measure agility in badminton.

The next step is finding the validity and reliability of measuring instruments. This test designed for use in badminton footwork only. To determine reliability, testing typically uses certain restrictions such as 0.6. According to Sekaran (1992), the reliability of less than 0.6 is bad, while 0.7 is acceptable and above 0.8 is good. While for the validity of these instruments is by correlating each item score with a total score and make corrections to the overestimation of the correlation coefficient value (Priyatno, 2010). In other words, this analysis calculates the correlation of each item with the total score (Pearson bivariate techniques), but the total score does not include calculated the item scores. Whereas the testing criteria are as follows (Priyatno, 2010):

If $r^{count} \geq r^{table}$ (test two sides with sig. 0.01), the instruments are correlated significantly to the total score (declared high validity).

If $r^{count} \leq r^{table}$ (test two sides with sig. 0.01), the instruments are not correlated significantly to the total score (declared invalid).

The results from this study demonstrated that although there were some limitations, the badminton agility test (BAT) displayed acceptable reliability and validity for badminton footwork. The BAT also can detect changes in performance when to leave and return of badminton footwork (see table 1, figure 4, and figure 5). From table 1 can be explained that the fastest step or a short time step is left side, note in figure 4 (badminton footwork) can be seen that in doing step to the left side only takes one step only to reached the left side panel, and took an average 1.59 seconds. While the longest time was to the rear/backward left step, and it takes an average 1.89 seconds. This requires three steps to get to the backward left panel. Badminton bible on their website wrote:

“Everyone is comfortable stepping forwards; but asks people to step backwards quickly and without looking, and you’ll find few people who succeed on their first attempt”.

This means a backward left step has a higher degree of difficulty when compared with footwork in the other direction. Besides of requiring three steps, rear/backward step using diagonal steps, needs body contortion, and it usually use an over the head forehand stroke.

Badminton places demands overall body, from speed to concentration and conditions to sensitivity, coordination and finesse. The aim of the game is to place the shuttle where the opponent can no longer reach it or can only return it with difficulty. The corners of the

opponents' court are therefore tactically the most sensible points to aim for, as they are furthest away from the opponent (Bernd, 2010). Because it leads to a difficult pitch angle, so it takes a good control of the court. Footwork as a means for the control is very much needed in this sport. Proper footwork, quick, and agile movements can trigger effectiveness in reaching shuttlecock at every opponents stroke. See figure 4, the movement of the foot in badminton is very special; it takes the unusual step done in other sports. So testing to determine the truth of the steps can be different from other sports. Based on these arguments, this study focuses on agility test with specific agility test for badminton.

The purpose of last stage was to analyze a validity and reliability of Badminton Agility Test (BAT). This test is designed for use in badminton court. Validity test is use to measure the accuracy of the BAT in measuring badminton agility. Meanwhile, the reliability test is use to determine of the BAT consistency in measuring badminton agility. The validity of the items is use to validate the test, as indicated by a correlation or support towards the total score. Calculation is done by correlating the scores of items with a total score of items (Priyatno, 2010; Trihendradi, 2011). The calculation will be obtained from the correlation coefficient used to measure the degree of validity of each item; and to determine whether the item is worth to use to measure agility.

The results from this study demonstrated that the BAT displayed acceptable reliability and validity for field sport testing. Table 2 displays the SPSS 17 reliability statistics values for the badminton agility test (BAT). This data indicate that badminton agility tool was reliable, because the value obtained Cronbach's alpha was 0.884, the value is greater than 0.8, it can be concluded that the measuring instrument is "reliable". According to Sekaran (1992), the reliability of less than 0.6 is bad, while 0.7 is acceptable and above 0.8 is good.

Table 3 displays the SPSS 17 validity statistics values for the badminton agility test (BAT). Correlation results shows in the *Item-Total Statistics* output in the *Corrected Item-Total Correlation* column. This value was compare with the value of r^{table} . Look the r^{table} at the 0.05 significance level of two sides test, the amount of data was $(n) = 20$, then obtained r^{table} for 0.444 (see r^{table} on Priyatno, 2010). The analysis results can be seen that items A, B, C, D, E, F, G, and H values were more than $r^{table} = 0.444$, it can be concluded that the item was "valid instrument".

CONCLUSION

We believe that this field test allows the calculation of reasonable which can estimates badminton athletes' agility levels and may be included as one of the means of on-court fitness conditioning. The regular, repeated physiological monitoring with on-field stimulation of badminton stroke moves is welcomed by the Semarang badminton coach and may provide a good indication of

improvement or otherwise in training of each individual athlete.

ACKNOWLEDGEMENTS

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Scientific Approach Based Worksheet For Physics Used to Develop Senior High School Students Characters

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Abstract - The purpose of this study is to obtain the physics worksheets with scientific approach and character, determine the feasibility and legibility, to know the increase in cognitive learning outcomes, and to know the character development of students. The method used in this study is an R & D (Research and Development). The instrument are closed test, and cognitive test. The study procedures include: (1) introduction, (2) design, (3) the development or testing of the product. The test results of the appropriateness showed that worksheet is very suitable to be used as a mean to learn physics. The test results of the readability showed that the worksheet is easy to understand. Worksheets can improve students' cognitive learning outcomes. Improvements of cognitive learning outcomes of students who have learned using worksheets are higher than students who received learning without worksheets. LKS can also develop the students' character.

Keywords: *worksheets, character, scientific approach.*

INTRODUCTION

2013 Curriculum has been implemented in most of schools in order to polish 2006 curriculum. Learning approach that is used in the 2013 curriculum is scientific approach. Scientific approach is a learning approach that is students centered. Curriculum of 2013 emphasizes on the modern pedagogic dimension in the learning that use scientific approach including observing, asking, experimenting, cultivating, presenting, concluding, and creating for each lesson no exception for physics in Senior High School (Permendikbud, 2013). The result of the research proves that on the traditional learning, teacher's information retention is 10 percent after 15 minutes and the achievement of contextual understanding is 25 percent. On the learning based scientific approach, information retention of teacher is more than 90 percent after two days and the achievement of contextual understanding is 50 – 70 percent (Wieman, 2007).

According to Permendiknas No. 22 Tahun 2006 about the standard of content, one of the purpose of physics lesson in Senior High School is the student is demanded to increase the scientific behaviors that are honest, objective, open minded, critical and to be able to have a good team work with others. One of the efforts used to achieve that purpose is by using experiment activity, so that the students are expected to be able to be active in finding physics concept. The discovery of physics concept by students can be effective based on

Permendikbud No. 69 Years 2013. In 2013 curriculum passive learning model is changed into active learning model. In order to reach the purpose, so the guidance chosen is LKS (Students worksheet). LKS (Student worksheet) is a printed teaching learning material that consists of material, summary, and clues of task that should be done by students which refers to the basic competition that should be reached. (Prastowo, 2012: 204). The use of LKS is expected not only to improve knowledge and students' activity, but also to improve the character. The result of research done by Amelia et al. (2013) shows that the use of LKS on physics lesson by integrating character education is effective to increase the result and student character value.

The ministry of national education has done the character education program nationally on May 2, 2010. One of the main programs in order to improve the process quality and educational output is the implementation of character education in the entire lesson, including Senior High School Physics. That declaration is reinforced by Permendikbud no. 69 years 2013 about Senior High School Curriculum, one of the characteristic of implementation 2013 curriculum, is the development balance among the social and spiritual knowledge, curiosity, creativity, teamwork with intellectual and psychomotor ability. The result found by Musyarofah et al (2013) in her research shows that the integration of character education in science learning can improve the learning achievement and able to grow the scientific behavior on student.

The purposes of the research are to find the scientific worksheet, to investigate the level of appropriateness and readability, to investigate the increase of cognitive learning result, and to investigate students' character development.

METHOD

Research method used is Research and development (R&D). The try out was done in a small and a medium group using quasi experimental design of nonequivalent control group design. Product's try out in this research used experiment class and control class that chosen randomly. The research was planned for 2 years. The first year research is shown in picture 1. The research subject

is Senior High School students and teacher in Semarang. The research locations are in four Senior High Schools in Semarang. Each LKS was tried in those four Senior High Schools. The research instrument consists of the close test, observation sheet, questionnaires and result test.

Feasibility Student Worksheet

Feasibility worksheet of character integrated physics was done by 20 physics teachers. Physics teachers were given the worksheet and time to read it. After that, they were asked to complete the score sheets for the worksheet. Feasibility aspects consist of (1) suitable material, (2) the accuracy of the material, (3) supporting material.

Readability Student Worksheet

The readability worksheet was done by 40 students that were given the worksheet. Ten students were taken from each school. Students were given the worksheet, time to read and to understand the content. Then, students completed close test that related to the content of SW to know the level of readability LKS.

Research Design

The research was done for two years using the research and development design (Gall et al, 2003). In the first year, research began with the analysis 2013 curriculum for physics material. The first step was identification of physics materials that were developed on the worksheet. Step 2 was the development of physics materials on the SW. The third steps was the development of learning strategy designed using scientific approach containing character education. The fourth step was the development of evaluation method in the form of authentic assessment. The learning devices results of step 2, 3, and 4 were validated by the experts, then it was trained to the model teacher to do limited try out, small group, the expected target was the teachers can do the learning by using LKS model that designed in the limited try out. In this step, the draft model should be evaluated

RESULTS AND DISCUSSION

Description of Students Worksheet (LKS)

The first step research product is the draft of physics LKS and it is about heat or heat transfer: the object changing, temperature and expansion, static fluid, character integrated scientific approach for class X MIIA Senior High School second semester that have been tested on the medium group. LKS was designed using the size of letter 12 and A4 size of paper, in order to make the student read the guideline easily. According to Arsyad (2009:89), appropriate letter size for book (text book or guidance book) is 12. The paper size is A4 to make students easy to use LKS. It is in line with the Prastowo' statement (2012: 217), It is better for the LKS to use the paper size that can accommodate the learning need. Activities' guidelines are printed in bold in order to get

students attention. According to Arsyad(2009:91), different color used as the guidance tool and attention seeker for important information. The cover and illustration picture are made colorful in order to make the students more interested in doing activity in the worksheet.

LKS has three main parts which are: (1) material and information that related to the learning; (2) activity steps to help student increase cognitive result and develop character; and (3) test items that arranged in the form of crossword puzzle game. Beside those main parts, LKS also has title, the instruction for use, basic competition that should be reached, learning purposes, the indicators of students' character development, and guidelines to report the result of the activities by presenting in front of the class. It is the same as Prastowo's statement (2012: 208) that says LKS consists of six min elements including title, study guidelines, main material, supporting information, task or worksheet and scoring.

LKS is designed using scientific approach. Research by Williams *et al.*(2007), scientific can give freedom to the students to explore, but at the same time also guide them to the scientific process to solve the problem. Steps of scientific approach in LKS consist of observing, asking, experimenting, presenting, and concluding. Activities in LKS ask the students to observe the phenomena of heat transfer that can be found in daily activities. Students are expected to develop the questions after observing the phenomena. Simple practices are also done to make students involve in finding concept directly. Based on the collected data from experimenting or simple practices, students can organize and present the data. In the last activity, students make a conclusion about the activity that have been done and present the result in front of the class.

Character value is integrated through the activity in LKS, and it is done again and again. Character education must be done continuously and become students' behaviors. The integration of character values in LKS are in the form of persuasion that match the indicators from each scores. The sentences containing persuasion are printed in bold or in underline to emphasize it. Those sentences can also attract the students. It is in line with the statement of Arsyad (2009:91), the bold or italic letter give emphasize on key word or title and its color used as the guidance tools and attract students' attention to the important information. Character values that are integrated in LKS are curiosity, honesty, discipline, and communicative. There is also available the indicator of integrated character, in order to know the level of development in the worksheet.

Feasibility Student Worksheet

Based on data analysis, LKS is on the criterion appropriate and very appropriate. The appropriateness LKS can be seen from the content aspect, presentation,

language use and graphic use. The result of appropriateness is served in table 4.1

The content belongs to appropriate criterion. The appropriateness of the contents including material's suitability, material's accuracy and material supporting learning. Materials that are presented in LKS is similar with the basic competence in 2013 curriculum. This is like what is said by Prastowo (2012:214), LKS material depends on the basic competence that will be reached.

Material presentation tells the fact, concept, principal, and theory that reflect the basic competence and learning purpose. The level of difficulties and complexity of the material matches with student cognitive development. Developed LKS also takes into account the procedure and clarity of trial procedure, so that it does not make any mistake in the trial. Steps in LKS use scientific procedures so the students can improve knowledge, attitude and skills.

TABLE 1. FEASIBILITY ANALYSIS OF STUDENT WORKSHEET

| Material Worksheet | Appropriateness Aspect | | | | Average | Criteria |
|---------------------------|------------------------|--------------|--------------|----------|---------|---------------|
| | Content | Language | Presentation | Graphic | | |
| Heat Transfer | 81,67% | 81,64% | 80,10 % | 70,20 % | 78,40% | feasible |
| Heat and changing | 81,49% | 85,50 % | 75,32% | 88,31% | 82,65% | feasible |
| Temperature and expansion | 83,77% | 85,63% | 86,87% | 84,73% | 85,25% | Very feasible |
| Static Fluid | 94,70 % | 91,88 % | 94,66 % | 90,67 % | 92,97% | Very feasible |
| Aspect total | 85,40% | 86,16% | 84,23% | 83,47% | 84,81% | Very feasible |
| | feasible e | Vey feasible | feasible | feasible | | |

According to the result of the research done by Fauziah et al. (2013) that show the procedures in scientific approach give positive impact to the students' soft skill ability. This LKS is expected not only to develop knowledge and skills but also to develop student values and characters, so the LKS is integrated with character points through the activities. This is related to the research result from Amelua et al. (2013) that shows the use of LKS which is integrated with characters in physics lesson is effective to increase the result and student character point.

Presentation appropriateness aspect is on the very appropriate criteria. Presentation appropriateness aspects consist of presenting technique, presenting learning, and presenting completeness. Simple concept is presented first before the complicated one. Presenting materials are also interactive and engaging, so it can motivate students to learn independently. According to Prastowo (2012): 205-206), one of LKS functions is as the materials that minimize teacher's functions, but it makes students more active. The research result of Fitriyani&Ngazizah (2013) also shows that the use of LKS can improve students' motivation in learning Physics independently. Material and activity presentation in LKS refer to the self-discovery about concept. The completeness of LKS presentation consists of title, instruction for using the worksheet, basic competence, learning purpose, indicators

of character development, activity steps, material and test items and guidelines to report the result of the activity by presenting in front of the class. That is similar to the statement by Prastowo (2012: 2008), LKS consists of six main elements including title, learning guidelines, basic competition or main material, supporting information, task or work and scoring.

Appropriateness aspect of language is on the appropriate criteria. Language used on LKS is appropriate Bahasa. Sentences in LKS use SPO and SPOC structure. Language used in the worksheet gives clues or information than can be easily understood. It will not make create confusion. In addition, it uses consistent wording and utterances. According to Prastowo (2012: 220), teachers should make sure material and directions given in LKS can clerly readable by the students. Although material has been prepared perfectly, but if student cannot read it well, the LKS will not give maximum results.

The appropriateness aspect of the graphic is also in the appropriate criteria. LKS is designed using the letter size 12, to make it easier to be read by the student. According to Arsyad (2009:89), good letter size for text (text book or guidance book) is 12 points. Paper size that chosen to print out LKS is (210 x 297) mm. the size of paper is chosen to make LKS easy to be used by the students. That is like what Prastowo (2012:217) said that LKS better

uses the size of paper that can accommodate decided learning need.

Readability Test

Readability test of integrated character scientific approach Physics worksheet chapters of heat transfer, heat and object changing, temperature and expansion, static fluid, was done by 40 students class X MIA from four different Senior High Schools that use LKS. Students filled in the blank part of the material text. Readability result is presented in Table 4.2.

TABLE.2. TEST RESULTS OF LEGIBILITY LKS

| No | Material | Readability | Criteria |
|----|---------------------------|-------------|--------------------|
| 1. | Calor movement | 86,50 % | Easy to understand |
| 2 | Calor and changing object | 74,78 % | Easy to understand |
| 3 | Temperature and expansion | 92,50 % | Easy to understand |
| 4 | Fluida Statis | 82,23 % | Easy to understand |

Generally seen from the language structure, the sentence structure in both in the blank text or in the worksheet has followed the rules, they are not too long. From its appearance, the font used in the worksheet and blank texts belonged to normal size (12), and lining and paragraphing are not too close. That is why the readability of the worksheet is high. Moreover, the high readability is affected by respondents' knowledge of the blank text.

Visual media should be made using simple but meaningful sentence. The important instructions in the worksheet were bolded in order to attract students' attention. It is in line with Arsyad's statement (2009: 91) which says different color is used as the guideline and attraction for important points. The worksheets can be understood easily because the important information are presented in different table and the terminologies are highlighted by printed in italic or bold. Arsyad (2011: 91) states the keywords highlighted are good as readers' guideline and attention attracted. In addition, important information can also be emphasized by giving boxes, printed in italic or bold.

Another factor, leading to worksheet' readability is the existence of illustration on the layout. Prastowo (2012: 99) mentions that picture in the learning material is not only attractive but also motivating and making the material delivery easier. Material concepts will be easy to understand through illustrations which are close to the surrounding, so the students will be able to imagine it. Using picture, observing can be done in the classroom. Problems and questions are also the result of observing. The layout for the illustration used in the worksheet is in the form of line, table, decorative symbol, simple object and photos.

Cognitive Learning Results

Based on Table 4.2 LKS is on the easy to understand criterion. LKS uses simple sentences and pay attention on SPO and SPOC structure so it is easy to understand. According to Suryadi (2007:198), readability level of teaching material is influenced by two factors they are: language that covers choice of words, sentences, paragraphs and others word's elements, or typography that covers letter size, the line and other elements.

Posttest result from both groups shows that experimental group is better than control group. The total increase of physics concept is analyzed using gain test. It is presented in table 4.3:

According to the data it can be seen that the students' comprehension of the concept after the treatment increases although the increase is medium. Based on the analysis can be concluded that the result from experiment group is higher than control group. Mulyono's research result (2012) also shows the same outcome, teaching and learning process using scientific approach can increase students' cognitive skills such as activeness and work in the practicum, report writing, and also presenting. It is in line with a study done by Yildirim et al. which shows that students' achievement if taught using worksheet is better than students taught without it. Research result from Mustofa et al. (2013) also shows that worksheet usage in science teaching and learning process can increase students' achievement. That is also in line with Arafah et al. (2012) which claims that worksheet can increase students' achievement and activities.

Students' comprehension of the concept taught using worksheet belongs to high criteria because the activities in the worksheet can help them to find physic concept. It is the same as Prastowo (2012: 208-209) saying that worksheet helps students to find concept, apply it and integrate it. Worksheet connects the material to the phenomena found in students' daily life so they can understand the concept better. According to Prastowo (2012: 209), if the phenomena is presented concretely, simply and connected to the material discussed in the worksheet, it can help students find a concept. The knowledge of concept of the experiment students taught using worksheet is higher than the students from control group. Marrysca et al.'s study indicates that characters

contained worksheet can increase students' activities as well as their cognitive.

TABLE 3. THE AVERAGE OF STUDENTS COGNITIVE LEARNING RESULTS

| Material | Group | $\langle S_{pre\ test} \rangle$ | $\langle S_{post\ test} \rangle$ | $\langle g \rangle$ | Criteria |
|---------------------------|------------|---------------------------------|----------------------------------|---------------------|----------|
| Heat transfer | Control | 40,29 | 75,44 | 0,58 | Medium |
| | Experiment | 39,85 | 83,53 | 0,72 | High |
| Heat and object changing | Control | 35,00 | 62,353 | 0,274 | Low |
| | Experiment | 34,56 | 73,09 | 0,58 | Medium |
| Temperature and expansion | Control | 68,1 | 82,2 | 0,472 | Medium |
| | Experiment | 58,2 | 91,23 | 0,795 | High |
| Static Fluid | Control | 48,44 | 77,03 | 0,55 | Medium |
| | Experiment | 43,75 | 83,44 | 0,71 | High |

The procedures mentioned in the worksheet were arranged using scientific approach including observing, questioning, experimenting, presenting, and concluding. They can help students to understand the concept more. Wieman's research (2007) shows that in scientific approach, retention of information from the teacher is more than 90% after two days and the achievement of contextual knowledge is 50%-70%. In traditional teaching, the retention of information from the teacher is 10% after 15 minutes and the achievement of contextual knowledge is 25%. The research result from Hussain et al. (2011) also shows that teaching using scientific approach gives better result than teaching in traditional way.

Students Character Development

Characters values integrated in this worksheet are curiosity, honesty, discipline, and communicative. The

data were gathered through two ways, questionnaire and observation. Character observation was done because the questionnaire did not always give maximum outcome. According to Azwar (2013: 96), even though the statement of attitude gathered from an attitude scale is promising, it does not mean that this scale can always accurately represent the real attitudes. Students' character observation was done by the leader of each group who evaluated his or her member. Character development from group's leader was evaluated by the observer. Character evaluation using peer evaluation is more effective because the leader of each group understand his or her member more and the observer did not come to many teaching and learning process.

The result of students' character development is presented in Table .3, Picture 2, and Table 4 as follow.

TABLE 4. THE AVERAGE OF STUDENTS CHARACTER DEVELOPMENT TROUGH QUESTIONNAIRES

| CHARACTER | BEFORE | CRITERIA | AFTER | CRITERIA | Gain |
|---------------|--------|---------------------|--------|---------------------|--------|
| Curiosity | 72,52% | Starting to Develop | 79,23% | Starting to Develop | Low |
| Discipline | 75,37% | Starting to Develop | 84,31% | Entrenched | Medium |
| Honesty | 72,79% | Starting to Develop | 80,39% | Starting to Develop | Low |
| Communicative | 73,16% | Starting to Develop | 81,76% | Entrenched | Medium |

TABLE 5. STUDENTS DEVELOPMENT THROUGH OBSERVATION

| Characters | Percentage | Criteria |
|---------------|------------|---------------------|
| Curiosity | 79,41% | Starting to Develop |
| Honesty | 80,39% | Starting to Develop |
| Discipline | 85,29% | Entrenched |
| Communicative | 85,29% | Entrenched |

Based on the data, it can be seen that the initial character rooted in students belong to the criterion of starting to develop. It happens before the treatment because of some factors one of which is that the students have gained the education from their teacher and parents. According to Azwar (2013: 30-38), the factors influence attitude formation are experience, culture, important people, mass media, institution or organization, religion and emotion within individual.

After the teaching and learning process using worksheet, there is some development in students' characters. Percentage of character development in curiosity increases although it still includes in starting to develop criterion. Observation result also shows that character of curiosity belong to criterion starting to develop. Questionnaire analysis indicates that character integrated worksheet can develop students' curiosity. It is in line with the research done by Amelia et al (2013) showing that character integrated worksheet usage in physics is effective to be used in teaching and learning process to develop students' curiosity. The development of students' curiosity character is caused by the contents of the worksheet which persuade the students to ask or to read related material from other sources of book aside from the one given. The activities in the worksheet also invite the students to observe the phenomena related to their material.

The activities in the worksheet are also integrated to character value of discipline. There is an increase in the percentage of the development of discipline character. After the being taught using the worksheet, students' discipline character belongs to entrenched criterion. The result of observation also shows the same thing, which is that discipline character is in entrenched criterion. The result of the analysis shows that character integrated worksheet can develop students' discipline character. Amelia et al.'s study (2013) claims that the use of character integrated physics worksheet is effective to develop students discipline character. The development of students discipline character is caused by the activities in the worksheet invite the students to always come punctually. It also persuades them to keep the things around the neat and to put them back properly after used.

The percentage of the development of students' honesty character after using the worksheet increased although it is still in starting to develop criterion. The observation result also indicates the same result so it

can be concluded that the worksheet can develop students' honesty character. The research result from Amelia et al. (2012) presents that the use of character integrated physics worksheet is effective to develop students' honesty character. To develop that character, the activities in the worksheet forbid the students to cheat. It also invites the students to report the result of their experiment honestly.

The worksheet also contains communicative character. There is enhancement in the percentage of communicative character. After worksheet based teaching, the development of communicative character changes into entrenched. The observation also gives the same outcome. That analysis shows that the worksheet can develop students' communicative character. Amelia et al. (2013) state that the use of character integrated worksheet in physics is effective to develop students' communicative character values. In order to develop communicative character, the activities in the worksheet invite the students to listen and to give opinion when doing group work in the classroom. Students are also invited to listen to other opinions and to voice their opinion in classroom discussion.

After the worksheets based learning finished, some characters such as curiosity and honesty developed. It was caused by the difficulty of teaching the characters of curiosity and honesty. Aside from the worksheets, the students did not have any other sources as physics learning guide. Then, students became focusing only to the worksheet and just copy other groups' work. The development of students discipline and communicative belong to entrenched criterion after the usage of worksheet. The activities in the worksheet clearly invite the students to become discipline. Students are not to come late. If they come late, they will not be allowed to join the teaching and learning process. The classroom is equipped with LCD projector which makes the presentation easier. It also helps the students to give their opinion during discussion. The activities in the worksheet always persuade the students to discuss with their groupmates. That results in the efficiency of students discipline and communicative character development.

In general, the percentage of students character development increased, it means that the worksheet can develop students character, especially the characters of curiosity, discipline, honesty and communicative. It is in line with the research done by Rakhmawati et al. (2013)

which claims that the application of students worksheet based on characters can develop students' characters. The increase of the percentage of students' character is analyzed using gain test. There is no increase belong to high criterion. It happens because evaluating students' character needs longer time. Students' characters are not automatically formed, so the integrated teaching and learning process should be done continuously. It is the same as the research done by Pala (2011) which states that character cannot be formed automatically. It needs to be developed over time. According to department of Education (201: 11-14) there are some principles in developing characters one of which is sustainable, it means that the development of the values of culture and characters needs a long process, it starts from the first day of the students until they finish their study in that level. Benninga et al (2003) who says that character education integrated into each school aspects both inside and outside the teaching learning process can increase students character for the better.

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The Importance of Researching Teachers' Social Emotional Competencies in an Indonesian Context

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Abstract — Teaching and learning is an emotional experience and teachers play a crucial role in the nature of this experience. Furthermore, in an Indonesian context, the primary school teacher is the main adult in the classroom. There is consistent evidence that shows a significant relationship between teachers' emotion, emotion regulation and social-emotional skills and students' emotional, social and academic outcomes (Jennings & Greenberg, 2009). However, little is known about teachers' emotional style especially in an Indonesian context. Since teacher and students establish interpersonal relationships on a daily basis, it is essential to explore teachers' and students' perspectives and experiences of teachers' emotions and emotional behaviors. This paper explores Indonesian primary school teachers' and students' experiences of teachers' emotions and emotion regulation.

Keywords— primary school, teacher emotions, teacher-students relationships

INTRODUCTION

From the past to the present, the overall intention of education is to prepare children for their adult lives. Traditionally, school is an institution that assists students to develop their cognitive functions and to improve their academic achievement. However, according to Yahyaei, Foroushani, and Mahini (2012) school is also a social institution in which children acquire education and strengthen their personality to achieve a better future.

In Indonesia, a school is often labeled as a good school if it has high levels of academic accomplishment. Nevertheless, the concept of an excellent school is not simply about the academic achievement. The United Nations Children Fund (UNICEF) introduced a child-friendly school program that aimed to develop an encouraging learning environment for children. This concept shows that a quality school is a school that has children as the main focus. Healthy, joyful and secure learning environments are important for children to achieve success.

Typically, in Indonesian primary schools, one class is taught by one teacher called a homeroom teacher except for special subjects like religion and sport. A long time is spent each day in the classroom with the same peers and teacher, allows for a lot of social interaction. Social interaction occurring in the classroom can be positive but it can also be challenging. Based on a study conducted on

521 primary school students in Yogyakarta, Indonesia, 67.37% students had problems in their relationship with the teacher on numerous occasions. In addition, 29.56% sometimes experienced difficult relationship with their friends (Saptandari, 2011).

Like other primary schools around the world, Indonesian primary school teachers are responsible for managing the classroom, including setting the classroom tone. Based on the preliminary focus group discussions with two groups of primary school students conducted by the main researcher, students were sensitive to teachers' emotional expression, particularly anger. Teachers' responses affected the classroom tone. The angry teacher produced a frightening classroom, but in contrast the positive teacher created a comfortable tone. Students also said that they liked a humorous teacher and one who did not give punishments despite a student getting a bad mark. This finding showed that teachers' emotions and emotion regulation could influence students' learning. However, managing their own emotions is not an easy task for teachers. Teacher's unfavorable behavior has been reported by the Indonesian media such as hitting a student, throwing a blackboard eraser, even killing a colleague in front of students (Angriawan, 2014; Fardiansyah, 2014; Sajarwo, 2014).

It is obvious that teachers' skills and willingness to regulate their own emotions influences students' feelings and might impact on their learning and development as well. However, few writers have been able to draw on any systematic research to understand this relationship. Thus, to fully understand this process, we need to explore the insiders' perspectives and experiences. As each teacher has a unique experience related to their emotion regulation and relationship management, it is important to listen to their voices. Then, as children have their own experiences and views about their teachers' emotions and behaviors, this research provides an opportunity for students to share their feeling and observation. Recognizing teachers' perceptions has been used in many studies such as studies about teachers' interactions with students (Hargreaves, 2000), school violence (Linares, Díaz, Fuentes, & Ación, 2009) and good teacher (Khojastehmehr & Takrimi, 2009). In addition, researchers have sought out children's perspectives in

such topics like good teachers (Beishuizen, Hof, Putten, Bouwmeester, & Asscher, 2001; Bland & Sleightholme, 2012; Läänemets, Kalamees-Ruubel, & Sepp, 2012), school climate (Kangas, 2010) and teachers' emotional style and emotion behavior (Andersen, Evans, & Harvey, 2012).

In addition, previous studies (for example Hosotani & Imai-Matsumura, 2011; Sahin Baltaci & Demir, 2012; Yin & Lee, 2012) have reported a link between teachers' cultural backgrounds and their emotional regulation strategies and expression. Thus, to understand how a teacher's emotional style and emotion behavior can be beneficial for students' learning and development, the Indonesian contextual background needs to be considered.

Teachers' emotion and social emotional competencies

Emotions are central to many aspects of human life, including a teachers' life. In their teaching practice, teachers experience multifarious emotions. Sutton and Wheatley (2003) identify emotions that are felt repeatedly by teachers. Teachers experience positive emotions like love, pleasure, satisfaction, pride, excitement and humor and also negative emotions such as anger, frustration, sadness, anxiety, guilt and helplessness.

As Hargreaves (1998) indicates that teaching is an emotional practice which requires emotional understanding. Emotions are fundamental to the work of teaching. Emotions are relate to teachers' work, professional identity, learning and wellbeing and also to teachers' burnout and attrition (Uitto, Jokikokko, & Estola, 2015). Furthermore, teachers' emotions have a vital impact to students' emotions (Becker, Goetz, Morger, & Ranellucci, 2014). Since emotions are contagious, students' emotional responses are related to their teachers' emotional responses (Mottet & Beebe, 2000).

Jennings and Greenberg (2009) argue that teachers need to have high social emotional skills and wellbeing. These skills and wellbeing are vital at least to three areas: (1) to understand students' emotions and cognitions and respond their individual needs, (2) to manage classroom effectively and (3) to be good role model of positive social and emotional behavior which is important to implement social emotional learning (SEL). The Collaborative for Academic, Social, and Emotional Learning (CASEL, 2005) identifies five major teachable social and emotional skills: self-awareness, self-management, social-awareness, relationships skills and responsible decision making. With regard to teachers' social emotional skills, one question that needs to be asked, however, is what kind of behaviors reflecting social emotional skills that within Indonesian context.

Classroom emotional climate and students' outcomes

According to Jennings and Greenberg (2009), there is a transactional relationship between teachers' social emotional competencies and healthy classroom climate that potentially contributes to students' social, emotional,

and academic outcomes. Classroom climate can be beneficial for students, but can also become a barrier for learning. Classroom climate relates to students' learning outcomes; achievement motivation; academic engagement; attitudes toward learning; and social and emotional adjustment (Fraser & Fisher, 1982; Gazelle, 2006; Goh, Young, & Fraser, 1995; Haertel, Walberg, & Haertel, 1981; Kuperminc, Leadbeater, & Blatt, 2001; Ryan & Patrick, 2001; Schibeci & Fraser, 1987; Somersalo, Solantaus, & Almqvist, 2002).

There are three components of classroom climate: academic, management and emotional (Evans, Harvey, Buckley, & Yan, 2009). These authors argue that emotional aspects interact with other classroom climate aspects. Therefore, the emotional aspect of an effective learning environment is superordinate to academic and management aspects. Harvey and Evans (2003) point out that classroom emotional climate relates to three contexts: the teacher, the teacher's interaction with student and the interaction between the teacher and whole class. These three contexts are linked across six core emotion concepts: emotional relationship, emotional awareness, emotional management, emotional intrapersonal beliefs, emotional interpersonal guidelines, and emotion contagion (Harvey, Bimler, Evans, Kirkland, & Pechtel, 2012).

Indonesian teacher-student relationships

In an Indonesian classroom context, unique Indonesian society features should be considered since classroom can be regard as a unit within society. One unique features of Indonesian culture is related to the power distance such as the hierarchical structure that is seen in the relationships between old and young people that appears in practice to put additional verbal expressions to the people who are older and/or have higher social status, like *kakak* (for older women or men), *ibu* (for much older women) and *bapak* (for much older men).

Relationships between teacher and students in Indonesian classrooms were influenced by prevalent cultural value, including those related to power distance. Ki Hadjar Dewantara, the Father of Indonesian National Education, suggests that in classroom, teacher is a leader for his/her students. As a leader, teacher is behavioral mentor, observer and also advisor for children.

Dewantara also formulated famous words of wisdom describing the ideal role of teachers: *'Ing ngarsa sung tuladha, ing madya mangun karsa, tut wuri handayani'*. This maxim means 'teachers should set an example, raise students' spirit, and give encouragement'. Even though Dewantara states that the main roles of school are to support children's intellectual development and to provide knowledge for students, he points out that teachers are responsible to manage the cognitive (*cipta*), affective (*rasa*) and psychomotor (*karsa*) development of his/her students.

Another Indonesian unique feature related to interpersonal relationships between people was augmented by Ki Hadjar Dewantara into teacher-students relationships is *ngemong* concept. The concept of *ngemong* originates from the Javanese family context. *Ngemong* (in the verbal form) or *among* (nominal form) refers to taking care of, look after and educate a child with *kasih sayang* (unconditional love). *Ngemong* relates either with physical or emotional aspect. Those who are considered to be older or more senior, are obliged to practice *ngemong* to those younger. The basic principle of *ngemong* applies widely including in education setting. Dewantara construed the concept of *ngemong* into three principles of child nurturance: *asah*, *asih* and *asuh*. *Asah* refers to the process of supporting cognitive and knowledge development. *Asih* refers to the process of taking care of the children with full affection. While *asuh* refers to the process of nurturing the children, to ensure that they develop themselves maturely.

Teachers' capabilities to actualize this particular responsibility influence either academic or non-academic outcomes of their students. This role also indicates that teachers' duty is not only to deliver knowledge to their students, but also to encourage positive values and act as a role model through their positive attitude and behaviors. To achieve this duty, teachers need to become socially and emotionally mature and behave in a reliable and respectful fashion. However, it is unclear how teachers' might regulate their emotions and social responses so as to be supportive of children's learning and development.

Future directions

The Ministry of National Education (MoNE) Republic Indonesia Regulation No. 16 in 2007 mentions that teacher should possess four areas of competence: pedagogical, personal, social and professional. The pedagogical competence is described as the ability of teachers to manage the classroom and deliver the subject matter in accordance with students' development and characteristics. The personal competence is the traits and behaviors that reflecting teacher's personality as a mature and friendly person such as ethical, warm, caring, honest, inspiring and being a good role model. The social competence is distinguished by the capability of teachers to understand students' diversity in their cognitive level, learning style, motivational aspect and socio-economic background. Moreover, teachers with high social competence should have good communication skills to interact with students, parents, and colleagues. The last competence, which is professional competence, is the ability of teacher to become proficient in their subject matter, such as language, mathematics, social science or natural science.

The MoNE has provided some programs for teachers to enhance their competence. However, the national teacher competence assessment in 1999 found that only 51% out of 1,455,507 elementary school teachers who fulfilled the national standard requirement. Generally, the

focus of the training program held by the MoNe was in the area of professional competency.

Indonesian non-governmental education institutes and researchers from universities have developed programs to support the Indonesian government to enhance teacher competencies. One of these, the Teacher Quality Improvement Program, tailored for enhancing teachers' personal, social and pedagogy competencies. As a result, teachers' perceptions of their own teaching ability after participating in the programs were significantly improved. Their students also gave the same evaluation about the improvement of their teachers' capability (Ramdhani & Ancok, 2013; Ramdhani, Ancok, Swasono, & Suryanto, 2012).

Without intending to subvert the existing attempts, it would seem as though there are maybe something absent in the steps taken when dealing with teacher quality improvement endeavor. As it is the issue related to students' social and emotional development, we need to pay attention to teachers' emotions and emotion regulation. To achieve this aim, it is important to contextualize this issue within Indonesian setting.

Research in the area of teachers' feelings and behaviors reflecting social emotional skills have been conducted in a predominantly western context. However, the nature of teachers' social emotional competencies, especially from an Indonesian teachers' and students' perspectives remains unclear. It is important to contextualize the specifically Indonesian primary school teachers' and students' experiences rather than presume that the Western theories of knowledge are best. One of the commencing endeavors that can be conducted is exploring Indonesian teachers' and children's views and experiences to understand how they perceive, feel and respond to their teachers' feelings and behaviors. And this is the focus of my study which aims to investigate the Indonesian primary school teachers' and students' perspectives of teachers' social and emotional competencies and how these are used in a classroom setting.

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Sport in Education System: a comparative study

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Abstract - The research objective of comparison in sports coaching early age used in sports education in Indonesia is to understand the situation and what should be done. This comparison is used to build or redesign a sports coaching model of early childhood in Indonesia. Until now, there is no single model of the national early childhood sports coaching reference in sports education. The method used in this study is to compare how the model and practice of sport education by answering some questions (1) Does the school and parents have a common view that sport education is as important as intellectual education? (2) How much sport education considered as part of their overall education? (3) How sport education support character education and development? (4) How the interest of students to the sport? (5) Is there an early age sports coaching model that is the basis for long-term sports development? A comparative study based on the assumption that (1) The success of sports coaching stems from sports coaching early age (2) The model of education and sports coaching is still using the old model (3) Finding a coaching model that is appropriate to the culture and conditions, while maintaining freshness and not only simply adopting models from other countries. The results from this comparative study then used to redesign the model of sports coaching early age in accordance with the conditions and culture of Indonesia.

Keywords- Sports Development Model, an early age

BACKGROUND

Coaching that takes into account the special character of children in sport from an early age is necessary because children are born with the characteristics and potential of each. This uniqueness becomes an argument for parents and educators to children development in accordance with their potential.

Sports coaching children at an early age became an important thing because the experience in childhood will give an impact on the development himself forward with no harm and undermine a child's future, both in physiological development, motor, social and mental child.

In declaration a world fit for children (WFC) in the 27th United Nations General Assembly Special Session on children. Namely the promotion of healthy lifestyle (promoting healthy lives), the provision of educational quality (providing quality education), protection against

misconduct (abuse), exploitation, and violence (protecting against abuse, exploitation and violence), and HIV /AIDS (combating HIV / AIDS).

Sports coaching at primary school age should get the true meaning of achievement in sports, which is having fun, developing athletic and social skills, and nurturing a healthy, positive sense of self-esteem refer to Aubrey H. Fine and Sachs, so that the child will acquire the learning experience through total sports experience or TSE. Cratty (1970) states that the movement is learning and learning requires movement.

Coaching programs as extracurricular and student sport competition such as O2SN and POPNAS (two abbreviation of the most National Student Sport Competition) as a venue for improving the quality of education and as a talent search students. Achievement is not something that is generated instant, but requires programming since elementary school, program sports coaching should make a long-term program for young athletes (young athlete long term development programs) taking into account the characteristics of the child, motor development, TSE and move as one piece of the child's intelligence in multiple intelligence (bodily Intelligence).

Based on the background, we will compare Indonesia sport coaching model in case studies during the last 10 years. The problem questions are (1) Does the school and parents have a common view that sport education is as important as intellectual education? (2) How much sport education considered as part of their overall education? (3) How sport education support character education and development? (4) How the interest of students to the sport? (5) Is there an early age sports coaching model that is the basis for long-term sports development? A comparative study based on the assumption that (1) The success of sports coaching stems from sports coaching early age (2) The model of education and sports coaching is still using the old model (3) Finding a coaching model that is appropriate to the culture and conditions, while maintaining freshness and not only simply adopting models from other countries.it is formulated "How do sports coaching model of early childhood?" The purpose of this study were (1) conduct basic research to produce a coaching model sports an early age; (2) produce a

blueprint which to base further development of the model development;

The model is a pattern of something that will be created or generated and the model is an abstraction of the real system, the picture is more simple and has a percentage that is comprehensive level. While the model development is an ongoing series of processes related to the previous model, the model should be evaluated and modified continuously in response to new science saw, level of development, and measurement of progress.. Coaching used to improve the knowledge, attitudes, skills, and coaching emphasis on practical wide approach, the development of attitudes, abilities and skills.

Sports is the basic ability of human beings to be developed and trained for the benefit of health for them may have had an understanding as bodybuilding to strengthen and nourish the body. Exercise objectives are: a) Physical fitness; b) Motor skills; c) Knowledge; d) Social objective; e) Aesthetic or Appraisal Objective. Daniel Landers a professor of physical education from Arizona State University discovered another benefit of exercise for the human brain, which are: a) increase the ability of the brain, regular physical exercise can improve concentration, creativity and mental health, because sport can increase the amount of oxygen in the blood and accelerates the flow of blood to the brain; b) helps delay the aging process; c) reduce stress; d) Raise endurance body; e) improve self-confidence.

Early childhood is a child in the age of 0-8 years, Beichler and Snowman (Dwi Yulianti; 2010; 7) argues early childhood is children aged between 3-6 years, Augusta (2012) states early childhood is an individual who unique in that it has a pattern of growth and development in the physical, cognitive, social-emotional, creativity, language and communication in particular that in accordance with the stages that are traversed by the child. The period of early childhood is often called the "golden age" or golden period, because this period nearly all potential child has a sensitive time to grow and develop fast and furious. The development of each child is not the same as every individual has different developments, the food intake of nutritious and balanced and intense stimulation is needed for the growth and development.

Siti Aisyah (2010) said that the characteristics of early childhood, among others: a) have a great curiosity; b) is a unique person; c) like fantasy and imagination; d) the most potential for future study; e) shows the egocentric attitude; f) have a short concentration span; g) as part of a social creature. The role of sports early age are: 1) stimulation of growth

and organic growth; 2) neomuscular motor skills; 3) intellectual development; 4) development of emotional.

METHODS

This study aims to compare sports education for early age in Indonesia comparing few countries that have great model of early age sport coaching. This research is a qualitative research using case-oriented strategy. A case study is "the intensive study of a single case for the purpose of understanding a larger class of cases (a population)", while case study research may include several cases. The number of cases is limited by the extent to which they can be investigated intensively¹. At a given point such intensive study is no longer possible, and the emphasis of a study will shift from the individual case to a sample of cases. Gerring refers to such a study as a "cross-case study" and he sees case studies and cross-case studies as lying on a continuum (Gerring 2007:95). Unit analysis in this research is policies, curricula, syllabi, materials, standards and the information from school, teacher, parents and student.

António Nóvoa in Peter Lor (2011) stated that comparative education as a *mode of governance* and on the other hand, its importance as a *historical journey*. Further they were referring to a history that enables us to understand the problems of the present through an analysis of the way they have been and are constituted throughout the past and present, enabling a constitution of the future

The project of raising an understanding of the historical specificity of educational phenomena and simultaneously acknowledging the radical presence of the other(s) defines a new agenda for comparative research. As argued by Fritz Ringer, "there is simply no other means of arriving at explanations, and not just descriptions, of change in education than the comparative approach" (Schriewer & Nóvoa). According to Novoa, The focus of Comparative Education should not be on the "facts" or the "realities", but on *problems*. By definition, the facts (events, countries, systems, etc.) are incomparable. It is possible to highlight differences and similarities, but it is hard to go further. Only *problems* can constitute the basis for complex comparisons: problems that are anchored in the present, but that possess a history and anticipate different possible futures; problems that are located and relocated in places and times, through processes of transfer, circulation and appropriation; problems that can only be elucidated through the adoption of new *zones of looking* that are inscribed in a space delimited by frontiers of meaning, and not only by physical boundaries

DISCUSSION

Children today have a lifestyle that is static, in one study said that more than 7,000 young teens in 34 countries, almost a third of his life more happy not to move, to spend three hours a day or more watching TV or playing computer (Gruthold et al, 2010). Education should have a concern in encouraging children to be active from a young age sets good habits early on, helps them develop the skills they need to stay active throughout their lives and also have physical fitness. Physical fitness is not only one of the most important keys to a healthy body, it is the basis of dynamic and creative intellectual activity (John F. Kennedy). Such findings validate that participation in sport will increase health behaviors and that sport participation could be an important component wellness.

Sports, whether team-based or individual, are a great activity for children that provide a variety of benefits other than physical activity. Participation in sports can help build self-esteem and confidence, can motivate children to excel academically and can help build social skills. Participation also can teach children the benefits of goal-setting and practice.

What education should noticed as Aspen Institute research paper noted from the prevailing youth sports culture supports the idea that high doses of one sport at an early age is the only pathway to athletic stardom. Since there are many myths that have grown up around the supposed need for children to specialize in a single sport before adolescence.

The trend towards early specialization in one sport, and an increasingly professionalized approach to youth sports, appears to be driven more by adults more intent on winning than acting in the best long-term interests of children. There is some support for early specialization, with the strongest support in sports in which peak performance occurs in adolescence or early adulthood, specifically women's gymnastics and women's figure skating. A study of Australian athletes finding that 28% of senior national athletes reaching elite playing status within just four years of beginning their sport and 69% of novice athletes developing into senior elite athletes in an average of 7.5 years. The American Medical Society for Sport Medicine (AMSSM) state that consideration

should be given to delaying intensive, specialized training until late adolescence, rather than a specific age, to optimize skill development in most sports. Research suggests that sampling and playing multiple sports at an early age, instead of specializing, has numerous benefits, including long-term talent development. Specifically, an early sampling pathway has been associated with: longer playing careers, enhanced peer relationships as college athletes, increased physical capacity and motor skill base; increased ability to transfer motor and psychological skills to other sports; fewer hours being required to reach top levels; and increased motivation, confidence, and self-direction.

Canada. The development model of sports coaching in several countries including Canada: long-term athlete development (LTAD) model of Canada. LTAD divide sport development model in seven stages, where LTAD supports the coach, competition, and recovery program based on developmental age-physical maturation, mental and emotional individuals, not chronological age.

According to Canada LTAD model, students or children in age 6-9 are in Fundamental stage of Physical Literacy, for the fundamental sport skills program. This model could answer the question of the comprising sport-coaching model as below:

- (1) The school and parents have a common view that sport education is as important as intellectual education. LTAD has a comprehensive model, it involving schools and parents to have responsibility to their student and children activity in sports.
- (2) LTAD model put sport education considered as part of their overall education as well.
- (3) LTAD as sport coaching program for long term and also for early age support character education and development.
- (4) The FUN activity in FUNdamental stage has increase in interest of students to the sport
- (5) The Canada LTAD Model could be a comprehensive model which has an early age sports coaching model that is the basis for long-term sports development.

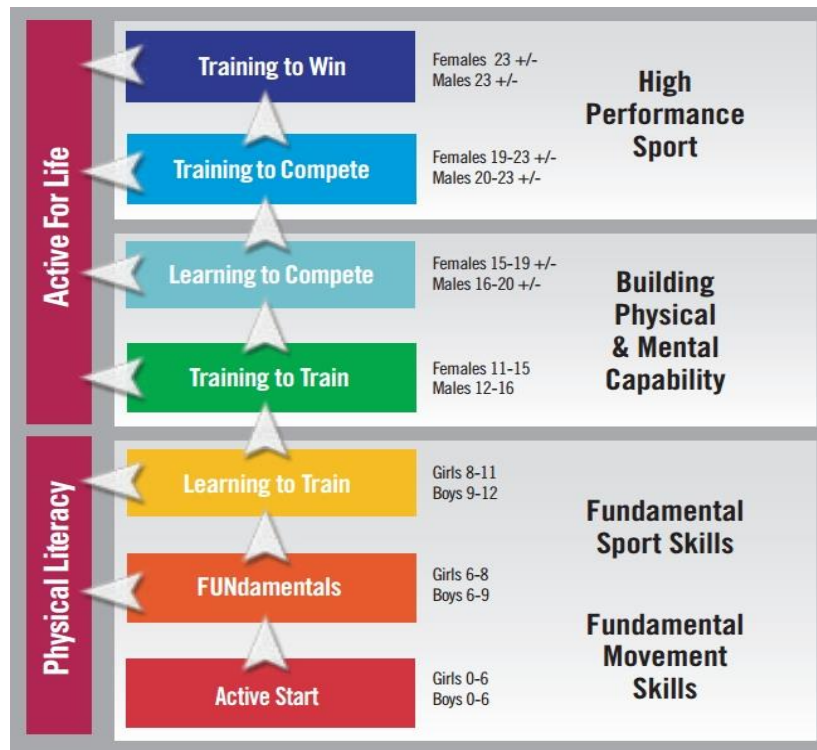


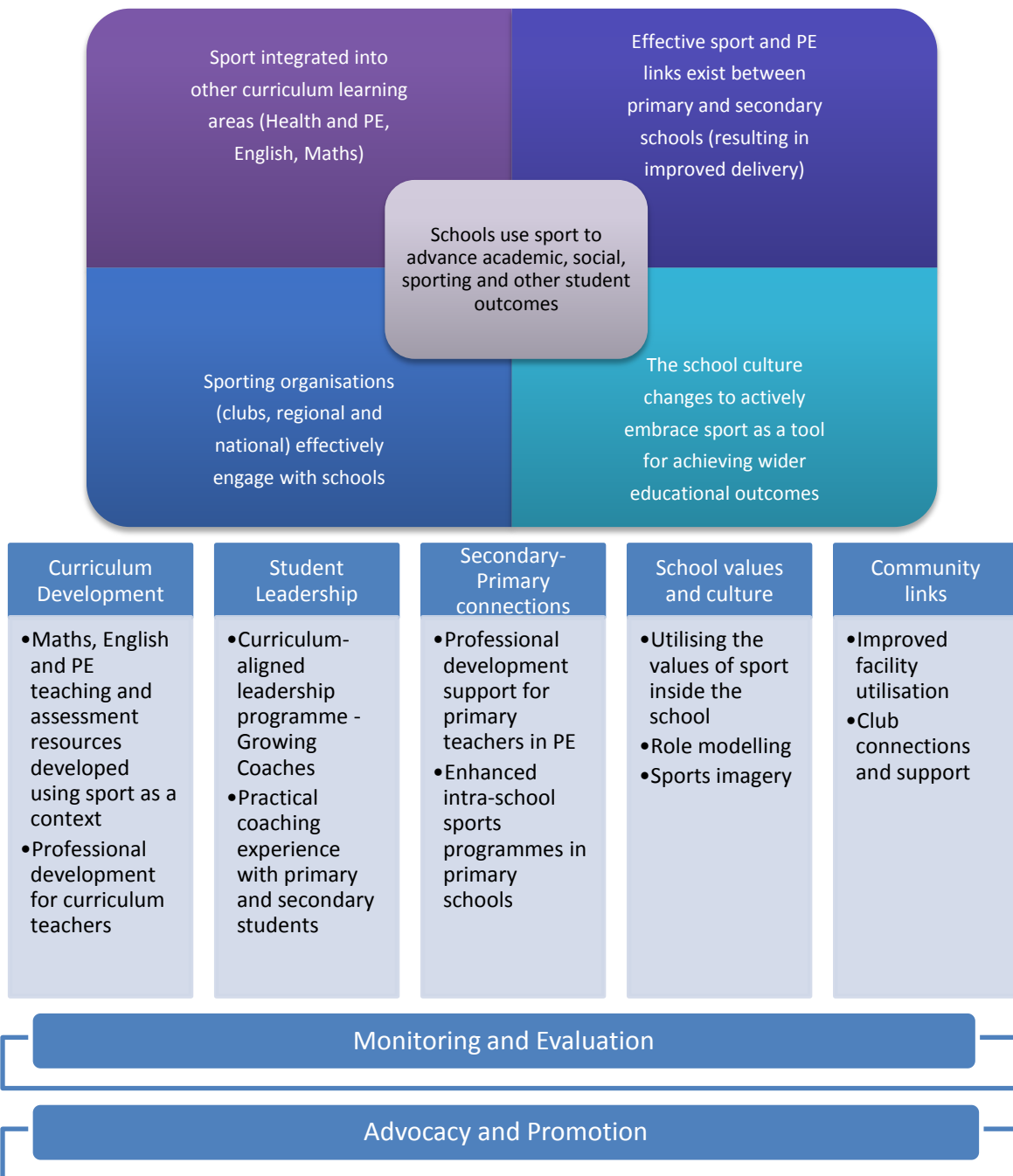
FIGURE 1: CANADA LTAD MODEL (SOURCE: CANADIAN SPORT CENTERS, 2007. *LONG TERM ATHLETE DEVELOPMENT*: CANADIAN SPORT FOR LIFE. OTTAWA: CANADIAN SPORT CENTERS)

New Zealand. New Zealand has Sport In Education Model in 2012. This model enhanced sport and PE environment to deliver on schools' outcomes, and to increase student participation in sport in the school setting. This environment will include: the development and utilization of tools and resources that can be used to deliver Math, English and PE subjects using sport as a context to engage students in learning; a dedicated PE resource within the school to provide professional development and assist with the introduction of new teaching practices; connections between secondary schools and clusters of primary schools, where secondary PE experts can provide professional development and support to primary school teachers; student leadership development in secondary schools, particularly coaches, and utilization of these leaders/coaches in primary and secondary schools; and the incorporation of the values and characteristics of sport into the school environment – eg teamwork, rules, respect and leadership

According to NZ Sport in Education model, Schools use sport to advance academic, social, sporting and

other student outcomes. This model integrated sport with other subject, what we will understand from this model, it could answer the question of the comprising sport-coaching model as below:

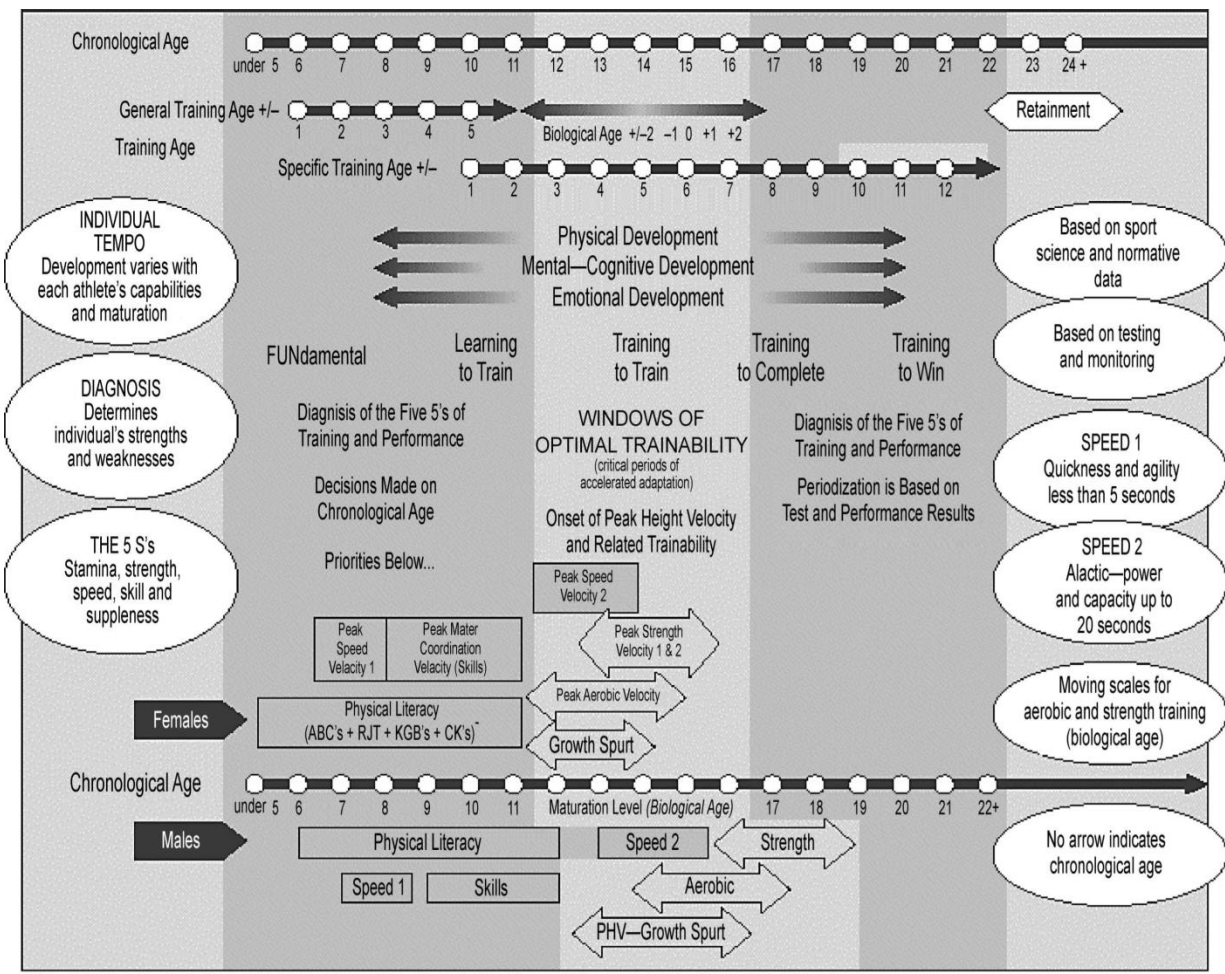
- (1) The school and parents have a common view that sport education is as important as intellectual education. NZ Sport in School model has a comprehensive model, it involving schools and parents to have responsibility to their student and children activity in sports.
- (2) NZ Sport in School model put sport education considered as part of their overall education as well and even use sport to enhanced academic performance
- (3) NZ Sport in School model as sport coaching program for long term and also for early age support character education and development.
- (4) NZ Sport in School model has increase in interest of students to the education and sport
- (5) NZ Sport in School could be a comprehensive model which has an early age sports education model that is the basis for long-term sports development



NZCER: Me & My Class: Measuring Student Engagement

| Examples of results from an item bank of student engagement questions | SiE Class 1 | SiE Class 2 | Comparison Class |
|---|-------------|-------------|------------------|
| I am always on time and organized | 96% | 83% | 78% |
| I always want to go to this class | 65% | 77% | 23% |
| I have fun | 81% | 81% | 23% |

FIGURE 3: SOURCE: SPORT NEW ZEALAND SPORT IN EDUCATION PROJECT BOOKLET



*ABC's - Agility Balance Coordination Speed + RJT = Run Jump Throw + KGB's = Kinesthesia Gliding Bouyance Striking with object + CK's = Catching Kicking Striking with body
 FIGURE 2. ADAPTATION TO TRAINING AND OPTIMAL TRAINABILITY (ADAPTED FROM BALYI & WAY, 2002; IN BALYI & HAMILTON, 2004).

United Kingdom (UK). Two contemporary UK coaching texts have directly advocated the underlying concepts and application of the LTAD model for practitioners in sports performance and athletic development (Balyi & Stafford, 2005; Balyi & Williams, 2009)

Sport scientist Dr. Istvan Balyi created this model in early 1990's. It is one of a "number of approaches that focus on key, common principals of individual development, which has helped sports organizations to consider good practice in long term planning for young athletes". The FA developed the Long Term Player Development approach, which lets people know how to work with performers who differ in gender, age and ability in football. Since is defined by Dictionary of Sport and Exercise Science as "A model that explains sport specific best practice for a serious athlete at each stage of skills learning".

The four-stage model of LTAD was next developed from the five stages during 2001 to the current six stages created in 2004. Even so sports can commonly be categorized as either early specialization or known as late specialization sports. Late specialization sports such as all team sports, the importance through the main two stages of training has to involve the performer's technical tactical skills and the development of their general motor. As early specialization sports involve a four-phase model, whilst the late specialization sports require a six-stage model. (D. Burns.

According to UK model, students or children in age 6-9 are in specific training age and Fundamental stage of Physical Literacy, for the fundamental sport skills program. This model could answer the question of the comprising sport-coaching model as below:

- (1) The school and parents have a common view that sport education is as important as intellectual education. UK sport model has a comprehensive model, it involving schools and parents to have responsibility to their student and children activity in sports.
- (2) UK Sport Model put sport education considered as part of their overall education as well.
- (3) UK Sport Model as sport coaching program for long term and also for early age support character education and development.
- (4) This model can increase in interest of students to the sport
- (5) UK Sport Model could be a comprehensive model which has an early age sports coaching model that is the basis for long-term sports development.

International Council for Coaching Excellent (ICCE). To this point the focus has been on the broader aims, expectations and roles of coaches. Now it's time to look at what coaches do and what purposes their actions serve. The primary functions of coaches have been extensively researched and writ- ten about in recent years. Several functional and competence-based frameworks

have been developed at national and international levels. The International Sport Coaching Framework specifies six primary functions, all helping to fulfill the core purpose of guiding improvement and development: 1. Set The Vision And Strategy, which is the coach creates a vision and a strategy based on the needs and stage of development of the athletes and the organizational and social context of the programme.. 2. Shape The Environment, that the coach recruits and contracts to work with a group of athletes and takes responsibility for setting out plans for specified periods. The coach also seeks to maximize the environment in which the programme occurs through personnel, facilities, resources, working practices and the management of other coaches and support personnel. 3. Build Relationships, means the coach builds positive and effective relationships with athletes and others associated with the programme. This includes personnel at the club, school, federation and other levels. The coach is responsible for engaging in, contributing to and influencing the organizational context.. 4. Conduct Practices And Structure Competitions, that the coach organizes suitable and challenging practices and targets competitions for the athletes. Such ongoing experiences are required for continued development and improvement. 5. Read And React to The 'Field', The coach observes and responds to events appropriately, including all on- and off-field matters. Effective decision making is essential to fulfilling this function. 6. Learn And Reflect, which the coach evaluates the programme as a whole as well as each practice and competition. Evaluation and reflection underpin a process of ongoing learning and professional development. The coach also supports efforts to educate and develop other coaches.

These primary functions describe how coaches accomplish their aims in general terms. Substantial variation may exist depending on the nature of specific coaching roles and circumstances. Also, experienced coaches typically are more engaged in all of the functions than are early-stage coaches. But all coaches should be aware of and strive to fulfill these primary functions regardless of experience. The primary functions are interrelated and occur within. Children. Generally up to 12-year-olds, who receive their initial exposure to multiple sports and the development of the core capabilities as the basis for their individual choices and pathways

According to ICCE model, students or children in age 6-9 are in the program of multiple sport. This model could answer the question of the comprising sport-coaching model as below:

- (1) The school and parents have a common view that sport education is as important as intellectual education. This model has a comprehensive model, it involving schools and parents to have responsibility to their student and children activity in sports.
- (2) ICCE model put sport education considered as part of their overall education as well.

- (3) ICCE as sport coaching program for long term and also for early age support character education and development.
- (4) ICCE model can increase in interest of students to the sport
- (5) ICCE Model could be a comprehensive model which has an early age sports coaching model that is the basis for long-term sports development.

Indonesia: Sport education for early age in Indonesia considered the movement need in early age. Through movement, student will have movement competency and

being motivated, this sport education model will raise their confident in movement and other (thinking and social behavior), and they also will have fun in movement. The fundamental movement designed of walking, running, catching and throwing with variations and ranging from simple to complex movement. This fundamental movement include jump, kick, strike or beat and through variation movement program to reach student agility, balance and coordination, and also body management skill. The POAUD model (or SDEA-Sport Development for Early Age) as the figure below

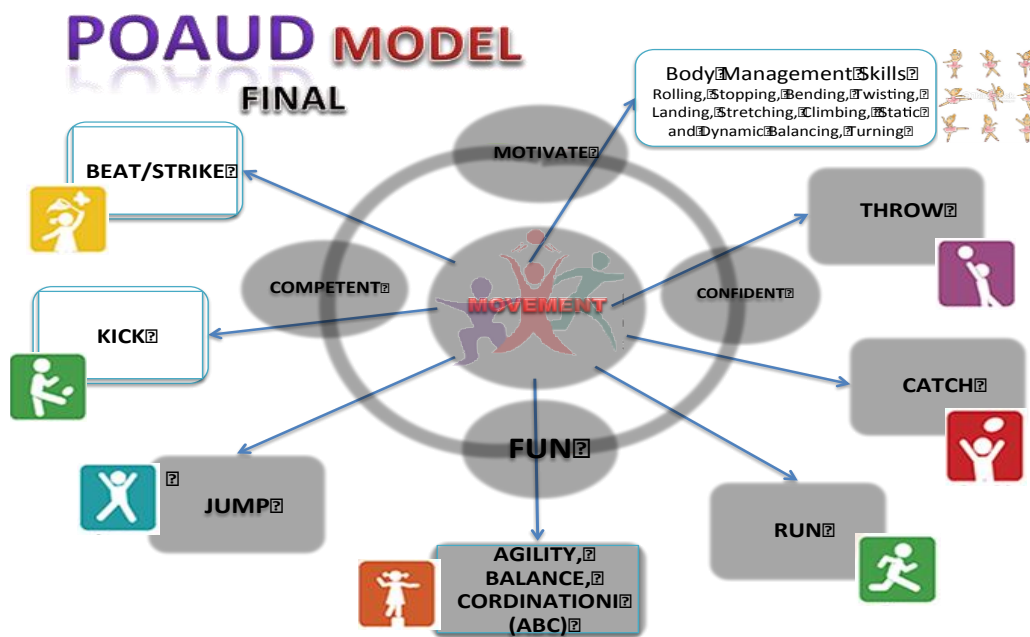


FIGURE 3. SEAD MODEL IS AN ADAPTION FROM POAD MODEL (JOHANSYAH L.&E.YULIANTI 2014)

According to POAUD model, students or children in age 6-9 are in stage of Physical Literacy, for the fundamental sport skills program and multiple sport. This model could answer the question of the comprising sport-coaching model as below:

- (1) The school and parents have a common view that sport education is as important as intellectual education. POAUD has a comprehensive model, it involving schools and parents to have responsibility to their student and children activity in sports.
- (2) POAUD model put sport education considered as part of their overall education as well.
- (3) POAUD as sport coaching program for long term and also for early age support character education and development.
- (4) The Fun activity in this model has increase in interest of students to the sport
- (5) The POAUD Model could be a comprehensive model which has an early age sports coaching model that is the basis for long-term sports development.

CONCLUSION

From this discussion can be concluded that the health education model developed by ICCE, in Canada, New Zealand, UK and Indonesia has a goal to increase children's participation in sports and physical health as well as parents and schools also provide support for the use of this model, as well as involved and responsible for sports education. All models provide support for sport as part of the overall education. Sports education model in New Zealand even use sport to be integrated with other subjects. Sport education and coaching program for long term and also for early age support character education and development. The Fun activity in this model has increase in interest of students to the sport. It could be a comprehensive model, which has an early age sports coaching model that is the basis for long-term sports development.

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Pitching Biomechanics and Injury Prevention to Improving Performance for Young Baseball Pitchers – A review

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Abstract—Baseball pitching injuries are common. Pitching Biomechanics in baseball starts when the pitcher set to wind up, and then stride, arm cocking, acceleration, deceleration, and follow through. Injuries due to errors in the biomechanics of pitching are commonly happened. The most frequent injuries reported and has been identified is in the upper extremities such as shoulder and elbow injuries. Education and protection are two key concepts in baseball injury prevention. The best time to try to prevent pitching injuries is at the beginning of a pitcher's career, when good pitching mechanics and good pitching habits can be developed, that mean pitcher can increase the skill to the next level. To accomplish this phase effectively there are three main causes in young baseball pitcher injuries are: accident, overload, and biomechanical error in pitching.

Keywords—baseball, pitching, injury

INTRODUCTION

Pitching motion biomechanics is a process that is carried out quickly in baseball. Upper extremity plays an important role in this process, especially in the arm, such as shoulder, elbow, wrist and fingers. For each pitch, the thrower must generate high levels of energy in the lower extremities and trunk to accelerate the ball to the top of velocity²⁰.

Injuries due to errors in the biomechanics of pitching are commonly happened in the upper extremity. Upper extremities play an important role in pitching breaking balls, improving strike zone control, and enhancing ball rotation. Ball spin may affect pitching quality and ball traction sharpness in the strike zone. Ball spin is generated from friction among the fingers and ball surface and seams. Control of the wrist and fingers determines ball spin quality, accuracy, and sharpness²². Breaking ball is a pitch that does not travel straight like a fastball as it approaches batter. A breaking ball will have some sideways or downward motion on it. Curveballs and sliders are two types of breaking balls. Hence, this technique is not recommended to young pitcher to pitch except the fastball, because it will affect the basic pitching techniques and will make an early injury. It is also reinforced²³ that the mechanism of the pitching motion is a significant contributor to injury.

This article tries to describe kinetics, kinematics and injuries associated to the baseball pitching. Based on this correlation with the overhand throw, studies of baseball pitcher were investigated. The purpose of this study is to integrate the information into a summary of the pitching

mechanics in the baseball in correlation with the pitching motion to the injuries and to give recommendation for young baseball pitcher to recover from injuries as soon as possible.

Mechanism of Baseball Pitching

Pitching Phases

Pitching is described in six phases: wind up, stride, arm cocking, acceleration, deceleration, and follow through¹⁸. Arm cocking, acceleration, and deceleration phases are the phases with high magnitude of force experienced in the arm.

Table 1. The Details Information of Pitching Phases

| No | Phase | Start Point | End Point | Time / second | Emphasis of Skill |
|----|----------------|--|--|-----------------|---|
| 1 | Wind up | Stance | Forward direction | 0.5 to 1.0 sec | Synchronizing of the body parts |
| 2 | Stride | Facing to the side | Foot touch down | 0.5 to 1.0 sec | Stride foot |
| 3 | Arm cocking | The ball is separated from the glove | Maximum lateral rotation at the shoulder | 110 to 280 msec | More external shoulder rotation, more space available |
| 4 | Acceleration | Shoulder in complete external rotation | Forearm supination | 0.1 sec | Initiated by pectoralis major and latissimus dorsi |
| 5 | Deceleration | Maximal internal rotation | Foot contact | 0.01 sec | Shoulder internal rotation and front knee extension |
| 6 | Follow through | Ball released | End of movement | 0.4 sec | Coordination of body part and continuous movement |

In the wind-up phase, the pitcher is placing the body in a good starting position in the forward direction. This phase lasts approximately 0.5 to 1.0 seconds and requires an average of 1.3 second². During the stride phase, the pitcher should be facing to the side, with his side facing

the catcher. The feet should be low to the ground during the stride so that the shoulders stay level and the pitcher maintains his balance. This length of the stride should be 80-90% of the pitcher's height, though some pitchers prefer to take a longer stride². Cocking is a period of shoulder abduction and lateral (external) rotation that begins as the ball is separated from the glove and ends when maximum lateral rotation at the shoulder is attained. Contact of the forward foot divides this stage into early and late phases¹⁶. At the beginning of acceleration, shoulder is in complete external rotation and horizontal abduction with the anterior aspect of the joint capsule fibrous tissues. The time for the acceleration phase is 0.1 sec. As stated in the table 1, deceleration begins with maximal internal rotation and ends with foot contact. The deceleration portion lasts only a few hundredths of a second and serves to dissipate the energy not transferred the ball¹⁹. Follow-through is the final interval of the arm motion. This stage is subdivided further by the point of maximum humeral medial (internal) rotation into early and late phases. Follow-through occurs after the ball is released and can be divided into early and late phases using maximum medial rotation of the humerus as an event marker. The early phase of follow-through, similar to the acceleration stage, is a brief phase completed in less than 0.1 second¹⁶.

Pitching Biomechanics

Biomechanics of pitching in baseball starts when the pitcher set to wind up. According³, the pitcher creates potential energy during wind up by raising the body's center of mass to the highest possible point as the weight is drawn back on one leg. In early cocking, the pitcher bends the knee of the back leg, lowers the center of mass, and then extends this leg to drive the center of mass forward towards the striding leg. Rotation of the body then begins with hip rotation and continues up the body through the trunk to the upper arm and move the elbow forward. The forearm and the ball are left behind causing the shoulder to be in extreme external rotation. This position causes stretching of the shoulder internal rotators, placing them at an optimal length for concentric contraction during acceleration. During acceleration, upper limb muscles begin to influence throwing speed as the shoulder internally rotates, "whipping" the forearm forward. If the movements of the body during throwing are not in the good coordination, extra force must be developed by upper limb muscles, and it can give occasion to overuse injuries.

The main muscles that affect the motion are the pectoralis major muscle while the antagonistic serratus anterior muscle stabilizes the scapula. And lastly, the baseball pitch is decelerated by eccentric muscle control of posterior shoulder muscles. ¹³affirm that acceleration of the arm movement in pitching will influence the occurrence of the injury or not, it is because of the movement of the arms and hips move so quickly and the risk of shoulder injury could be reduced. The mechanical energy of the hand segment is transferred via internal

force, which is mainly dominated by the centrifugal force of the forearm. Whereas the muscle torque applied to the wrist joint and absorbed the mechanical energy of the hand segment instead of increasing the energy⁸.

Upper Extremity Injuries of Baseball Pitching

¹⁴States that the combining of the injury counted for 12.4% of all injuries is reasonable to assume that injury of the arm and shoulder can exacerbate the major injuries without appropriate medical care and potentially deteriorate the number of retirement.

Shoulder Injury

The posterior shoulder muscles (posterior deltoid, infraspinatus and teres minor) are injured while contracting eccentrically to accelerate the upper extremity. Injuries related to the stability of the shoulder can be divided into unilateral and multidirectional instability. Unilateral injuries are usually traumatic in nature and are commonly anterior (90% to 95%) vs. posterior (5%) dislocations. The dislocations occur after a high-energy injury involving a fall on the outstretched hand while the shoulder is in abduction and external rotation (anterior dislocation) or adduction and internal rotation (posterior dislocation). The axillary nerve is the most commonly injured structure and has been reported in 5% to 35% of traumatic anterior shoulder dislocations. In contrast, multidirectional instability does not typically involve trauma but occurs from overuse²⁵. ¹⁰States that there are an increasing of multidirectional instability, posterior and recurrent subluxation being identified in adolescent pitchers.

Elbow Injury

Similar destructive forces on the elbow were identified, attaining 67 to 79% values of the baseball pitchers. The investigators reported that "forces to resist distraction reach a peak at a time during delivery that elbow flexion torque is exerted to control elbow extension and initiate elbow flexion". The risk of elbow pain in the young pitchers is correlated with the number of pitches thrown in a game and in a season. Adolescents who competitively pitch more than 85 pitches per game, more than 8 months out of a year, or with arm fatigue are several times more likely to require elbow surgery. Poor pitching mechanics also appear to contribute to injury risk⁷.

Injury Prevention for Young Baseball Pitchers

The association of Sport Medicine Australia estimated that 1:17 participants of sport and exercise suffer a sports injury while playing their favorite sport. However, the truly disturbing fact being up to 50 % of these injuries may have been prevented²¹. If improving sporting performance is the goal, then there is no better way than by staying injury free. When properly implemented and routinely followed, they have the potential of reducing the incidence of sports injury up to 50%. Before moving on, do not push to make any movement when getting injury, it is for reduce increasing the overall injury. The best results are achieved when all the techniques are used in combination with each other.

When it comes to sports injury; prevention is better than cure.

The good way to prevent injury is protection. Sometimes, young baseball players never think about what kind of injury that they will get, they always do pitching every time. Therefore young players must know how important to keep the body from injuries. Pitchers are the most susceptible to shoulder or elbow injuries. To minimize their risk of injury, baseball player must gradually and progressively prepare their bodies for the stresses associated with throwing. Upper limb muscles work during throwing to produce movement and stabilize joints, especially the shoulder joint. To prevent injuries, each muscle must have strength adequate to maintain stability at these joints³. The upper limb is subjected to many abnormally large torques when throwing, such as a varus torque at the elbow during late cocking and distraction at the shoulder during follow through. The muscles of the rotator cuff produce the majority of the rotation movement of the shoulder during throwing as well as provide dynamic stability to the shoulder joint. The elbow reaches 20° extension at ball release, so active full extension would not be expected to be achieved in baseball players during the pitching motion³. Its mean, pitcher will not throw the ball in another motion and try to minimize the risk of injury. This reason is also reinforced by the maximum elbow extension angular velocity which was mostly generated by upper trunk clockwise rotation angular velocity-dependent component.

Recommendations for Young Baseball Pitchers

²⁴ have six recommendations with the following explanations, (1) No competitive baseball pitching for at least 4 months per year. Active rest and no overhead throwing of any kind for at least 2-3 months per year (4 months is better). In other words, not only should a baseball player not participate in throwing drills, but in other activities that put stress on the shoulder (javelin throwing, football quarterback, softball, and competitive swimming²⁰). (2) In an effort to stem the alarming increase in elbow and shoulder injuries among young baseball pitchers, Little League Baseball adopted important new rules in 2007 to limit the number of pitches a pitcher can throw in a game and how much rest he must take pitching appearances. (3) Young baseball pitcher should avoid pitching on the multiple teams with full seasons. While playing in more than one team at a time may give an athlete more opportunities to develop his skills, and while the amount of pitching may be limited by league rule or the judgment of the coaches, it also increases the risk that he/she may end up exceeding mandatory (in the case of Little League) or recommending in the case of USA Baseball. (4) Young baseball pitchers should not play with full pitching. Coaches listed several reasons for not following pitch-count recommendations, including lack of knowledge, not having enough staff to keep track of pitches, and lack of desire to perform the tedious task. (5) It is important for athletes, parents, coaches, and pediatricians to pay close attention to how much youth pitchers are throwing and working together to keep youth baseball a healthy and fun activity. Playing in other kind of sports in addition to baseball such as javelin throw,

badminton, basketball, swimming and volleyball will maintain the appearance of the pitching ability. Movements in the sport are able to maintain the strength and other's muscle to keep them active and movable like pitching. (6) Discontinuing pitching if the pitcher gave a report about pain in the shoulder or elbow caused by several things. In some cases, surgical treatment may be the only option if the athletes want to return to his previous level in competition⁴. Another risk factor is poor pitching biomechanics. Improper biomechanics may increase the torque and force produced about the elbow during each pitch⁵.

⁹Give the guideline recommendations for young baseball pitchers: 1) Do not throw breaking (curve balls, sliders) until teen ages (about age 13) a young pitcher should focus on a fastball. 2) Proper pitching mechanics are essential for the development of pitchers in the early age. 3) Pitchers are not recommended to pitch in one full game in a season. 4) For at least three months in one year, a pitcher should not play any baseball or perform throwing drills. 5) The young pitcher should not return to the pitching mound in a game after being removed.

⁶recommended that the best time to prevent injury in pitching at the young pitcher's career, when good pitching mechanics and good pitching habits can be developed, that mean pitchers can increase the skill to the next level. ¹⁵state that many of the same overuse conditions seen in the adult population may be seen in preteen. ¹²also give recommendations for young baseball resulting from their studies including: (1) restrict the pitchers to 75 pitches per game or 600 pitches per season, (2) alternatively delimitating the number of batters pitched to 15 per game or 120 per season, (3) age adjustments for pitch type, no curveball or slider between the ages of 9 to 14; (4) limiting play to one league at a time or reducing the pitches in another competition; and (5) educating pitchers and coaches on proper strength and conditioning programs.

Two studies^{12,11}, pitchers to 14-years-old, to evaluate the frequency of elbow or shoulder complaints, and to correlate these complaints with pitch type, pitch volume and other risk factors. Types of pitch and pitch count contributed to shoulder and elbow pain, more commonly from overuse or an "accumulation of micro-trauma from the repetitive pitching motion".

Base on recommendation from many other literatures above, the author also give some recommendations, such as: (1) Young pitchers should have good pitching mechanics as basic to build pitching foundation before go to the next level. (2) Focus on fastball no breaking ball. (3) Pitchers and coaches also have good education and knowledge about injuries prevention concept.

CONCLUSION

This literature review is concerning about baseball pitching performance and injury prevention. Much information can be learned for the coaches, athletes, and physiotherapies who responsible for this job in order to raise performance and maintain health. Education and protection are two key concept to prevent

injuries, ongoing research especially in the soft tissue injury is needed to further refine these areas of investigation in particular to investigate the interaction of varying more than of the kinematic discussed variables. One important point to always remember is that prevention is better than cure.

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Habitus, Space Influence, The Activity and Social Construction of Teacher to The MGMP (Subject Matter Meeting) History in Central Java

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Abstract - This study observed social construction of Teacher to the MGMP (Subject Matter Teachers Meeting) history. The focus of this study was problems faced by MGMP history in managing activities of history teachers and how the power of habitus and space influenced the activity of MGMP history in Central Java. This research used qualitative approach. The research location was Tegal, Jepara, Banjarnegara Districts and Semarang city. Social construction theory of Peter L. Berger and habitus-arena-theory of Bourdieu were used to analyze. Social construction of history teachers to the MGMP history was found in this research. MGMP history are the place for teachers to communicate among teachers from other regions in order to improve and develop the quality of history teaching. The obstacles faced by MGMP history were; first the lack of material activity for MGMP history, second study and the improvement of teaching quality have not yet been relevant, third the low of teachers presence to follow MGMP history, fourth the weakness of supporting power and the weakness of partnership with developer institutions. This research recommends to build a model for empowering MGMP history in Central Java. The model is expected to be able to change MGMP history to be a professional organization for teachers in Central Java.

Keyword: social construction, improvement of teaching quality, model for empowering MGMP history.

PREFACE

Province of Central Java as one of Indonesian provinces has a same problem as another province in developing and improving her educational quality. It is caused by a centralistic educational policy in curriculum and in educational policy. The basic problem of education in Central Java province has a close relation to the development of educator's quality. As another province, policy of certification that applied by local government of Central Java make any change in educator's behavior in work improvement, intellectual quality and teacher's professional attitude. Central java Province has so wide territory that there is any heterogenous opinion of educators on certification program. It is an important element in improving educational quality in Central Java as a discourse.

Not only in Province of Central Java, the problem is limited as a discourse; no clear standard for educational quality in Indonesia. Consequently, the basic numbers are taken for granted as a standard of quality, for example number of literacy, number of educational participation, number of student's prestaton, total of schools etc.

Meanwhile, curriculum is made on the basis of a political interest. It is a worry for every new cabinet, because her minister will change the curriculum. It signs that education in Indonesia has no orientation to the students, but for the sake of ruler. Orientation to students always refers to a such output product: to educate students to be a morally good, intelligent, independent, competitive and responsive to the future. To make a such orientation, it is needed a teacher with a good character and integrity toward educational sphere.

A qualified teacher is a condition for a good education. A such criteria can be seen from a various perspectives: (1) scientific perspective, a teacher ought to master the subject matter and a responsive intellectual toward a cultural social change; (2) Professional perspective, a teacher has professional basics, as his guidance for educating his students; (3)moral perspective, a teacher has a qualified moral, because he is a guide for his students and also his community; (4) curriculum perspective, a teacher must read professionally and apply curriculum; (5) legal perspective, a teacher subordinates to ethics as an educator.

Teacher as a professional educator has not only professional or discursive meaning, but a legal status. In Bill 2005 no. 14 on teacher and lecturer, as listed in Chapter I General Provision, article 1, sub (1), teacher is a professional educator with a prime task of educating, teaching, guiding, training, valuing and evaluating students in basic and middle level of education. Meanwhile, in article 10 sub 1, it is said that teacher's competence includes: professional, personal, social and capability that provided by profesiion. Thus, teacher as a professional is protected by law. Consequently, government has a duty to pay his salary with a professional standard. For the teacher, he must position himself as a professional, namely he has duties to do following a professional ethics for teacher.

As a professional, the teacher has a professional organization to develop and to improve his professional competence. A such organization as an institution is MGMP Sejarah. However, this organization is regarded to be less compatible maximally in developing a quality for history teachers. MGMP Sejarah is a legal institution, but substantially barren. In holding a qualified teacher with a certificate, MGMP Sejarah is an important way to

improve a professional quality of a teacher. Therefore, MGMP Sejarah needs to be fully utilized as a professional organization for history teachers. It motivates any research on MGMP to find any solution for improving a quality of history teachers.

Based on the above mentioned background, there some basic and crucial problems related with a professionalism of history teacher. They are internal and external factors that impeding MGMP Sejarah and her role as an organization can not contribute maximally for professionalism of history teacher. Meanwhile, at present, there is no solution for overcoming a such problem. Operationally, problem can be formulated as follow: how social construction of teacher toward MGMP Sejarah, her problems for managing history teachers' activities in Central Java, a capital for improving professionalism of history teacher and effectivity of a such model in increasing a professionalism in Central Java.

Such professionalism improving can not be made if no organization for struggling it. An organization that holds all history teachers is MGMP Sejarah. Its existence contributes positively in improving a history teacher's profesionalis. However, its incompetence for improving profesionalis is a serious problem because the teacher loses his position for improving it. As the teacher loses it, it will be a stagnant for his progress, while a history teacher has to develop his professionalism continuously.

A study of MGMP Sejarah in Central Java is an urgent need, because a such organization trends to barren in developing a professionalism. Her existence must be utilized as a professional organization for history teachers in developing their competence. To solve it, MGMP Sejarah must make a research on habitus, space and some hindrances for its task. A such research will be a guidance to make any utilization model of MGMP Sejarah in Central Java.

Coinstruction of History Teacher toward MGMP Sejarah

Construction toward MGMP Sejarah is that the teacher sees MGMP Sejarah as an organization for the history teachers for communicating with another teachers in a context to improving an quality of teacher and subject matter. A such opinion shows that MGMP Sejarah is an important organization for improving in a qualified teaching model of history. A such construction is built by another history teacher, saying that MGMP Sejarah is a crucial, strategic professional organization for history teachers to improve their quality. Based on a such construction, the teacher regards MGMP Sejarah as an organization of professionals for history teachers.

A such construction is backed by a field data that showing, that MGMP Sejarah contributes many things for history teacher, if it is managed well. While, at present MGMP Sejarah does not do maximally and can not contribute for the teachers. A temporary benefit as a mentioned above statement is limited to be an institution for solution finding of teachers. A such condition is felt

by some teachers in Semarang as well as in Banjarnegara. MGMP Sejarah has not yet any contribution for the history teachers. Indeed, the teachers understand that MGMP Sejarah ought to have a maximal contribution in improving their profession and in communicating among them. For present, MGMP Sejarah is not managed so well, that it has no maximal contribution for the teachers.

THE PROBLEM

Based on a field research connected to MGMP Sejarah's problems, it seems that MGMP Sejarah in Semarang and in Banjarnegara faces some problems related with management of MGMP Sejarah's activities. A such problem is a classical one that found routinely and no solution for it. It makes MGMP Sejarah to be a routine and formal organization, without any contribution for the history teachers academically. A such situation is found in City of Semarang. Its activities have not yet been managed well, but only incidental activities. Usually, MGMP will do activities if there is a certain event, as semester exam or seminar with participation of history teachers.

Activity of MGMP member is also a serious problem. Not all members are present in its activities. Even, many teachers as a committee are not present. They check some questions of exam to their friends or send them via email. A such condition is recognized by a teacher who seldom presents in MGMP's activities. According him, they are seldom present but finishing their job. A such problem is not limited to routine activity, but also the routine present of MGMP Sejarah's members. A such condition is justified by a head of MGMP Sejarah in Banjarnegara. According him, it is very difficult to invite his members. There is not complete in every meeting. A such problem has a cause. Over interviewing to some teachers in Banjarnegara and in Semarang, the cause of it is that the teachers reluctant to present in MGMP Sejarah's meeting. It can be explained as follow.

Habitus of History Teacher

Their reluctance to present in MGMP

A field research shows that a presentation of the teachers in MGMP's meeting in Semarang is low relative. Some teachers say that they do not present. Even there is a teacher who only present once in a year. A teacher tells that the teachers do not regard MGMP Sejarah as an important, even there is any invitation for a such meeting. It is motivated by an opinion that it is not a duty to present in MGMP Sejarah's meeting. They come on his own initiative, so that it is not important to present there.

A such phenomenon in Semarang is same with in Banjarnegara. Their present in MGMP Sejarah's meeting is low. According them, their absence is caused by some factors after their initiative, as a far distance. But a prime factor is their opinion toward MGMP Sejarah as an unimportant institution. A far distance to school motivates some teachers for not going to MGMP Sejarah's meeting. Consequently, their absence is not predicted clearly.

Sometime only a half of members is present maximally. Even total of them who present routinely is a little relative.

Lack of material in MGMP Sejarah's activity

A research shows that in MGMP Sejarah's activity, committee is hard to find a material for presentation. As a result, the meeting trends to be monotone and no new material to be presented. A such lack of material motivates any reluctance to present in the meeting. An usual material is related to question making and LKS. Both are boring ones for the teachers because they make them routinely. Something they need is new materials for backing up their teaching in classroom. A history teacher tells that a material presented in MGMP Sejarah ought to be prepared a year before. Consequently, the material is not in accordance with a requirement. A such condition shows that MGMP Sejarah faces a problem to present any material for a next meeting. It motivates committee of Semarang's MGMP Sejarah to find their own materials.

A such condition is same with MGMP Sejarah in Banjarnegara. Its committee find any difficulty to plan and to present material in its activities. A such difficulty is caused by inactive of some teachers for thinking in finding and presenting a material for the next meeting. It has an effect on inaccordance between material and requirement, and to be a factor for the teachers' reluctance. A such condition make MGMP Sejarah as a not-interesting organization for the teachers. They hope any new materials for supporting them in improving a quality of education and their teaching. No new, systematic, well-planned and variative materials make MGMP Sejarah's meeting as not interesting and it has an effect on their reluctance to present.

No relation between research and quality improving

Any discussion in MGMP's meeting has no relation to quality improving of history education. It means that a topic of discussion does not contribute for improving in history teaching. A such condition shows that a material presented in the meeting is not right, not based on a requirement in field. According to a teacher that often presents in MGMP Sejarah of Semarang City, material that provided in a such meeting is limited to mode of question making or LKS. Both materials are usual found for them. Even MGMP Sejarah's product as CD for teaching and student's worksheet is not utilized in a classroom. No relevance between material provided and a way of improving quality is found.

Both are found in Semarang and Banjarnegara. A teacher tells that material that provided by MGMP Sejarah does not contribute in quality improving of history. According him, it ought to be any progress in MGMP Sejarah, so that the teachers are interested to present. He seldom presents because of a far distance between the place of meeting and his school, and no new material that presented. A such condition has an image of unregular schedule and the teachers do not regard it as a

professional. Furthermore, it is impossible to develop a relevance material for improving a quality of teaching by themselves, because they have a complex administrative problem. Therefore, another institution is necessary that cooperating with MGMP Sejarah.

Arena of MGMP Sejarah

Lack of supporting resources

Research shows that to utilize MGMP Sejarah maximally, supporting resources is necessary, particularly in funding. For present, all funding of MGMP's activities is fulfilled by themselves. A self-help funding is a little one. A lack of funding has an impact on MGMP Sejarah's activity. It is a great hindrance for planning activities. Therefore they always make an activity with a minimal cost. Resource of funding is limited to routine contribution of members. It make an activity of MGMP Sejarah as a routine one. However, any supporting resource and place is not hindrance for MGMP Sejarah. Therefore its activities are limited to routine one that costed by local teachers for themselves. But a supporting resource related to place and spirit is not any problem of MGMP. At present, school supports MGMP Sejarah for a place and moral supporting.

The existence of MGMP Sejarah has a close relation to a problem of supporting resource that experienced by MGMP Banjarnegara. Funding is fulfilled from members' contribution. It has any fluctuation, for present and absence. They who present themselves pay contribution but sometimes do not. The fund is used to cost a consumption, no academic activities. Therefore, MGMP has hardly academic activities, because it needs keynote speakers. For inviting them, it need some cost. Academic activities needs them, as usual in dedication program of university. This problem hampers MGMP Sejarah's academic activities to invite them. It will be realized in cooperation with any university.

Lack of partnership with development agency

The research shows that any partnership with development agency as university, museum and Society of Historian do not go effectively. It is a reason why MGMP Sejarah can not invite some experts. A history teacher tells that MGMP Sejarah has no special relation with MGMP Sejarah. A relation is only limited to activity for meeting of history teachers, in a part of extra curricular of any institution. Nevertheless, there is no specific cooperation. It complicates MGMP Sejarah to invite some experts. MGMP Sejarah is utilized only as a supporter for any institution as a reality.

MGMP Semarang's experience is also followed by MGMP Banjarnegara. This regency is located far from any university. It has any influence on her MGMP Sejarah, especially for any cooperation. It seems that MGMP Sejarah of Banjarnegara has never made any cooperation with development agencies. A cooperation is incidental one, namely as a part of social dedication program of any university. Therefore, MGMP Sejarah of

Banjarnegara seldom invites some experts for her own activity.

EPILOG

Conclusion of this study is that teacher's social construction toward MGMP Sejarah shows that teacher regards MGMP Sejarah as a professional organization of history teachers, with her utility for developing profession and as a place for improving teacher's quality for teaching in the classroom. Till this time, MGMP Sejarah is not managed well and maximally, so that it has no real utility and maximal contribution for the teachers. Therefore, her management must be increased optimally with empowerment in province level of Central Java.

MGMP Sejarah in Central Java, especially in Semarang City and Regency of Banjarnegara faces some hindrances. One of them is a lack of material for presenting in MGMP Sejarah meeting. Therefore, the material is not interesting for the members and lack of quality. Next to it, a such material has no relevance to teacher's need in any field research. It has any effect on them to be reluctant to present in MGMP Sejarah's activity. Another hindrance is a fact that history teacher has a lack of motivation to participate in MGMP Sejarah's activity. The problem is in funding and it makes

MGMP Sejarah to be uncompatible to invite some experts for her activity. Next hindrance is a fact that MGMP Sejarah has no any cooperation with some development agencies, that complicating her problem.

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The Production Process of Manipulative for Commercial Purpose to Support the Success of Implementation of the School Mathematics Curriculum in Indonesia

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Abstract - The School Mathematics learning, particularly for the students of primary education (the nine years education), still needs the presence of manipulative. The manipulative is used to facilitate the need of the students and to develop their thinking ability. The problem raised is that the manipulative for mathematics learning is not available in the market, while the manipulative needs to be well-designed in order to be able to instill the mathematics concept and principle appropriately. Therefore, it is more appropriate that the development of manipulative should be done in the mathematics laboratory. In order to fulfill the demand of the market, however, there are several challenges, namely: the material quality of the manipulative produced in a laboratory is below the industrial product and the service to fulfill the market demand is below the standard. Those problems could be overcome by doing a multi-years research. The first year research aims to find the model of manipulative production process. The production process of manipulative includes: preparation, production process, and evaluation/validation. The production process was done through the participative collaboration synergy between the higher institution and the industry. This synergy is useful to support the implementation of school mathematics curriculum and to develop the partner industry in terms of product diversification and quality. By using this production model, it is supposed that we can produce manipulative for mathematics learning which is suitable with the characteristics of the students and the characteristics of the current curriculum. The result of the validation towards the products which was conducted by experts (academics, practitioner-teachers, and policy maker) gives good results. The finance analysis shows that the IRR is greater than the current interest rate and the value of PV proceeds is also greater than the PV outlays. Thus, we can conclude that the production process which is conducted through the synergy between the higher education institution and industry could produce the manipulative products which are valid and are appropriate to be commercialized.

Keywords: manipulative in mathematics learning, commercial, participative collaboration of higher institution and industry

INTRODUCTION

We started the first study about the availability of mathematics manipulative in elementary schools in Banjarnegara (Hidayah, 1991) and found that the availability and the use of the manipulative were very low (33% - 38%). The availability of mathematics

manipulative in Semarang was also low. It was only 40% - 52% average while the supply from the government only covered 5% and the average use in the mathematics learning was 49.5% (Sugiman, 1996). Furthermore, researches about the development of innovative mathematics learning by using manipulative and also its implementation to find out the effectiveness in terms of strategy and teaching aid innovation have been conducted (Hidayah, 1998, 2000, 2003, 2004, 2006, 2008, 2011, 2013).

Efforts to improve the quality of education have been implemented in various ways, such as improving the quality of educational components, including curriculum improvement. The quality improvement of mathematics learning is done through improvement of learning strategy or model and also the use of manipulative. The use of mathematics teaching aid (media/manipulative) is a must, considering the mathematics material is abstract. The students of primary school age will be able to think when they are helped by concrete objects. The learning theories presented by Piaget, Bruner, and Ausubel suggest that learning will be meaningful if it is conducted in accordance with the mental state of students and presented with the pattern from the concrete stage toward the abstract stage. Bruner called it as a stage of enactive-iconic-symbolic. The 2013 Curriculum, in the other hand, emphasizes the implementation of scientific approach which consists of several activities (observing, asking, trying, associating, and communicating). Study conducted by Ghazali (2010) on the effective learning of numbers found that the teachers emphasize efforts to present problems which are easy to be understood by children. The teachers used the following steps: modeling, using concrete objects (manipulative, the representation of the image-visual media, and ending with a mathematical abstraction). The teacher was able to encourage a high level of participation for students through these activities.

The effectiveness of problem based mathematics learning with the use of media (teaching aids) has been tested in elementary school, junior high school, senior high school, and higher education (Hidayah, 2003). The

testing results of mathematics learning by using manipulative in elementary schools in six provinces (North Sumatra, Central Java, East Kalimantan, North Sulawesi, South Sulawesi, and West Nusa Tenggara) showed that the mathematics learning by using manipulative could improve the learning quality and overcome the limited ability of teachers to master of concepts/principles of mathematics, as well as to prevent the misconceptions (Hidayah, 2004). Research on mathematics learning in elementary school by optimizing the use of environment and manipulative as the learning resources (Hidayah 2008; Pramasdyahsari, 2010) found that the learning is fun, is able to develop the exploration ability well with the rate of exploration activity was 86.75% and the average result of exploration test was 73.57. The identification results of manipulative needed for learning concepts and principles of mathematics in primary and secondary education suggest that there are 51 kinds of manipulative (Sugiarto, 2010). Hidayah (2013) conducted a research of mapping the mathematics basic competence in the thematic learning mathematics and found that the manipulative manufactured by the Mathematics Laboratory of Semarang State University still need necessary adjustments to be suitable with the themes and subthemes of thematic learning.

The results of various researches above show that the existence and the utilization of manipulative is important to optimize the implementation of the 2013 Curriculum. Besides, the Regulation of the Ministry of National Education (MoNE) No. 16/2007 suggests that teachers should possess pedagogical competence in a form of being able to use relevant learning media and sources which are suitable with the students' characteristics and the subject characteristics in order to achieve the learning goal. The Regulation of the Ministry of Education and Culture (MoEC) No. 65/2013 also demands teachers to use various learning approaches, media, and sources. The Appendix IV of Regulation of MoEC No. 81A/2013 also states that the use of media, tool, and source of learning should be written in the lesson plan. These regulations confirm that the use of the learning media is important within the learning in elementary and high school.

The importance of the use of mathematics learning media has been recognized and understood by schools and teachers, however, the media are not yet available on the national market. Some types of mathematics manipulatives like solid shapes are available on the market but they are not suitable with the characteristics of mathematics learning nor the characteristics of the curriculum, thus, they are not applicable. While the manipulatives which have already met the criteria will not be effective either if the teachers can not use it properly within the learning. In the other words, the manipulatives could not facilitate students to do mathematics abstraction. The mathematics leaning media should be developed in accordance with the students' characteristics, the mathematics learning characteristics, and the

curriculum characteristics. They should also be equipped by instructions to use them within the learning.

Some schools (elementary school, junior high school, and senior high school) and universities have used the manipulative products from Semarang State University as shown by the number of selling product of manipulative in 2010 is 29 institutions (2 elementary schools, 1 Islamic elementary school, 22 junior high schools, 3 Islamic junior high schools, and 1 higher education) in Central Java, Yogyakarta, and West Sumatra (Sugiarto, 2013). The manipulative products in the mathematics laboratory still have limitations such as the quality of the product, the readiness of the product stock, and the fulfillment of order which can reach 1 month.

CV Children Toys is an industry built in 2007. It provides educative teaching aids with some advantages, namely: (1) the product is suitable with the competence standard of early childhood/kindergarten education, (2) there are various product available, (3) tested in producing teaching aid, (4) provide products for retail, small party, and grocery, (5) the product is used by almost all early childhood/kindergarten education all over Indonesia, and (6) the service is fast, proper, and suitable.

Based on the facts above, it is necessary to develop and to market the mathematics learning media (manipulative) for elementary and junior high school in synergy between Semarang State University and the Children Toys industry as the partner. By this synergy, the product is supposed to be used by the consumer appropriately and correctly. As the initial stage, this research aims to find the model of manipulative production process and to do the financial analysis (business plan) to find out the appropriateness of the manipulative production as a commercial business.

METHOD

This research used Research and Development design (Gall *et al.*, 2003) which was conducted in collaborative-participative way between team of Semarang State University and the Children Toys industry. It aims to optimize the management of the research implementation including the stages of design planning, implementation (production process), reflection, and process and product innovation.

The stages of the research in detail include: (1) Construction of the manipulative design in mathematics learning has been adapted to the 2006 and 2013 curriculum, along with the specifications of shape, size, color, material, and supporting tools required. The design of manipulative is equipped with the prototype made by the mathematics laboratory team of researchers to facilitate the industry to adjust the production. This activity is carried out in the laboratory of mathematics by involving students. (2) The design of manipulative and the sample products is then delivered to industrial partners, along with the required arguments (manipulative requirements for mathematics learning in primary and

junior high school) to obtain a mutually agreed manipulative design. (3) Preparing and completing the tools and materials prior to the production stage. Training and assistance for production staffs is important for new products with the next new method as well as providing the principles of making manipulative and how to use it. This is done to minimize product errors. (4) The production activities are carried out in the industrial partner, while the usage instructions is made by the research team. (5) Evaluation of the product is needed to determine the possible revision or repair of the product. (6) Validation test by experts (academics, practitioners, and policy makers). (7) Analysis of the results of validation. (8) Determination of manipulative production process for school mathematics learning. (9) The preparation of the pilot plan and business plan.

RESULTS AND DISCUSSION

Construction of manipulative design refers to the mapping of the 2006 Curriculum and 2013 Curriculum as the current curriculum implemented at schools are the 2006 and 2013 curriculum. Based on the materials of school mathematics, the results of the mapping and development of manipulative design is classified into 4 groups of manipulative, namely: the planar shape manipulative (Gd), solid shape manipulative (Gr), algebra manipulative (Alj), and arithmetic manipulative (Art). While based on the raw materials used for the production, the products are classified into 3 groups: the manipulative with the raw material of wood or MDF, the manipulative with evaform raw materials, and the manipulative with plastic raw materials. As a reference of production, in addition to the design of manipulative, researcher also made a code book of manipulative teaching aids for primary education mathematics in the material of planar shape, solid shape, algebra, and arithmetic.

The result of transferring design and requirement of manipulative in mathematics learning has generated innovation and creativity of researchers and industrial partners in terms of the specification of the product, especially the product of wood or MDF. The innovation and creativity could ease the use of manipulative in learning. The innovation of manipulative of volume and surface area of the cylinder, cone, and sphere lies in the raw materials used.

The tool and material for the production of solid shape manipulative have been available at the industry partner, while the production of solid shape manipulative needs a particular cutter. We have prepared 26 types of cutter for production of 12 kinds of planar shape products. We have also prepared blowing and moulding machine for production of cylinder, cone, and sphere model. The blowing and moulding machine could produce 7 kinds of manipulatives.

The process of manipulative production is carried out on an industrial partner, with accompaniment by the owner of the industry and the research team. Thus, during the production process, we also conduct evaluation,

feedback, and follow-up. Innovation occurs during the production process. Based on the research design in the research stages, the production process is evaluated at each stage and some repairs or improvements related to component design, workmanship, materials, as well as complementary products have been done. Innovations on each type of manipulative are not always the same.

The production process of manipulative with MDF material requires stages as follows: making pattern, cutting sheets of MDF material into smaller pieces, cutting to the pattern, refining by using refinement machine, constructing by using glue and small nails, closing the pores, sanding, installing magnets, painting, finishing, and then packaging. For wooden material, before proceeding to the same steps, the material should be cut such that the wood has a plane form. The production process of manipulative with evaform material follows the stages: cutting evaform into pieces of smaller size, cutting with a cutter machine, assembling, finishing, and packaging. While industry partners do not yet have a cutter machine and this research could not provide these machines because of limited funding, thus we ask for assistance of another industrial partner. While the production process of manipulative made from plastic need blowing and molding machine that has been prepared. It can be done with quite simple stages, with cycle time of around 1 minute or we can produce 60 pcs in 1 hour.

Validation of experts towards the products that have been produced by industry partners carried out by academics, policy makers (principals and school supervisors) and practitioners (teachers) of mathematics in primary and secondary education. The validated components include: the manipulative requirements including security aspect for students, usefulness, and ease of use. The products of manipulative have been equipped with a guide book on how to use the manipulative in mathematics learning. The book is constructed referring to the mapping of competences in the 2006 and 2013 curriculum. The results of the validation obtained an average score of 4.8 out of a maximum score of 5. In addition, the analysis shows that there was no significant difference result among the academics, policy makers, and practitioners. However, there are inputs for the improvement of manipulative related to safety of students, namely towards the plastic cone manipulative product. The apex of the cone was considered not safe for primary education students. In order to overcome this, there are two alternatives, the first alternative is to replace the base material with evaform material and the second alternative is by putting safety component at the apex of the cone. The manipulative for mathematics learning generated in this research are the manipulative that have been developed through a series of research activities, application at school by practitioners (teachers) and the researcher, and education/learning through Mathematics Learning Media lectures. The development of manipulative is done to achieve the goal

of learning mathematics (active learning, innovative, creative, effective, and fun), as well as efficient. The use of manipulative, will help teachers and students so that learning is not a waste of time, because of limited learning facilities. Innovations made for manipulative products is innovation in terms of effectiveness of learning, it means that by using manipulative, the concepts / principles of mathematics are easier to be accepted / understood by the students. Thus the manipulative helps mathematics becomes meaningful for students. The products are supported with innovation, raw material innovation, innovation forms (attractive, easy to use, easy to store, easy to carry), packaging innovations. In cooperation with CV. Children Toys who have had experience of 7 years of operation with manipulative educational products, with some advantages, we will be able to perfect the products of manipulative at Semarang State University. In addition, the advantage of products is

that they are equipped with instructions to use in learning. Instructions for use are provided not only clue as cooking instructions (recipe book), but instructions which contain a series of productive questions, requires students to answer or make a series of activities to discover concepts / principles of mathematics. Thus, the use of manipulative products from this study give consequences of constructivist learning, involving activities of observing, asking, trying, reasoning, and communicating as demanded by the 2013 Curriculum and 2006 Curriculum, with emphasis on exploration activities, elaboration and confirmation.

Referring to the preparation and implementation of the production process of planar shape, solid shape, algebra and arithmetic manipulative with the material of wood/MDF, evaform, and plastic, we have formulized production model of manipulative as shown in the Figure 1.

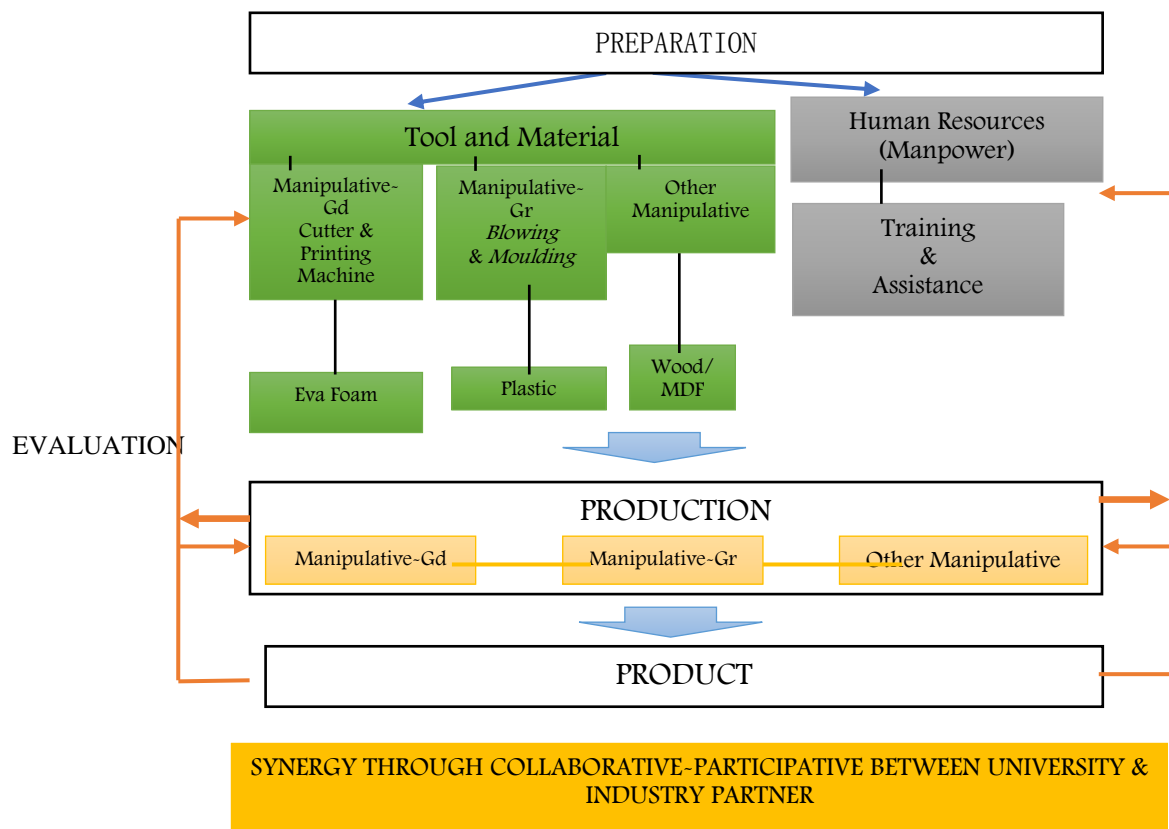


FIGURE 1. MODEL OF MANIPULATIVE PRODUCTION PROCESS

For commercial purpose, we have conducted analysis in various aspects such as production analysis, marketing analysis, socio-economics analysis, and financial analysis. In the socio-economics aspect, the availability of manipulative in mathematics learning could overcome the teacher's difficulty to implement meaningful and fun mathematics learning. Teacher could also train the students to possess critical and creative thinking ability as well as problem solving ability. By using manipulative,

teacher is expected to be able to facilitate students to do the following activities: observing, asking, trying, associating, and communicating as the basis of critical and creative thinking and problem solving. These manipulatives are important for every mathematics learning at primary and secondary school. In the finance aspect, we have conducted an analysis to determine the fixed cost, variable cost, production cost, basic price, break event point, financial report assumption, and

investment appropriateness. The analysis of the product basic price, we got information that the selling price of solid shape and algebra manipulative (wooden/MDF material) is IDR 3,100,000/package; the selling price of cylinder, cone, and sphere manipulative (plastic material) is IDR 250,000/package; and the selling price of planar shape manipulative is IDR 2,850,000/package. The break event point for 1 year sale is 9 packages of solid shape manipulative, 58 packages of cylinder, cone, and sphere manipulative, and 1 package of planar shape manipulative. The analysis of investment appropriateness give information that the payback period is 11 months 24 days. The internal rate of return is more than the bank interest rate ($66\% > 6\%$). Thus, the business of manipulative is appropriate to be funded through bank credit. The value of PV proceeds is more than the PV outlays and it confirms that the investment is appropriate. Finally, we can say that the business of manipulative production for mathematics learning can be run for commercial purpose.

CONCLUSION

The conclusions of this research are: (1) the manipulative products manufactured by the industry partner are planar shape manipulative, solid shape manipulative, algebra manipulative, and arithmetic manipulative which can be classified into 3 groups based on the production material, namely wood/MDF, evafoam, and plastic. (2) The model of manipulative production process includes: preparation stage, production stage, and evaluation stage. The evaluation stage also gives feedback and follow up at every stage of production to enable the emerge of innovation in terms of material, tool, production process, as well as finishing. The production process is conducted in collaborative-participative way between university and industry partner. (3) The manipulative products manufactured by the industry partner have fulfilled the validity and requirements as the mathematics teaching aid for primary and secondary education. They also fulfilled the criteria of usefulness and easy to use for the learning implementation. Thus the availability of manipulative could support the implementation of the current curriculum. (4) The mathematics learning manipulative production can be a commercial product business run by industry partner.

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Development of Entrepreneurship Education Management Model Based Local Excellence on Vocational High School

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Abstract— The purpose of this study was to develop and implement entrepreneurship education management model of local excellence in vocational high schools (SMK). This research designed in three years using the approach of Research and Development (R & D). The subjects were all relevant stakeholders with the implementation of the vocational education and the Institute of Teacher Education (LPTK). At this preliminary research involved two studies program at the State University of Semarang as LPTK and 12 vocational schools in Central Java. In this paper will be presented the results of a preliminary study that includes four components associated with entrepreneurship in vocational education, the vocational teacher preparation by LPTK, model of learning in vocational, management of production unit in SMK, and the implementation of the Industrial Work Practices (Prakerin) in SMK. In general it can be said that in the implementation of entrepreneurship in vocational education, among the four components that are not running in an integrated manner so that efforts to deliver entrepreneurs from vocational school graduates have not been as expected.

Keywords— *management of education, entrepreneurship, local excellence, vocational high school*

INTRODUCTION

From year to year the problem of unemployment in Indonesia has always been an interesting issue that has never been discussed. This issue is close to the problem of poverty and other social problems. The number of unemployed in Indonesia is still quite high, according to a report Statistik Central Agency (BPS, 2013), the number of unemployment in Indonesia as many as 7.2 million people, or 5.92 percent of the total workforce. When viewed under the background of education, the number of unemployed who graduated from vocational schools (SMK) as many as 847 052 people, or 11.81 percent, or greater than the national unemployment rate was 5.92 percent.

In an effort to realize the objectives of vocational secondary education, the emphasis is to prepare graduates ready to work. We need to realize that the work does not have to be an employee or a worker in a company or industry, but also can work independently or become entrepreneurs. Still lack vocational graduates who become entrepreneurs are caused by various factors, both internal and external. Internal factors include school teachers, students, curriculum, teaching methods, facilities, systems evaluation, and others. External factors, among others DUDI school, social, economic, governance, and development of global conditions. In the context of

education management, education factors can be considered as an element or management tool.

Management education is an ongoing process carried out by the organization of education in the use of existing resources in order to achieve set educational goals effectively and efficiently (Hikmat 2011; Amtu 2011). Although all these factors are met and quality of education, but not good management or management, educational goals will not be achieved. According to George Terry, at least four management functions that must be considered, namely Planning, Organizing, Actuating, Controlling (Hasibuan, 2007: 3).

The main objective of this study was to find a model of management entrepreneurial education at Vocational High School (SMK) based local excellence by effective and efficient in preparing graduates to become entrepreneurs. The study was designed within a period of three years, and for the first year researcher want to describe the management model of entrepreneurship education that exists today, in relation to: 1) the competence of teachers training eye entrepreneurship, which is studied from the system of preparation of teachers by Teacher Education (LPTK) and practices of the organization learning entrepreneurship that took place during this time, 2) model of learning in vocational, especially on the subjects of entrepreneurship as well as other subjects involved in order to prepare vocational graduates who later can become entrepreneurs, 3) Implementation Unit Production or Business Center in vocational covers human resources, infrastructure, management, policy management, results achieved, and other relevant factors, and 4) Implementation of Industrial Work Practices (Prakerin) at SMK that includes human resources, infrastructure, management, policy management, results achieved, and other relevant factors.

In contrast to the general high school (SMA) focus of vocational high school (SMK) is to prepare students especially for work in a specific field (UU RI No. 20 th. 2003 on National Education System). Working does not mean only as employees, but also as an entrepreneur). According Hisrich (2008: 7) the term entrepreneur or entrepreneurial been around since the 17th century, introduced by French economist, Richard Cantilon. Definition of entrepreneurship continues to develop in line with the times. Definition of the current according to Hisrich (2008: 18), entrepreneurship (entrepreneurship) is

the process of creating something new on the value of using the time and effort needed, run the risk of financial, physical, and social risks that accompany, receive a monetary reward that is generated, as well as satisfaction and personal freedom. Meanwhile Pearce II (2013; 430) entrepreneurship is the process of combining ideas and creative and innovative action with expertise manajemen organization needed to mobilize human resources, money, and proper operation to achieve a recognized need and create wealth in the process.

The main policies of local excellence based education stipulated in the National Education Act No. 20 of 2003 Article 50, paragraph 5 states that the district / municipal governments manage primary education and secondary education, as well as the educational unit of local excellence. Later in Law 19 of 2005 on National Education Standards, otherwise vocational curriculum can include local excellence based education.

According to the Research and Education Ministry (2007) Education is education of local excellence that exploit local advantages in the aspects of economy, culture, language, information and communication technology, ecology, and others, all of which are beneficial for the development of competence of learners. Local advantages include: agricultural products, the creation of art, tradition, culture, services, services, natural resources, human or other resources that are the hallmark of an area. Local excellence is the potential for an area to be a product or service that is valuable and can increase local income and is unique and has a competitive advantage (Ahmadi, 2012).

Studies and related research efforts to improve entrepreneurs through education has been done. According Patriasih (2011), the entrepreneurial spirit in students of vocational schools can be improved not only through the provision of Entrepreneurship subjects. Entrepreneurial spirit can be integrated in all subjects, setting learning methods, and the development of extra-curricular activities.

Agency for the Assessment and Application of Technology (BPPT) also pioneered the model of entrepreneurial learning technology (Technopreneurship) in college. In this model principle dipersipkan students to become entrepreneurs through the four stages of learning in the classroom, field observation, business plan development, and incubation (Hadi, 2010).

Model increase the spirit of entrepreneurship for vocational students through extracurricular learning has been done by Hasanah (2011) which concluded that the model of entrepreneurial learning extracurricular proved highly effective in developing the spirit of entrepreneurship vocational students. In such models, entrepreneurial learning not only through formal channels, but also through informal channels, in this case the addition of lessons through extracurricular activities. Various attempts to prepare or childbirth entrepreneurs for vocational graduates have done. As did Rakib (2010)

which concluded that the communication model of entrepreneurship, entrepreneurial learning and entrepreneurial attitudes significantly affect the performance of small businesses. While Rahayu (2010) has produced modules for vocational entrepreneurship. The same researchers (Rahayu, 2012: 104) also stressed the importance of the program of cooperation with the business community to build an entrepreneurial attitude, because during the entrepreneurial learning more emphasis on cognitive aspects. Meanwhile Lahming (2012: 224) emphasizes indicates that effective training model used to establish entrepreneurial skills is a demonstration model of a training method.

RESEARCH METHOD

This study uses the approach of research and development (Research and Development) (Borg & Gall, 1983). This relates to the common goal of research is to find a model of management excellence based local entrepreneurial education at Vocational High School, effective and efficient in preparing or printing graduates to become entrepreneurs.

Research subjects include educational institutions educators (LPTK) in this case, Semarang State University Faculty of Engineering and vocational schools in three areas, namely Semarang, Salatiga and Demak. Semarang city represent an urban area central government of the province, the city of Salatiga representing urban areas as well geographically in the middle of the province / away from the beach. Demak represent the district at the same time geographically in the coastal area / beach.

In terms of educational unit, will be chosen SMK with public and private status where each region consists of 4 vocational school. The data source is the study of all stakeholders associated with the delivery of vocational education such as teachers, students, counselors, principals, school committees, businesses and industries (DUDI) SMK partners, and institutions / agencies concerned. Thus the location and determined purposively research subject, taking into account the stages of study and the specific objectives of the study.

The study was designed for three years, and in this paper will be presented the results at the preliminary stage. Data were collected by interviews, questionnaires, observation, and documentation. In accordance with characteristics of research data, the analysis carried out in an integrated and support each other both quantitatively and qualitatively. Quantitative data were analyzed with descriptive analysis techniques (statistik descriptive). Qualitative data were analyzed qualitatively interactive model of Miles & Huberman (Sugiyono, 2008: 246-247).

RESULTS AND DISCUSSION

Broadly speaking, this study was conducted in three parts, namely, a preliminary study, development, testing and validation. In this paper will be presented on the research results at the preliminary study stage. In the preliminary study disclosed and described how planning,

organizing, implementation, and evaluation of prospective teachers in educational related LPTK, model of learning in vocational, Production Unit, and Industrial Work Practice.

Management of Vocational Education Teachers Based Entrepreneurship

Aspects of planning on LPTK got a different response. Semarang city is dominated by strongly agree category as much as 37.96%, Salatiga dominated categories disagree as much as 37.96%, a category dominated Demak agree as much as 38.89%, and for category dominated LPTK strongly agree as much as 38.89%. These results may indicate that the response is still different views regarding the planning of each subject of study, so the need for improvement in the planning aspect LPTK as an institution that prepares candidates for SMK teachers, including entrepreneurship teachers.

Aspects of the organization of the LPTK indicates that the subject has a response that is dominated by categories agree and disagree, as follows: Semarang City is dominated by the category agree as much as 61.90%, Salatiga dominated categories disagree as much as 50.00%, Demak dominated category agree as much as 67.86%, and for category dominated LPTK disagree as much as 59.52%. These results may indicate that the response of the planning is still done by all the research subject, it is seen the dominance of the category not agree on two areas of research sbujek.

Aspects of the implementation of the LPTK indicates that the subject has dominated the overall response by categories agreed, as follows: Semarang as much as 68.75%, Salatiga as much as 48.75%, Demak as much as 70.00%, and for LPTK as many as 47, 50%. These results may indicate that the implementation of Prospective Teachers Vocational Education Management Based Entrepreneurship by LPTK already accomplished.

Aspects of evaluation by LPTK indicates that the subject has a response that is dominated by categories agree and disagree, as follows: Semarang City is dominated by the category agree as much as 67.50%, Salatiga dominated categories disagree as much as 57.50%, Demak dominated category agree as much as 67.11%, and for category dominated LPTK disagree as much as 62.50%. These results may indicate that during the evaluation is done by the majority of research subjects.

Productive Learning-Based Entrepreneurship in Vocational School

Management in Productive Learning-Based Entrepreneurship in vocational indicates that the subject has a response that is dominated by strongly agree categories, as follows: Semarang as much as 50.00%, Salatiga as much as 50.00%, Demak as much as 42.86% and to LPTK dominated as much as 71.43%. These results may indicate that during this time realized the

importance of research subjects in the curriculum management kewirausahaan in vocational learning.

The response in addressing Technopreneurship on Productive Learning-Based Entrepreneurship in vocational showed similarities to an understanding of the importance of the curriculum, where the subject penlitian have a response that is dominated by strongly agree categories, as follows: Semarang as much as 60.53%, Salatiga as much as 57.89%, Demak district as much as 44.74%, and for LPTK much as 52.63%. These results may indicate that the subject penlitian aware of the need for reinforcement of learning practices that integrate with Technopreneurship elements as a first step improvement of human resources ready to face the era of globalization.

The response in addressing the impact of entrepreneurial learning attitudes and entrepreneurship skills students showed that the subjects of the study had a response that is dominated by strongly agreed among other categories of Semarang, Salatiga and LPTKs, but there are other research subjects in Demak which agree 47.92% Results The study showed that subjects agree that entrepreneurial learning will have an impact on the attitudes and abilities of students in entrepreneurship.

The response in addressing the need for knowledge and skills to support entrepreneurship skills in the Learning-Based Productive Entrepreneurship in vocational showed a mixed response from the research subjects, as follows: Semarang dominated the category agree as much as 42.86%, Salatiga dominated strongly agree as many as 39 categories, 29%, Demak dominated the category agree as much as 57.14%, and for category dominated LPTK strongly agree as much as 50.00%. These results may indicate that the study subjects still think differently about their knowledge and skills in supporting entrepreneurship skills.

The response to the impact of entrepreneurial learning on students' ability to make appropriate technology (TTG) which indicates that the subject has a response that is dominated by strongly agreed among other categories of Semarang, Salatiga and LPTKs, but there are other research subjects in Demak were agreed at 65.00%. The results showed that the study subjects agreed that entrepreneurial learning will have an impact on the ability of students to make a TTG.

Implementation of Industrial Work Practice in Vocational School

The response in addressing the implementation planning Industrial Working Practices in SMK which indicates that the subject has a response that is dominated by the category of strongly agree and agree, as follows: Semarang City is dominated by strongly agree category as much as 57.00%, Salatiga dominated strongly agree as many as 46 categories , 00%, Demak dominated the category agree as much as 58.00%, and for LPTK dominated the category agree as much as 48.00%. These results may indicate that during the research subjects

agreed that the necessary perencanaan in the Implementation of Work Practices Industry in SMK.

The response in addressing the Organization of Industrial Work Practice Implementation in SMK which indicates that the subject has a response that is dominated by the agreed categories, as follows: Salatiga as much as 53.13%, Demak as much as 56.25%, and for as much as 56.25% LPTK, These results may indicate that the subject was already aware of the importance of peorganisasian in the Implementation of Work Practices Industry in SMK.

Response in the implementation of Operation of Industrial Employment Practices in SMK which indicates that the subject has a response that is dominated by the agreed categories, as follows: Semarang as much as 40.00%, Salatiga as much as 47.50%, Demak as much as 41.25%, and for LPTK as much as 40.00%. These results may indicate that the study subjects had to know the implementation of the Operation of Industrial Work Practices in SMK.

The response in the evaluation of the Implementation of Industrial Work Practices in SMK which indicates that the subject has a response that is dominated by the agreed categories, as follows: Semarang as much as 58.33%, Salatiga as much as 69.79%, Demak as much as 69.79%, and for LPTK as much as 62.50%. These results may indicate that the subject was already aware of the importance of evaluation in the Implementation of Industrial Work Practices in SMK.

Management of Production Unit in Vocational School

The response in addressing the planning Production Unit management in the vocational shows that research subjects have the same response that is dominated by the categories agreed as follows: Semarang as much as 62.50%, Salatiga as much as 75.00%, Demak as much as 75.00%, and to LPTK dominated as much as 69.44%. The results showed that the response has been positive response planning by research subjects, in order to achieve the expected goals.

The response in addressing the organizers management of Production Units in SMK which indicates that the subject had the same response that is dominated by the categories agreed as follows: Semarang as much as 62.50%, Salatiga as much as 75.00%, Demak as much as 75.00%, and to LPTK dominated as much as 69.44%. The results of the study showed that the response subejek already understand the importance of organizing the Production Unit Management at SMK.

The response in addressing the implementation of the Production Unit Management at SMK that showed the same response with the previous sub-variables, where the same response that is dominated by the categories agreed as follows: Semarang as much as 65.28%, Salatiga as much as 59.72%, Demak total 69.44%, and for LPTK dominated as much as 75.00%. The result indicates that

the subject has been able to carry out the management of production unit in SMK.

The response in addressing the Management Evaluation Unit Production at SMK which indicates that the subject showed positive results that agree with the evaluation that is described as follows: as much as 76.39% of Semarang, Salatiga as much as 51.39%, as much as 69.44 Demak %, and for LPTK dominated as much as 47.83%. The results showed that the response of the research subjects have understood the evaluation is needed in the Management Unit of Production at SMK.

CONCLUSION

Generally speaking, the schools agreed improvement Entrepreneurship in vocational education management, which covers all aspects of planning, organizing, implementation, and evaluation. During the four functions of management is not going well. Besides learning still takes place partially or not integrated in the components or related aspects, namely 1) the management model preparation of teacher of entrepreneurship subject by LPTK, 2) productive learning model based entrepreneurship in vocational school, 3) management model production unit at SMK, and 4) implementation model of industrial work practices in SMK. Therefore, it is necessary to follow-up study in the second year with a focus on developing and implementing a management model of entrepreneurship in vocational education.

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The Importance of Financial Education for Vocational School Students in Indonesia A Case Study in Business and Management Program of Vocational High School (SMK) in Semarang City

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Abstract - This article focuses on the importance of financial education for vocational students in Indonesia in terms of the framework of national financial education, the integration of financial education into school curricula and the financial education practices in vocational education. One possible great impact of financial education implemented in schools improves the confidence of vocational students for any job opportunities after they graduate. Some complaints about graduate students of vocational school from the company owners show that the students are not yet well-prepared to face the new circumstances of the workplace and the fact shows that there are only a few numbers of graduates becoming entrepreneurs. The entrepreneurship subjects must be much more directed for the growing spirit of entrepreneurship, production and marketing. However, the financial management is not yet considered as the subject concerned. As a result, financial understanding gained does not support their success in entrepreneurship. It shows that the people's understanding about financial management in Indonesian is generally low. Concerning the importance of financial education, school and government need to encourage the students to improve their understanding in financial education.

Keywords— *importance, financial, vocational students, entrepreneurship*

INTRODUCTION

Indonesia's national education emphasizes the character building in larger portions of the curriculum. It shows that character education in school has to be put in priority. One of the purposes of the implementation of a vocational school is students' independence and their readiness to face the challenges in the workplace. Therefore, the character of being independent and adaptable in the workplace must be taken into account. Some of the complaints of the company owners about the vocational school graduates always have something to do with the character problems of the graduates and most of them are not ready at the workplace. The results of the research show that the students are not ready to adapt to the job in the workplace, and the number of vocational graduates becoming entrepreneurs is less than 10 % every year (Widiyanto, 2011).

Today, understanding and learning about entrepreneurship are still done in concepts and theories,

according to Davies (2002), entrepreneurial learning should be more on soft skills, because entrepreneurship is not just theories. It includes the aspects of behaviour and habits that are built into a character. Steiner and Watson's (2006) emphasize that the character of the business is the foundation for entrepreneurs that should not only be gained but also reflects on social responsibility among others forming efficient behaviours.

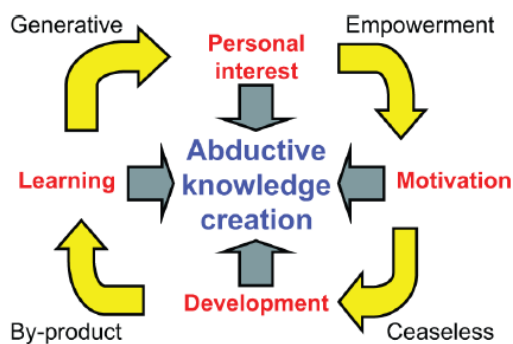
To form a character which shows a social responsibility, Draycott and Rae (2011) emphasized the need of entrepreneurship study in determining the competence of entrepreneurship by building the basic framework of competencies required for the graduates. In their opinion, one of the competencies that prospective entrepreneurs must have is finances management. According to Davies (2002) it is an important key in entrepreneurship, since many entrepreneurs fall down because they do not have the ability to manage finances.

Entrepreneurship learning is one of the ways to realize the goal of vocational education (vocational) which has a purpose of preparing the graduates to face the workforce (work), to continue their education, and to become entrepreneurs. It is often known as *BMW (Bekerja, Melanjutkan, dan Wirausaha)* (UUSPN No. 20 of 2003). In particular, entrepreneurship is defined in the annex to the Decree of the Minister of Cooperation and Development of Small Businessman No. 961 / KEP / M / XI / 1995: Entrepreneurs are people who have the spirit, attitude, behaviour and entrepreneurial abilities. Thus it can be said that an entrepreneur must have the behaviour and entrepreneurial abilities that can then be considered to have competence of entrepreneurship.

According to Jones (2006), 'Enterprise education creates a learning environment mimicking an entrepreneur's way of life.' It can be said that entrepreneurship education is actually a practical based learning because it must be based on the learning of the environment that serves as the people's views and way of life. In order to be able to focus more on this learning, Draycott and Rae (2011) said that it is important to establish a basic framework for entrepreneurial

competencies which are based on reality. Learning development of entrepreneurship implemented in the United Kingdom does not merely emphasize on improving the motivation and mentality of potential entrepreneurs, but also supports the competence in terms of funding and financial management. It is designated by the collapse of the new entrepreneurs due to their incompetence to manage finances, especially when the business is in the growing periods (McLarty et al., 2010).

The research result gained by Widiyanto and Yulianto (2013) show that entrepreneurial character-based learning need to include financial literacy skills not only for building the students' mentality, attitudes, motivation and communication skills, especially when deciding the operational costs and investment which often miscast so that the operating costs become very high. As stated above, it is true that the entrepreneurial learning must pay attention to the environment though it is not the most important thing for it, as found in the results of the study of the concept of Taatila (2010) described as follows:



PICTURE 1. THE ENTREPRENEURIAL LEARNING CYCLE

The picture above emphasizes the need of 'the entrepreneurial learning cycle,' not the external factor directed in learning, learning should lead us for motivation, but this motivation has to be supported by the environment, because the environment has a very strong influence in encouraging people to have strong motivation, with a strong motivation students will pursue their learning success.

Financial literacy is the basic, fundamental and essential aspect in financial education (PISA 2012 financial literacy), The National Financial Educators Council defines financial literacy as "possessing the skills and knowledge on financial matters to confidently take effective action that best fulfills an individual's personal, family and global community goals." (<http://www.financial educators council.org>). Based on the two definitions above, it can be seen that financial literacy is the basic and fundamental aspect which can be either the expertise or knowledge about finance which enables us to take effective behaviours in finances for individuals, families and the purpose of the global community. Financial literacy gives a wise choice for people to use their money (Abbesson, 2008: 35-46), with

the financial literacy, people will understand what the function of their money, motives of possessing money, the power of money, and the efficient and effective use of the money (Setiawan 2005; 178).

Due to the importance of all issues related to finances, it is very important to include financial literacy taught in schools because it gives a lot of benefits in people's lives particularly in business. According to (Len Boselovic, 2013), the purpose of teaching financial literacy is to prepare the students anticipate the future, considering that many adults have bad habits in using their money. Therefore, many experts suggest the students learn financial literacy and agree that it must be included in education (Matt Kabala, Gene Natali Jr. of CS McKee; 2012).

Understanding that Financial literacy gives a strong influence in forming entrepreneurial character is very important because many businesses require activities and jobs which have something to do with finances including the preparation of the investment, costing, and so on (Malshe; 2011.47-57). One thing to note that learning about financial literacy is not just a theory, but it is a practical study that can be adopted for any aspects in life, and it is also appropriate to be taught at all levels of education.

RESEARCH APPROACH

This research focuses on the importance of financial education for vocational students in Indonesia in terms of national financial education, the integration of financial education into school curriculum and the financial education practices in Vocational High School Business and Management Programs in Semarang City.

The location of this research takes place in the city of Semarang, Central Java. The site of the research is Business Management Program of SMK public school. The research site is a region of SMK public school majoring in business and management: (1) SMK N 2 in Semarang City and; (2) SMK N 9 in Semarang City.

In conducting the research, the researcher uses *mixing methods*; Qualitative and quantitative methods (Sugiyono, 2010; Bogdan & Biklen, 1998; Lincoln & Guba, 1985). The data type of this research is divided into two types as follows: (1) primary data; and (2) secondary data. Primary data was obtained in the form of verbal or the words and behavior of the subject (the informant) related to the research. While secondary data taken from documents, photographs, recordings and objects are used as a supplement to a primary data.

FINDINGS AND DISCUSSION

Framework off National Financial Education

Through Financial Literacy, people are expected to have an understanding about the financial institutions as well as financial products and services including the benefits and risk of the products, the rights and obligations, and the skill of utilizing the financial

products and services. In other words, Financial Literacy hopefully enables people to use financial products and services more effectively in accordance with their needs. This kind of situation will finally stimulate the financial service sector to develop its education program, products and services in accordance with the people's needs.

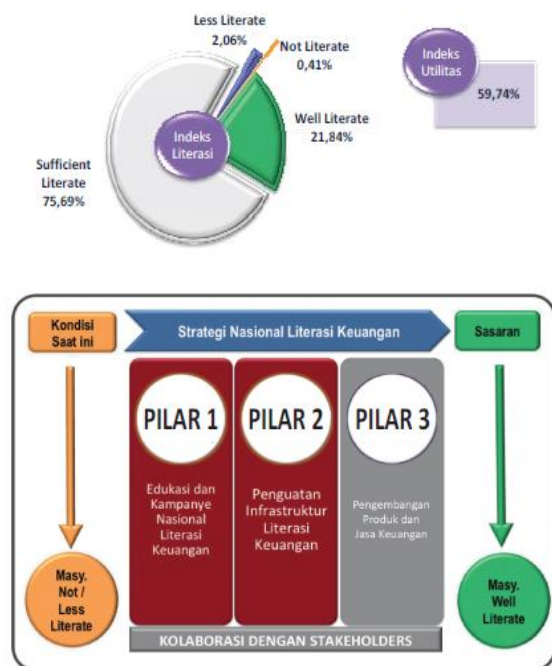
Indonesia is not the first country applying the national strategy on Financial Literacy. The followings are the countries applying the strategy:

TABLE 1. COUNTRIES APPLYING THE STRATEGY OF FINANCIAL LITERACY

| | | |
|----|-----------------|---|
| a. | Inggris | <i>Towards a National Strategy for Financial Capability</i> |
| b. | Amerika Serikat | <i>Promoting Financial Success in the United States: National Strategy for Financial Literacy</i> |
| c. | Australia | <i>National Financial Literacy Strategy</i> |
| d. | Selandia Baru | <i>National Strategy for Financial Literacy</i> |
| e. | India | <i>National Strategy for Financial Education</i> |
| f. | Kanada | <i>Canadians and Their Money Building a Brighter Financial Future</i> |

The results of the national survey on the implementation of Financial Literacy in semester 1 2013 (OJK, 2013) show that the Financial Literacy of people in Indonesia is still low, as shown in Graphic 1. In fact, in particular financial service sectors, the Financial Literacy Index of well literate people in Indonesia is also considered low.

GRAPHIC 1: FINANCIAL LITERACY INDEX AND FINANCIAL PRODUCT AND SERVICE UTILITIES



PICTURE 2. INDONESIA'S NATIONAL STRATEGY ON FINANCIAL LITERACY

Concerning about this situation, a basic supporting framework for the national strategy on Financial Literacy

which leads Indonesian people to have high literacy index (well literate) is very recommended, as shown in the picture 2.

The Indonesia's national strategy on financial literacy consists of 3 pillars as the basic framework supporting the Indonesian people to be well literate. Each pillar has different purposes, as follows:

Pillar 1 Education and National Campaign on Financial Literacy

1. Raising the public awareness, knowledge and skills about financial products and services.
2. Changing the people's mindset and behaviors, and;
3. Increasing the number of financial product and service users.

Pillar 2 Strengthening the Financial Literacy Infrastructures

1. Strengthening and supporting the education programs and national campaign on Financial Literacy.
2. Enlarging and facilitating the access of information about Financial Literacy; and
3. Ensuring the continuity of the Financial Literacy program.

Pillar 3 Financial Product and Service Development

1. Encouraging the financial institutions to develop their financial products and services in accordance with the needs of people.
2. Encouraging the financial institutions to improve the quality of their financial products and services; and
3. Encouraging the financial institutions to expand their services and make them reachable for people.

Framework for the integration of financial education into school curriculum

Russia has implemented WB/OECD Trust Fund for Financial Literacy and Education. The OECD and its INFE have focused on financial education for youth and in schools. The first OECD recommended the Principles and Good Practices for Financial Education and Awareness in 2005 and it is already acknowledged that financial education should start to be applied at school.

1. Financial education in school programmes: an integral part of the national coordinated strategies.

Financial education should ideally be integrated into the school curriculum as part of a co-ordinated national strategy which involves the wide community. School programmes should allow every child in a country or jurisdiction to be exposed to this subject matter through the school curriculum. The introduction of financial education should be preceded by, and based on, an assessment and analysis of the status and level of financial education provided through the existing

curriculum and the current level of financial literacy of children and young people.

2. Appropriate, tailored and quantifiable goals

The whole goal of the introduction of financial education in the school curriculum should be set up through the nationally coordinated strategy and has to be based on the relevant education principles. The content of the learning frameworks may vary according to the national, regional or local circumstances, the identification of particular talents of the students, the needs, aspirations and gaps, the structure and requirements of the education system and cultural or religious backgrounds as well as the approach adopted for the introduction of financial education in schools. In this respect, in some countries or jurisdictions, learning frameworks on financial education may need to be developed at the regional or local level.

Learning frameworks on financial education should ideally encompass knowledge and understanding; skills and behaviours; as well as attitudes and values. These frameworks may also encompass entrepreneurial skills. In general, learning frameworks on financial education in schools provide some guidance either to schools and teachers or to local authorities on:

- a. The learning outcomes
- b. The topic/content of financial education classes which can include: Money and transactions; Planning and managing finances; Risks and rewards; and, Financial landscape (according to school age/grade).
- c. Pedagogical approaches and methods
- d. Resources: Number of hours per week and/or per year depending on the school grades; Time span in the curriculum.
- e. Assessment and monitoring criteria

Financial Education Practices in High School Business and Management Programs in Semarang City

In understanding finance (financial literacy), students should learn at least the meaning of money, the money itself, financial needs and management. From the results of the research above, it can be concluded as follows:

TABLE 2 FINANCIAL UNDERSTANDING

| Financial Dimension | SMK N 9 in Semarang City | | | | SMK N 2 in Semarang City | | | | Σ |
|-----------------------|--------------------------|--------|--------|-------------|--------------------------|--------|--------|-------------|-----|
| | A P | A K | P M | R P L | A P | A K | P M | R P L | |
| Money Definition | 4 | 7 | 4 | 6 | 3 | 8 | 4 | 6 | 48 |
| The function of Money | 3 | 9 | 2 | 2 | 3 | 7 | 3 | 8 | 37 |
| The Need of money | 1 | 5 | 4 | 1 | 3 | 4 | 5 | 4 | 27 |
| Financial Management | 2 | 8 | 4 | 3 | 3 | 3 | 2 | 1 | 26 |
| Σ | 10 | 18 | 12 | 10 | 10 | 12 | 18 | 10 | 100 |

From the data above, there were 100 students becoming the respondents. In order to understand the finance condition of each school, 50 students from 4 majors or courses (Office Administration (AP),

Accounting (AK), marketing (PM), and engineering software (RPL)) were taken. The results indicate that the level of understanding of the four dimensions is still below 50%, the highest level of understanding the meaning of money is achieved by 48 people, 37 people understand the function of money, 27 people understand the financial needs of the people and 26 people understand private financial management. It shows that the students still need to have an understanding of the financial study.

The factors that affect character education in vocational schools is the learning process, developed values, extra-curricular activities, school culture and vision and the missions of the school. The methods used in the character education are directly and indirectly integrated to the value of the characters in theories and practices. Besides, the teachers also give the real examples in class. Actors who play a very important role in character education of the vocational students (SMK): classroom teacher, principal, mass media, friends and family especially parents and brothers or sisters.

The profile of character education in Secondary Vocational Schools should certainly reflect on the competence of the graduates, standard professionalism, independence and entrepreneurship, as stated in the principles of SMKN 2 Semarang and SMKN 9 Semarang:

“Vocational High School as a school of skill training has to prepare its graduates to be professional and capable of entrepreneurship and have good characters. We strive to create a good learning, innovation, collaboration. The school is also able to support the achievement of the graduates’ competencies and characters.”

This is in line with the theory stated by Lickona (1992) that the development strategies should be applied in all schools including the moral and cultural character education in the school environment. This is also conform with research result of Utaminingsih (2011), the development of soft skills as a part of characters is determined by the culture of the school.

The profile of character education in Secondary Vocational Schools should also be based on the characteristics of the schools reflected in the vision and mission of the school. The vision of SMK Negeri Semarang 9 is **"to create a professional and competent Labor Character and to promote spirit of Entrepreneurship"**. Both Professionalism and spirit of entrepreneurial character have already become the main characters developed in SMK Negeri 9 Semarang. The vision of SMK Negeri 2 Semarang is **"to embody a standard qualified school, strong character, and cultural environments in the global era"**. Beside the quality characteristics (professionalism and competencies) and strong character, SMK Negeri 2 Semarang specifically also developed character education concerning the environment among the students.

The success of character education in the Secondary Vocational School is influenced by the rules and code of ethics applied by the school. Then the school organizes the learning environment both in the classroom and outside the classroom which support the achievement of the characters. Teachers also provide knowledge of the characters developed in the learning practices and places. The facilities which used in the learning activities are also important in supporting the success of the competence and the entrepreneurship characters. Some of the facilities supporting the learning activities have already been provided in both SMK Negeri 9 Semarang and SMK Negeri 2 Semarang, such as bussines center, laboratory, library, Gallery, mini bank for the entrepreneurship programs, cooperation center and entrepreneurial practice materials.

Entrepreneurship character education in both SMK Negeri 9 city of Semarang and SMK Negeri 2 Semarang in is generally implemented through the following ways:

- a. Granting or giving financial support for entrepreneurship programs such as materials used for making a business plan
- b. Practicing to produce manufacturing products
- c. Selling
- d. Doing laboratory practices such as packaging practice, organizing stuff and the other accounting practices.
- e. Practicing in the fieldwork
- f. Practicing in the school business units such as the cooperation center, business school and mini bank.

CONCLUSION

1. Financial literacy index and financial product and service utilities are still low.
2. Financial education should ideally be integrated into the school curriculum as part of a co-ordinated national strategy for financial education which involves the wide open community.
3. Understanding financial management on effective expenditure and proper money use is still below 50%.
4. The entrepreneurship characters learning programs in vocational school (SMK) are applied in three ways: inclusive education within the subjects, the culture of the school and extra-curricular activities.
5. All character education programs integrated to the curriculum and the school supports are the main factors that support the character education in school.

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Learning Dance Through Appreciation and Creation Approach In Public Schools

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Abstract - Specific learning approaches for the purpose of learning achievements in teaching and learning are indispensable. Government policy for public schools as reflected in education curriculum for arts and dance obliges the use appreciation and creation approach in teaching. It is due to the main aim of giving art education in public schools which is to promote appreciation and creation. This study was aiming at (1) obtaining a real picture of the implementation dance learning in public schools by placing dance as an educational means in the school, (2) making sure that the implementation of dance learning in public schools has implemented the appreciation and creation approach as written in curriculum, and (3) establishing learning media to help the implementation of dance learning in the context of appreciation and creation learning. Furthermore, developmental research method was employed in this study. The steps were (1) doing observation relating to the implementation of dance learning in public schools, in this case was senior high school, to see and understand whether the practitioners had employed dance as one of the education means, (2) doing second observation to see and understand whether the implementation of dance learning in public school had implemented the appreciation and creation approach as stated in the curriculum, and (3) with the teacher, establishing a learning media to help the implementation dance learning in the context of appreciation and creation learning. The results showed that (1) The dance learning in public schools in this context was implemented as an educational means, (2) The learning implementation had used the appreciation and creation approach, however, the concept of appreciation and creation itself still needed to be internalized by teachers as the practitioners since they were still thinking that appreciation was a theoretical learning, whereas, creation was a form of practical learning. (3) Together with the teachers, a model of learning media had been successfully created by emphasizing appreciation in the context of aesthetical behavior and understanding, as well as creation in its relation with the process of new product in the field of dance.

Keywords: appreciation, creation, learning, method, dance education.

INTRODUCTION

Art education curriculum in public schools that is being created and updated in every change of Indonesian curriculum has the same philosophy which is used as education tool. The definition of art used as an educational tool at public school is considerably different to the arts taught in vocational school. In vocational school, arts is used the learning goal. According to Joseph (2004), when art is taught as an education tool, the target is on the the process of mastering the skill itself. It is supported by Gie (1996); Anwar (1985); and Triyanto (2001) by saying that at least the learners gain more

concrete aesthetic experience during the learning process. In contrast to that is when art is taught in art vocational school. Here, the target is the product. The point is that learning to dance is aiming at making the learners obtaining good skills in dancing (Syafii, 1999; and compared to Read, 1973).

The main target from the process of teaching art as education tool is character education. Character education itself can be learnt form Sailah (2012). In order to gain the target, a proper learning approach needs to be implemented. Here, the way in teaching art as education tool is by using appreciation and creation approach. In implementing the appreciation approach, teachers need to open a particular opportunity for students to appreciate the arts. In line with this, in implementig creation approach, it is important for the teachers to design a learning material that will allow the students to gain creative experiences (Wadiyo, 1991; 2012).

What is gain from art learning through appreciation approach (see Dostia and Aminudin, 1987 and Sutopo, 1989) would enable students to have sensitive feelings. This sensitive feeling is gained since art is introduced from its text and context side. Later, all of attempts done by teachers will arrive at gaining the esthetic experiences through art (regarding to esthetic aspects see Sahman, 1993; Sutrisno SJ and Verhaak SJ, 1993). Through this appreciation approach, it will not only gain experiences of children by optimizing their feeling but also to turn on their logical making process since the appreciation process requiring total appreciation. The total appreciation here is started with introducing the text and its context, understanding, analyzing, comprehending, and also evaluating or assessing.

Appreciation as explained above is expected to be given to students as they can recognize, understand, appreciate, and assess arts. Further, since arts is the subject here, it is hoped that by feeling the arts, the emotion of the students will be well-maintained and will give impact to the sensitivity of feelings had by the students. Sesityivity of feeling that is always be trained by using art will shape children to be sensitive in their social life aswell as to be sensitive to their environment. It is hoped that by understanding art by also understanding the children will shape children to be understandable towards their social and environmental condition.

This appreciation context will be very different compare to the context of creation approach. In the

context of creation approach, children are using art as media for creating. It means that what important is that the process of doing arts and not the results. In this context, children is the most essential subject. Children with all of their abilities have been trained to be creative to create art work (see Rohidi, 1993; and Suryobrongto, 1982).

As explained above, the final outcome of this recreation education is not a product but more to the creative process. Thus, children are trained to deal with all the difficulties in the work of arts. From this creative process, children will learn on how to deal with society. In other words, no matter how difficult their life will be, children will always be creative in facing it. It was the educational value of creativity of art as an educational tool of creativity (Vogel in Sumaryanto, 2001; Horlock in Munandar, 1988; Ross, 1978); Lowenfeld and Brittain, 1982).

Based on the background of the problems that have been stated, the main problem that should be answered and solved in this research is first, how is the implementation of dance learning in public school are being placed as an education tool? Second, how is the implementation of dance learning in public school that will allow the use of appreciation and creation approach? Third, how to realize the instructional media to assist the implementation of dance learning in the context of learning of appreciation and creation is?

RESEARCH METHODS

This research belongs to developmental research (Borg and Gall in Hartono, 2007). Therefore, this research is started by analyzing the material related to the dance learning and associated with the aesthetic education that needs to be achieved through the dance learning. Here, the context is focused on public school in Senior High School level. This study is analyzed by analyzing the dance learning material, followed by the study of theoretical/ conceptual study, and field studies that is related to aesthetic education through arts and culture learning. Later, study is expected to produce a mechanism model of teaching the art of dance through the appreciation and creation approach.

This research was conducted in several Senior High Schools Semarang with teachers and students as main subjects. The data was collected through the study of documents, observation, and interviews. In analyzing the data, the technique used was the qualitative research. The following is the sequence of steps done in this research:

(1) observation and interview to gain the real picture related to the implementation of dance learning in public school by placing the art of dance as an educational tool, (2) observation and interview to understand the approach that being used in dance learning in school regarding to whether the appreciation and creation approach as outlined in the curriculum was already used, (3) together with the teacher in developing or creating the learning

media to help the implementation of dance learning in the context of appreciation and creation learning.

RESULTS AND DISCUSSION

Results and discussion here is composed based on the research questions raised in this study. The first is on how the implementation of dance learning in public schools, or in this context is in Senior High School is performed as an educational tool. The second is on how the implementation of dance learning is implemented by using the approach of appreciation and creation. The third is on how to establish learning media to help the implementation of dance in Senior High School or in this context is appreciation and creation.

1. Dance as an Educational Tool

Dance to be given to students in Senior High School is clearly and explicitly written in the government curriculum. Even in every curriculum alteration, the main idea of the government curriculum for dance remains the same, that is to implement arts in intracurricular learning. Further according to Joice and Wheil (1986), the aim of giving arts for students in senior high school is not for students to skillful in doing the arts, but only serves as an educational tools.

In understanding how arts is implemented in public school, it is necessary to check it in the government curriculum or syllabus that is used by teachers on that particular year. In this study, the curriculum employed by teacher is the Indonesian 2013 curriculum.

From its core competencies, the curriculum use the word "to live and to practice" the religion that students believe. From the core syllabus, the meaning is transferred into the basic competence that says that "to show that students live and practice as well as feel proud of dance as the realization of the students' gratitude to God." The next core competencies that is used as a reference in the curriculum that is "to live and practice their honest behavior, discipline, responsibility, caring, mutual aid, cooperation, tolerance, peace, courteous, responsive, proactive, and show an attitude as part of a solution to the various problems in interacting effectively with the social and natural environment as well as in placing itself as a reflection of the nation in the association world".

The third reference in core competency is "understanding, applying, analyzing factual, conceptual, and procedural knowledge based on science, technology, arts, culture, and humanities with insight into humanity, nationality, state, and civilization-related phenomena and events, as well as applying procedural knowledge in a specific field of study according to their talents and interests to solve the problem". The fourth point in the core competency is to processing, reasoning, and presenting it in a concrete and abstract realm associated with the development of learning in school independently,

and to be able to use the method according to the rules of science.

From the core competencies explained above, it is clear that arts is given at senior high school for the students to educate their attitude and to give students an ability to be creative for their life and not merely to make them able to do arts, or in this case is to dance.

2. The Implementation of Learning

Learning activities done in the classroom include observing, asking, exploring, associating and communicating. What was observed in the learning process is the source of reading had by the students. First, researcher read about the various basic dance movements based techniques, concepts, and procedures. Second, researcher did an observation related to the way of students in listening to music with a variety of basic dance music accompaniment. Third, observing a variety of dance based techniques, concepts, and procedures in accordance with music accompaniment.

After making observations, what is done in that learning is asking. The first question is about a variety of basic dance movements based techniques, concepts, and procedures and another one is a wide range of musical accompaniment in variety of basic dance movements. Further step on this study is exploring. In exploring, first, researcher looked for examples of basic dance movements, concepts, and procedures in accordance with music accompaniment. Second, researcher assembles a variety of basic dance movements in accordance with techniques, concepts, and procedures in accordance with music accompaniment. Third, researcher discussed the basic dance movements, concepts, and procedures in accordance with accompaniment. Fourth, researcher discussed a wide range of basic motion of dance in accordance with variety of music accompaniment.

After exploring we did associating. Here, first, we compared the basic movements of dance in the student residence with other regions based on its techniques, concepts, and procedures. Second, we compared the way of presenting the basic motion dance in student residence area with other areas. Third, we compared the basic movements of dance with music accompaniment in the living environment of students with other regions. The continuation of association is communicating. In associating and communicating, the learning process was researched to find and choose the types of dance and the specification of dance that is enjoyed by learners. The use of media in relation to achieving the desired learning objectives, namely as a means of education should promote the appreciation and creation approach has not been implemented as expected.

3. Creating Teaching Media for Dance Appreciation and Creation Learning

In creating the teaching media, researcher suits it with the goal of learning. Learning dance under the core competencies namely to live and practice the students religion is represented by a religious and religious dance. Further for the core competencies related to live and practice good manners, a series of symbolical movement of good manner was created. Here the movement created was the one that can soften or sharpen the feelings of students.

Core competencies to be able to understand many things in life, made media that provoke creativity dance students. As well as to achieve core competencies in relation to the business of processing, reasoning, and menyaji in the realm of the concrete and the abstract realm associated with the development of the students, made the media dance creations. Core competencies are thus all this, art shows given in schools obviously used as an educational tool that the product is very clearly not educate students to make dance artists but rather to an educational attitude and creativity of life that should be owned by all students as pointed out in answers on the first problem.

CONCLUSION

In the mplementation of learning in senior high school in this context is to use dance as an educational tool instead of to make students to be an artist. Nevertheless, the media used in dance teaching and learning in high school was not used optimally to support dance used as an educational tool of appreciation and creation. The output of the learning is more to the aspects of the dance skills by focusing on products with very minimal used of the learning media. In relation to that, therefore, a teaching media was created for students. The goal was to create the more appreciative and creative students in dance learning.

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Character Hermitage: The Development Model of Character Reinforcement Management Locus

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Abstract - This study was aimed at describing the portraits of the factual management model of character reinforcement applied nowadays, developing the hypothetical management model of character reinforcement in *Padepokan Karakter* or a character hermitage, and testing the feasibility of the model and the effectiveness of the device to reinforce the character in the character hermitage. This research was conducted under research and development approaches. The subjects of this research were the informants (students, lecturers, teachers, school principals), documents, and events. The data were collected through interviews, observations, documentations, considerations of specialists and practitioners, focused group discussions, and questionnaires. The data analysis to find a factual and hypothetical model used interactive model including four points as follows: data collection, data reduction, data presentation, and drawing conclusion; whereas the data analysis to test the feasibility of the model and the effectiveness of the device was done through descriptive analysis and quasi experiments. The results indicated that the factual model of character reinforcement was done by integrating characters on subjects described in the functions of planning, implementation, and evaluation. The development of management models of character reinforcement recommended in this research was managed through the function of planning, organizing, implementing and controlling the characters in the character hermitage. The device of character reinforcement available in the character hermitage was effective and influential to reinforce the students' character.

Keywords: *Character hermitage, development model, character reinforcement*

INTRODUCTION

Maslow (1954) states that on every human being there is a hierarchy of needs. Therefore, the founding father of Indonesia realized the importance of nation and character building. Sukarno once warned, if the character development was not successful or deadlocked, and then the people would just become a nation of coolies. This view indicates that the character is an important asset for the nation in politic, economic, and global cultur (LPPKB, 2007).

The experts suggest that the implementation of character education in schools can be done through the models of holistic, integrative, comprehensive education in the frame of *Sisdiknas* (Wibowo, 2013; Zuchdi, 2013, Budiningsih, 2004; Yully, 2011; Zakaria, 2000). The holistic education model encompasses three domains including the method of knowing the good, feeling the good, and acting the good. Knowing the good is good

knowledge transfer. After knowing the good, the students should feel and love the good.

Referring to the principles and implementation of reinforcement character which are very complex, there should be a special attention in providing facilities (time, places, space) that can be used to discuss, examine, and implement the models of nation-building and the character development by stakeholders and target audiences. A character hermitage proposed in this research is one of loci for nation building and character development. A hermitage is a place where someone '*ndepok*' or learn to study and practice the skills from the teacher who is regarded having high knowledge and skills on something. (PnPSI, 2011; Terry, 2006).

The culmination point of education is character. This is aligned with the statement of Dewantoro (1973) that "... education is the effort to advance the character development (inner strength, character), mind (intellect), and the body of the child. These things should not be separated so that we can advance the perfection of our children's lives. ..." The consequences of this statement is that the character education need to be managed properly.

RESEARCH METHOD

The research approach used in this study was a research and development or R&D (Borg and Gall, 1983; Rachman, 2011), which was then simplified into three steps of the core research. R&D approach is the research approach to develop and test the feasibility of the model from a factual model found in the field as well as a supporting device that accompanies these models.

In the preliminary studies, the researchers went through literature studies, data collection, description, and analysis of the findings to find a factual character reinforcement model which was currently done nowadays. Based on the description and analysis of the findings in the preliminary study, the researchers laid out the development steps to generate a hypothetical model and the device for the character reinforcement. Based on the hypothetical model, the next model and device models were tested to a limited extent to investigate the recommended model and the device model as feasible and effective.

The data were obtained from the informants, the phenomenon of the field, and documents. The technique of data collection conducted with interview techniques,

observation, document, and question form. In order to ensure the validity of the data, this research used the triangular techniques in terms of the source or the instrument of collecting the data to the level of saturation data. The collected data were analyzed interactively (Bungin, 2010).

RESULT AND DISCUSSION

In general the portrait of nation-building and the character development was organized by combining characters on the subjects taught by teachers. The stages performed in developing characters were planning, implementing, and evaluating. The planning phase was structured based on the syllabus. Furthermore, based on the syllabus, the teacher made the lesson plan. The existing components in the syllabus covered the identity, the basic competency, the character that would be developed, learning materials, learning activities, achievement indicators, assessment, time allocation, and learning resources. Next, in the stage of implementation of the learning, the learning activities were done in three steps including; introduction, core activities i.e. teaching and learning based on the lesson plan, and the closing activities. If the core competency had been delivered, then there would be conducted summative assessment (Rachman, 2015).

Based on the research findings, it was inferred that the character reinforcement portrait was made by integrating characters in all subjects. The subjects integrated with the character were civil education, social science, and religion. After that, the character that would be developed described in the syllabus. However, the implementation of integrating the values of the character and the learning were not in accordance with the integrated learning model as intended by Fogarti, 1991; Solihatin, 2012; Alimi, 2013; Utomo & Ruijter, 1990; Rashid, 1995.

In the planning stages, especially in determining the character that would be developed, there was a difficulty found by teachers. Moreover, there was a desire on the teachers to develop a number of characters shown in the syllabus. As a result, they lacked of focus and accuracy in developing the characters. It became the limitations in making syllabus by integrating characters in the process of learning conducted by the teachers (Rachman, 2015).

This limitation was increasingly found at the stage of implementation of the learning. The integrated characters were not accommodated in the implementation of learning due to the lack of time learning. The teachers often more focused on the subject matter than the integrating character. In addition, the lack of time also influenced the evaluation. The implication in organizing learning by combining characters was the teacher should be able to develop academic creativity, facilitate and motivate students to recognize, accept, internalize the material, understand the link between the concepts and knowledge, values and actions contained in the core competencies. Whereas, the implications for learning materials was the teacher was required to be diligent and creative in finding

and gathering learning materials. The intended materials should be obtained from the social environment, nature, events, and mass media. Meanwhile, the implication for learning facilities was the teacher should be precise in choosing the teaching media.

The model of character reinforcement that is carried out in the character hermitage of the Department of Political and Social Sciences of the Faculty of Social Science of Semarang State University follows the stages of management functions developed by Terry (2006). First is the planning stage to identify the character hermitage needs, design specifications of the teacher and students, set the teaching strategy of achievement, provide facilities and the manager, and design the teaching and learning strategies to achieve goals. Second is the stage of organizing to decide the manager and the specification for the manager, determine the duties, functions, and responsibilities of the manager, instructor, and manage the teaching materials, the site, and schedule. Third is the stage of implementation to apply the reinforcement character learning aligned with the strategy of the teaching and learning activities that have been designed. Fourth is the stage of monitoring and control to monitor and control the fulfillment of the standards contained in the planning, organizing, and implementation; follow the instrument and the achievement quality (Rachman, 2015).

On the formed hermitage there are various devices available and all of them are meant to empower the character comprehensively which is in accordance with Lickona (1992), with the term moral knowing, moral feeling, and moral action. Meanwhile, the 2013 curriculum, confirmed that in a learning activity it must take place several activities that give the reinforcement of attitudes, knowledge, and skills in varied combinations and emphasis (Dikbud, 2013).

Dimension of character-feeling reinforcement is a step that the learner is intended to have the emotional skills in the form of reflection of attitude in interaction associated with the characters being built. The steps include: (1) a request to the learner to listen to readings in the form of stories, narratives, storytelling, continued with video footage of every character being built, (2) a request to the learner to do the activities related to portray characters being built, (3) working on attitude tests as a form of reflection of the attitude. The presentation of fairy tales, saga, and narrative on character education is relevant to the statement of the experts who stated that the fairy tale is the tradition and heritage of mankind throughout the ages, acted effectively in shaping national character since they are still in the cradle (Hendri, 2013; Mustari, 2011).

Character education has several objectives that are covered in the four main points, i.e. feeling management, thinking management, sport and kinesthetic, and sense and intention management (Samani and Hariyanto, 2012). Presentation of the fairy tale is also in accordance with the opinion of the McClelland (1978) the inventor of the theory of Need for Achievement stating that a fairy tale

has a significant role for the betterment of nations 25 years ahead. The growth of a country due to the influence of fairy tales actually may be good in economical, cultural, political, and social aspects. Fairy tales also can provide positive effects for the child's mental growth. When the mental grows positively, the attitude of self-reliance to keep trying to be successful by itself will get stronger.

Next, presenting storytelling through multimedia by involving the role of moral character carried by the role models is in accordance with the opinion of the Sheldon (2004) that the storytelling is one of the appropriate methods of conveying the moral messages through the role of the characters in a story as role models. Thus, the story telling has the ability to convey moral values because children and youth more easily receive information through audio-visual. Therefore, story telling presented in multimedia so it attracts the involvement of affection and cognition of the learners in internalizing the values in characters being presented.

Then, dimension of character-knowing reinforcement is a step that the learner is intended to have the intellectual skills associated with the characters being built. The pace include: (1) delivery of the principles, objectives and benefits of every character being built, (2) a request to the learner to explain the meanings of the characters being built, (3) a request to the learner to state the similarity or differences in the characters being built. The study was done by observing the level of age, child development, or level of education.

Next, dimension of character-action reinforcement is a step that the learner is intended to have a thought and behavior skills of productive actions associated with a character being built. The steps include: (1) a request to the learner to listen to readings presented related to the characters being built, (2) a request to the learner to do the requested activities related to the characters being built. (3) a suggestion for a positive or negative behavior done in a day or a week ago. The study was done by observing the level of age, child development, or level of education. The character reinforcement through action, as stated by Winton (2008) that the action is a means of applying and automatizing skills and knowledge. As such, that the character reinforcement through character action was important to do when in the process of any learning (Abbas & Zainudin, 2014).

Based on the variations of the way such studies, the learners can already understand and have the self awareness of the related characters being built. At the end of each delivery, the evaluation was conducted in accordance with the observation of domain being built. After the culmination of the third possession of the domain, then the students completely awakened their characters corresponding to the characters being built.

Testing the impact of the character hermitage-based model of character reinforcement was first done in the university level. The characters being tested were the

character of critical thinking, creative, and innovative. The results showed that there was a difference between the increased character of learners of the experiment class and the control class. The experiment class had a better improvement on the reinforced character despite the very low category compared to the control class. On the experiment class there was an increase of 22% while in the control class there was an increase of 12%. This result showed that there was influence towards the character reinforcement of critical thinking, creative, and innovative of the college students in learning using the character hermitage.

On the next research, the researchers applied the honesty using character reinforcement model in elementary school students of Semarang City. The results showed that there was a difference between the increased character of learners of the experiment class and the control class. The experiment class had a better improvement on the reinforced character compared to the control class. On the experiment class there was an increase of 52,3% (high category) while in the control class there was an increase of 22,1% (very low category). This result showed that there was high influence towards the honesty character reinforcement of the elementary school students in learning using the character hermitage.

On the next research, the researchers applied the democratic using character reinforcement model in junior high school students of Semarang City. The results showed that there was a difference between the increased character of learners of the experiment class and the control class. On the experiment class there was an increase of 44,0% (low category) while in the control class there was an increase of 23,4% (very low category). This result showed that there was influence despite of the low category towards the democratic character reinforcement of the junior high school students in learning using the character hermitage.

On the next research, the researchers applied the responsibility using character reinforcement model in high school students of Semarang City. The results showed that there was a difference between the increased character of learners of the experiment class and the control class. On the experiment class there was an increase of 52,4% (high category) while in the control class there was an increase of 23,8% (very low category).

The results of the several research above show the same symptoms that the character hermitage-based model of character reinforcement positively impacts significantly to the learner's character reinforcement. The character reinforcement is a cumulative from the dimensions of attitude, knowledge, and behaviors. The cumulative value derived describing the students' completeness of the total appearance of the students.

Refers to the teaching and learning strategy used, it caused the increase on the reinforced characters. The

increasing of the characters was caused by the character hermitage's using of discussion questions with the communicative language, using interactive multimedia, and using innovative methods. Research conducted by Sumarwati (2013), concluded that creating story with communicative language can improve students' performance. Jamaludin's research (2010), for example concluded that the improvement of learning development of thinking through the questions combined with innovative and creative learning strategies affect significantly to the development of students' creative thinking ability. The research of Juanda (2011) concluded that the CD-formed interactive multi media-based learning media can increase the understanding of the results of the study.

CONCLUSION

The factual model of character reinforcement management which was currently done nowadays was conducted by integrating character into subjects. The integration was conducted, either in the steps of planning, implementation, or evaluation. The development of recommended model of character reinforcement management was managed through functions of planning, organizing, implementing, and controlling the characters in the character hermitage. The strategy of teaching and learning activities in the character hermitage was by giving the reinforcement on the dimensions of attitude, knowledge, and behavior of the associated character. The stabilization of the three dimensions was done through the activities of reflection, interpretation of pictures, and imagination. The character reinforcement devices available in the character hermitage such as character hermitage textbook, compact disc, a character in the comic strip images, token media learning, were effective and influential in strengthening the students' character.

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Multy Teaching Method On History Lesson

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Abstract - Teaching Method is important for Class Teaching. It's guide the teacher how to create and conduct the Class. Teacher must study and collect the lesson material and prepare the class depend on the Teaching Method that had been choosen. Teacher must create dialog in the class and build Democracy in the Class to achieve free growth knowledge among the Student. It is possible for the teacher to combine various method teaching on history lesson.

Key Words; combine, teaching method, knowledge emerge.

INTRODUCTION

Teaching Method is important manner on teaching in the Classroom. It's guide All of The Teacher to do their duty that is teaching in the Classroom. There are various Teaching Method for Teacher to do their duty in the Classroom. Teaching Method are Constructivist, Contextual, Inquiry, Exploratory, Problem Based Learning. All of these Teaching Method are Good for Teaching. Teachers Usually choose one of These Teaching Method. It is possible for Teacher to combain Teaching Method in their Clasroom.

METHOD

Teaching Method is a manner for Teachers to teach in the Classroom. Teacher can choose one or another of the various Teaching Method. Teaching Method Contextivist is a teaching method that Teacher gave teory or concepts about the lesson to students so the student can build their own construct mind about the lesson (Trianto, 2007;13) . Contextual Teaching Method is a Method Teaching that the Teacher made correlation or comparison about the lesson with daily life phenomena for the Student so the teaching lesson is have meaning (Johnson, 2014;20). So the Student can made correlation

between the lesson and their daily life. Inquiry Teaching Method is a Method Teaching that the Teacher gave stimulus for the students to find the answer of the question. Exploratory Teaching Method is Method Teaching that The Teacher take the students to explore their knowledge by answer the question of How. And Problem Based Learning is a Method Teaching that the Teacher gave the students a topic to discuss and find out the solutions.

DISCUSSION

It's begin by Practice Constructivist Teaching Method. Teacher gave definition about History and gave concepts of History Science like; Who, What, When, Where, and How, in chronology. History explanation is interpretation and understand, explanation in time and about accident (Kuntowidjojo, 2008;10) Teacher gave explain that the Pre Literery Period is a period that mankind did not know yet about words, and writte. They made simply tool like chooper, pebble and they made hand painting.

Their life were nomaden and looking for food that's food gathering. Nomaden is life from one place to another palace. The Pre Historic man is life with moving around to find food both with diged and hunted. They life and move together just like company in our daily life now. They had believed on the other power in nature that is God in our daily life now. So they were made hand painting to honour for their God. They made hand painting with natural sources. With this point of view teacher have been use and practice textual and contextual method of teaching.

PICTURE OF HAND PAINTING



The student begin to made their imagination about the live in the past that is not know yet about words and writte. The teacher made further explanation about the live in pre literary period about how mankind live and got their food. Mankind live in a band and walk together and made cooperation to got their food. Their live in this period is Food Gathering. Teacher could made comparison explain about this period by gave illustration about the cooperation at the time of Pre Literery as it is now like the peasants work together in the farm, worker work together in a fabric. This is the Contextual method on teaching History Lesson.

PICTURE OF FOOD GATHERING



PICTURE LIVE IN FARM



Student will build up their vision about live between yesterday, now a days and tomorrow. The teacher made further more explanation by made explain about the tool that is being used by mankind at Pre Literery Period. The Teacher gave explain that the tool was the technology of that time. Student learn and imagine about technology. The teacher gave explain and illustration that technology at Pre Historic Period is a tool to live just like master chef work hard in the market and kitchen.

PICTURE OF PRE LITERARY TOOLS



PICTURE OF MODERN TOOLS



Student made imagination about how mankind live in the Pre Literary Period with their tools. Teacher made further explanation by made explanation about the history of mankind tool in Pre Literary Period. There is various mankind tool in Pre Historic Period at the Paleolithicum Period, Mesolithicum Period and Neolithicum Period. Tool of each Period at Pre Literary Period had it's form and function. The teacher than made question what is the different between Paleolithicum Period Tool, Mesolithicum Period Tool and Neolithicum Period Tool. This is an Inquiry Teaching Method on History Lesson. The Teacher than made further explanation about Pre Lieteray life that mankind live in Cave up the hill while at the other places that mankind life in around of beach. The Teacher than made question What is the different live on mankind in Pre Literary Period? How can they live from Cave at up the Hill and come to the beach. This is exploratory teaching method on History Lesson. The teacher than gave question about How the mankind of Pre Literery Period struggle for their life?. This Problem Based Learning on History Lesson. So this means that it is possible to combain various Teaching Method in a history lesson. The study of history on History Lesson at Senior High Scholl vocation is also learn about Industry Revolution. Teacher able to explain that Industry Revolution is a Revolution in Industrial life. Revolution is

a fast changing life in human life. These fast changing life is also on Industrial life. These fast changing life in industrial life is so fast and make fast in impact on human life so it were called Industrial Revolution. With these explain, teacher made textual explain that is Constructivist explain. Teacher could make combine teaching method with inquiry Question just like What were the impact of Industry Revolution for human life. Teacher can guide these discussion with learn together with the student about finally, there are a lot of machine and fabric in our daily life, like vehicle, factory. There were so many product had been produced by machine that were made our life life in modern life, like cars, clothes, washry.

There are also revolution on writing. Humankind had been write in hand for many years. They began with ink, and than there was a man named Christopher L. Sholes who create typewriter at 1714. Than he made companion together with Carlos Clidden and Samuel W. Soule. This work together create Old Typewriter and than at 1877 there was Old Typewriter with both Capital and Tiny Words. Theses innovation is growing and became made of perfectly when Remington Company made Old Typewriter that is available to be practiced at Offices. Humankind began write in fast and a lot of writing with uses old typewriter. Theses is the impact of revolution industry that is began by innovation. So there is correlation between history and social life. Social history is the historical counterpart of sociology, and as such, it's scope is the life of man in society (Krug, 1967;16).

OLD TYPewriter



Nowadays, there are a lot of Modern Typewriter. These all modern Typewriter is powered by electric. Various Modern Typewriter have been produced to be practiced in various offices and company.

MODERN TYPewriter



CONCLUSION

Teaching Method is important on Teaching in The Classroom. It's guide The Teacher how to teach good. There are various Method Teaching that The Teacher can choose to conduct the class.

Teacher must understand the Method of Each Method Teaching before decide to choose one or another Method Teaching. Teacher must understand and work hard to create the Class Teaching depend on the Teaching Method that had been Chosen.

The Class teaching is a dialog between Teacher and students. Teacher must create and build dynamic dialog and Democracy in the Class. The Good dialog will emerge open discussion and exciting teaching. This is also the emerge of democracy in the class.

It is possible for Teacher to combine Method Teaching in the Class. It is began with Constructivist that is the teacher giving definition and concepts and then began with stories. On given stories the teacher made relation between the past with present that is Contextual method.

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The Contrastive Verb of Paser Language with Verb of Indonesian Language

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Abstract - This research discusses about the verb of Paser language with verb of Indonesian language in contrastive analysis. The method that applied in this research is the qualitative descriptive method by using the ethno-linguistic approach. Data collecting procedure uses the observation, interviewing, recording, and noting. The analysis data procedure uses the descriptive analysis technique by using these following steps; data reduction, data providing, and conclusion. The result of this research is the affixation process in the Verb of Paser language with the verb of Indonesian language shows the similarities and differences; that in each basic word uses the prefix to produce the basic word becomes active and passive verb. The applied prefix in verb of Paser language includes prefix {N-}, prefix {ne-}, prefix {taru-}, prefix {pina-}, prefix {be-}, and prefix {mangku-}. Whereas the prefix in verb of Paser language which is equal with the verb of Indonesian language includes prefix {me-}, {di-}, {ter-}, and {ber-}, then konfix {me-kan} and konfix {di-kan}.

Keywords—contrastive, verb of Paser language, verb of Indonesian language.

INTRODUCTION

Linguistic diversity in Indonesia is able to influence the speakers to use more than one language. The speakers are usually able to use two languages we know as bilingualism. Speakers can use B1 and B2 her as not independent of the pronunciation errors in this case that would be a mistake in the language.

Chaer (2010: 84) states that the term bilingualism in Indonesian called bilingualism. Bilingualism is defined as the use of two languages by a speaker in the interaction with other people in turn. Based on the opinion of Chaer above the B1 and B2, Paser society is a society which is bilingual. Paser language as the language that was first obtained from both our parents used in everyday conversation - day in a family environment. Second language (B2) is a language that is obtained when interacting on the environment such as in schools, markets and others. This Paser that language is the mother tongue (B1) and Indonesian is the second language (B2).

Paser is one of the Province East Kalimantan of the south. Paser have the language ethnic that is the language Paser. Up to this time, the language Paser still alive and was thriving in the middle of the people's live. However, over the development of stone, language Paser as the mother tongue (B1) started affected by the language both (B2) of which is the language Indonesia. It should not be with a sage of, then it will because screwed in use the language.

If the speakers can not allocate the native language (B1) and a second language (B2) on the substance, there will be rioting or an error occurs. Intrusion in this language will cause errors - errors in the mother tongue because the language (B1) and a second language (B2) lack of control and lack of placement in a language. Therefore, requires the existence of teaching equal between the mother tongue (B1) and a second language (B2) to reduce errors when speakers use their mother tongue (B1) and a second language (B2) to communicate with the opponent he said, but did not rule the mother tongue (B1) is not removed in communication.

Comparison between Paser language with Indonesian language can be seen from how is forming the word affixation. Tarin (2009: 5) states that the procedure contrastive analysis in the form of work is an activity or activity that attempts to compare the structure of the mother tongue (B1) with the structure of a second language (B2) to identify differences between the two languages. Difference - the difference between the two languages are acquired and generated through contrastive analysis can be used as a basis to forecast or predict the difficulties or constraints - constraints that will be faced language learning by the students at the school first - more in learning a second language (B2).

Verb is a word which expresses a class action, presence and experience which is usually the type of predicate word in a phrase or sentence (Haryanta, 2012: 116). Likewise, Paser language verbs, verbs in Paser is an emerging class of words in a phrase or sentence.

Although there are similarities in the placement of verbs in phrases or sentences, but in the formation of the verb appears in the formation of class inequality verb words of both languages. Melalau contrastive analysis we can see the comparison between the similarities and differences in language verbs with verbs Indonesian Paser. Verbs of these two languages must have had differences and similarities in terms of morphological.

Here are examples of verb tenses Paser language with verbs Indonesian language:

Uma ngecangkul la umo.
(Bapak **mencangkul** di sawah.)
(Father is **hoeing** in the fields.)

The example in the above sentence stating that verb of Paser language with verb of Indonesian language have in common placement of the predicate in the sentence structure. While differences of language verbs with verbs Indonesian Paser in the process of its formation by

affixation that the word "*ngecangkul*" in verb of Paser language and the word "*mencangkul*" in verb Indonesian language.

This study discusses how the verb form the verb of Paser language with the verb of Indonesian language, how the differences and similarities the verb of Paser language with the verb of Indonesian language. The study, entitled "**The Contrastive Verb of Paser Language with Verb of Indonesian Language**" been to introduce regional language communities in Paser. Although the general public already familiar with the Paser language, but some have not been familiar with the researchers wanted to introduce to the people how the Paser language and uniqueness of being owned by Paser language of other regional languages. Second, the researchers want to explore language in terms of morphological Paser. Thirdly, want to preserve the Paser language so as not left behind by the times and continue to evolve to avoid extinction.

METHOD

The method used in the research is descriptive qualitative method. The approach in this study is the Ethnolinguistic approach. Data collection technique used observation, interviewing, and recording. Data were analyzed using descriptive analysis technique, with the following steps; data reduction, data providing, and conclusion.

RESULTS AND DISCUSSION

Forms Verb of Paser Language with Verb of Indonesian Language

Talk about the comparison forms of verbs and verb Paser language Indonesian in this study is limited only to the verb formation results affixation process. By comparison, it can be known there is a parallel form of Paser verba language and Indonesian verba languages.

On the formation of language verbs Paser using affixation process found some affixes. Affix the most productive in Paser language verbs is prefix *Nasal* {*N*} which has allomorph {*n-*}, {*ny-*}, {*ng-*}, {*em-*}, {*m-*}, {*nge-*}, {*ngem -*}, (*eng*) and {*neng-*}, depending on the initial phoneme basic form, but it is also found with the prefix {*ne-*} with alomorph {*nem-*} and {*neng-*}. Prefix {*taru-*}, prefix {*pina-*}, prefix {*be-*}, prefix {*mangku-*}. While the prefix attached to the verb Indonesian some of which are prefixes {*me-*}, prefix {*ter-*}, prefix {*di-*} and prefix {*ber-*}, then konfiks attached to the verb Indonesian some of which are {*me -kan*}, {*di-kan*}.

| Prefix <i>N</i> Paser Language | Derivative Verb | Prefix <i>me-</i> Indonesian Language | Derivative Verb |
|--------------------------------------|--------------------|---|--------------------|
| <i>ny-</i> | <i>nyangkul</i> | <i>men-</i> | <i>mencangkul</i> |
| <i>eng-</i> | <i>enggunting</i> | <i>meng-</i> | <i>menggunting</i> |
| <i>em-</i> | <i>embaca</i> | <i>mem-</i> | <i>membaca</i> |
| <i>m-</i> | <i>makai</i> | <i>mem-</i> | <i>mamakai</i> |
| <i>nge-</i> | <i>ngecat</i> | <i>menge-</i> | <i>mengecat</i> |

| Prefix <i>ne-</i> Paser Language | Derivative Verb | Konfix <i>me-</i> <i>kan</i> Indonesian Language | Derivative Verb |
|--|--------------------|---|----------------------|
| <i>nem-</i> | <i>nempuli</i> | <i>me-kan</i> | <i>mengembalikan</i> |
| <i>neng-</i> | <i>kujur</i> | <i>me-kan</i> | <i>meluruskan</i> |

| Prefix <i>be-</i> Paser Language | Derivative Verb | Prefix <i>ber-</i> Indonesian Language | Derivative Verb |
|--|--------------------|--|--------------------|
| <i>be-</i> | <i>ganti</i> | <i>ber-</i> | <i>ganti</i> |
| <i>be-</i> | <i>gawi</i> | <i>ber-</i> | <i>kerja</i> |

| Prefix <i>pina-</i> Paser Language | Derivative Verb | konfix <i>di-</i> <i>kan</i> Indonesian Language | Derivative Verb |
|--|--------------------|---|--------------------|
| <i>pina</i> | <i>losan</i> | <i>di-kan</i> | <i>tembus</i> |
| <i>pina</i> | <i>lungo</i> | <i>di-kan</i> | <i>musnah</i> |

| Prefix <i>mangku-</i> Paser Language | Derivative Verb | prefix <i>ber-</i> Indonesian Language | Derivative Verb |
|--|--------------------|--|-----------------------------------|
| <i>mangku-</i> | <i>hadap</i> | <i>ber-</i> | <i>berhadapan</i> |
| <i>mangku-</i> | <i>dokong</i> | <i>ber-</i> | <i>berdukungan/ mendukung</i> |

| Prefix <i>taru-</i> Paser Language | Derivative Verb | prefix <i>ter-</i> Indonesian Language | Derivative Verb |
|--|--------------------|--|--------------------|
| <i>taru-</i> | <i>ite</i> | <i>ter-</i> | <i>lihat</i> |
| <i>taru-</i> | <i>senggol</i> | <i>ter-</i> | <i>senggol</i> |

The above examples are the differences and similarities of language verb forms with verb Indonesian Paser. Based on the results of contrastive analysis of verb Paser language with verb Indonesian language find that verb of Paser language has similarities with verb of Indonesian language. Affix involved in the formation of Paser language verbs are: *N*, *ne-*, *be-*, *pina-*, *mangku-*, and *taru-*. Actually there are many more found affixes the others. it's just that, seeing and tracing of sources is used as the data are sentences and utterances containing affixes as mentioned above.

Comparison Verb of Paser Language with Verb of Indonesian Language

In the first analysis, the researchers sought to compare the verb form verb of Paser language with verb of Indonesian language. With this comparison in mind the verb Paser language form of language equality in the verb

Indonesian language, related forms of the same / similar and different shapes.

a. Prefix *N*-

In its function as a shaper of the prefix *N* on verb of Paser language can join a class basic forms of verbs, nouns, and adjectives. Prefix nasal {*N*} serves to form the active and passive verbs from the base by means Morphophonemic. Prefix {*N*} has prefix allomorph including {*ny-*}, {*m-*}, {*eng-*}, {*em-*}, and {*ng-*}. Prefix *N*, joined to form verbs and nouns. Here's an example in the sentence that was obtained from the speech of Paser including the following:

- (1) *Uma desu nyangkul mo payu.*
(Bapak sedang **mencangkul** di sawah.)
(Father is **hoeing** in the fields.)

Data (1) in the language of Paser "*Uma desu nyangkul mo payu.*" Just as the phrase "*Bapak sedang mencangkul di sawah.*" In Indonesian. Verbs in Paser '*nyangkul*' like "*mencangkul*" in Indonesian verbs. Based on the form of the verb '*nyangkul*' with the prefix *N*- which has allomorph *ny-*. When the base word "*cangkul*" when combined with the prefix *N* with the initial phoneme /*c*/, the phoneme /*c*/ will melt and the prefix *N* will change into *ny-* as the *N* + *cangkul* → *nyangkul*.

Similarly, the verb "*mencangkul*" in Indonesian with basic word "*cangkul*" who have prefix *me-*. When the base word "*cangkul*" when combined with a prefix *me-* the initial phoneme /*c*/ do not melt but his remains and prefix *me-* will change to *men-* as in *me-* + *cangkul* → *mencangkul*, because if the prefix *me-* meet with the initial phoneme /*c*/ the prefix *me-* will change to *men-*.

Equality between verb of Paser language with verb of Indonesian language in the process of affixation that use the same prefix *N* and prefix *me-* to form the active verbs. Differences between verb of Paser language with verbs Indonesian in affixation process, if the language verbs Paser "*nyangkul*" in the initial phoneme /*c*/ experience smelting and prefix *N* will change into *ny-* as the *N* + *cangkul* → *nyangkul*. While the verb "*mencangkul*" at the initial phoneme /*c*/ do not melt when coupled with prefix *me-* like as *me-* + *cangkul* → *mencangkul*.

- (2) *Dea enggungting pakaian mo duyu.*
(Dea **menggungting** pakaian di kamar.)
(Dea is **cutting** cloth in the bedroom.)

Data (2) in the Paser language "*Dea enggungting pakaian mo duyu.*" as "*Dea menggungting pakaian di kamar.*" in Indonesian. Verbs in Paser "*enggungting*" same as "*menggungting*" in Indonesian verbs. Based on the form of the verb "*enggungting*" with the prefix *N* which has allomorph *eng-*. When the base word "*gungting*" when combined with the prefix *N* with the initial phoneme /*g*/ then the prefix *N* would be *eng-* to change as the *N* + *gungting* → *enggungting*.

Similarly, the verb "*menggungting*" in Indonesian that said base "*gungting*" with prefix *me-* which has allomorph *meng-*. When the base word "*gungting*" when combined with a prefix *me-* the initial phoneme /*g*/ fuse and prefix *me-* will change to *meng-* as in *me-* + *gungting* →

menggungting, because if the prefix *me-* meet with the initial phoneme /*g*/ then prefix *me-* will change to *meng-*.

The equation between verb of Paser language with verb Indonesian language in affixation the process Indonesian in the same using prefix *N* and prefix *me-* to form an active verb. Differences in verb of Paser language with verb of Indonesian language, if the language verbs Paser basic word "*gungting*" coupled with the prefix *N*. Then, the prefix *N* will be to change *eng-* as the *N* + *gungting* → *enggungting*. While the verb "*menggungting*" in Indonesian language when combined with prefix *me-* on the basis of the word "*gungting*" then prefix *me-* will change into *meng-* and the word "*menggungting*" is added phoneme /*m*/ at the beginning of the word "*menggungting*".

- (3) *Uma desung embaca surat kabar mo penyeban lou.*
(Bapak sedang **membaca** surat kabar di depan rumah.)
(Father is **reading** newspaper in front of the house.)

Data (3) in the Paser language "*Uma desung embaca surat kabar mo penyeban lou.*" same as "*Bapak sedang membaca surat kabar di depan rumah*" in the Indonesian language. Based on the form of the verb "*embaca*" with the prefix *N* that have allomorph *em-*. When the base word "*baca*" when combined with the prefix *N* with the initial phoneme /*b*/, then prefix *N* will change into *em-* as the *N* + *baca* → *embaca*.

Similarly, the verb "*membaca*" in Indonesian that basic word "*baca*" with prefix *me-* that has allomorph *mem-*. When the base word "*baca*" when combined with prefix *me-*, the initial phoneme /*b*/ fuse and prefix *me-* will turn into *mem-* like on *me-* + *baca* → *membaca*, because if prefix *me-* meet with the initial phoneme /*b*/ then it will be changed to *mem-*.

The equation of verb Paser language with verb Indonesian language in the affixation same using the same prefix *N*- and prefix *me-* to form an active verb.

Differences in verb Paser language with verb Indonesian language, if the verb Paser language basic word "*baca*" coupled with the prefix *N*- then prefix *N*- will change into *em-* as the *N*- + *baca* → *embaca*. While the verb "*membaca*" in Indonesian when combined with prefix *me-* on the basis of the word "*baca*", the prefix *me-* will change into *mem-* and the word "*membaca*" is added phoneme /*m*/ at the beginning of the word "*membaca*".

- (4) *Ani makai baju cura mea.*
(Ani **memakai** baju berwarna merah.)
(Ani **wearing** red clothes.)

Data (4) in the Paser of language, "*Ani makai baju cura mea.*" like as "*Ani memakai baju berwarna merah.*" in Indonesian. Verb of Paser language "*makai*" the same as "*memakai*" in verb of Indonesian language. Based on the form of the verb "*makai*" with the prefix *N* which has allomorph *m-*. When the base word "*pakai*" when

combined with prefix *N-* the initial phoneme /p/ will melt and change into *m-* such as the *N + pakai* → *makai*.

Similarly, the verb “*memakai*” in Indonesian whose basic word “*pakai*”. When the base word “*pakai*” when combined with a prefix *me-* the initial phoneme /p/ will melt and prefix *me-* will turn into *mem-* like on *me- + pakai* → *memakai*.

The equation verb Paser language with verb Indonesian language the process affixation in the same using prefix *N* and prefix *me-* to form active verbs and the initial phoneme /p/ experienced melting at basic word.

Differences in verb Paser language with verb Indonesian language, if the verb Paser language basic word “*pakai*” when combined with the prefix *N* initial phoneme / p / will melt and the prefix *N* will change to *m-* like is the *N + pakai* → *makai*. While the verb “*memakai*” in Indonesian language when combined with prefix *me-* on the basis of the word “*pakai*” the initial phoneme / p / will melt and prefix *me-* will change into *mem-*.

- (5) *Uma ngecet jawong apan jadi ijau.*
(Bapak **mengecat** pintu sehingga menjadi hijau.)
(Father is **painting** the door so it can be green.)

Data (5) in Paser language “*Uma ngecet jawong apan jadi ijau.*” as “Bapak **mengecat** pintu sehingga menjadi hijau.” in Indonesian. Verbs in Paser language “*ngecet*” same as “*mengecat*” in Indonesian verbs. Based on the form of the verb “*ngecet*” with the prefix *N* which has allomorph *nge-*. When the base word “*cet*” when combined with the prefix *N* with the initial phoneme / c /, the prefix *N* will change into *nge-* as the *N + cet* → *ngecet*.

Similarly, the verb “*mengecat*” in Indonesian whose basic word “*cat*” with prefix *me-* that has allomorph *meng-*. When the base word “*cat*” when combined with a prefix *me-* the initial phoneme /c/ fuse and prefix *me-* will change to *meng-* as in *me- + cat* → *mengecat*.

The equation verb Paser language with verb Indonesian language in the affixation process is the same use the same prefix *N* and prefix *me-* to form the active verbs.

Differences between verb Paser language with verb Indonesian language if the Paser language the word “*cat*” is pronounced with the word “*cet*”, different from the Indonesian when pronouncing the word “*cat*” fixed “*cat*”. Not only that the Indonesian verbs; *ngecat*, *ngebom*, and *ngejar* it is used in a variety of non-standard whereas in verb Paser language including standard variety.

b. Prefiks *ne-*

Prefix {*ne-*} in the Paser language has some allomorph {*ne-*}, {*ner-*}, {*neng-*}, and {*nem-*}. The following data were obtained from native speakers people Paser in this study in the form of a sentence including are:

- (6) *Desy nempuli baju po awa Putri.*
(Desy **mengembalikan** baju ke tempat Putri.)
(Desi is **putting** the clothes back to Putri’s place)

Data (6) in the Paser language “*Desy nempuli baju po awa Putri.*” as “*Desy mengembalikan baju ke tempat Putri.*”, in Indonesian. The verb “*nempuli*” in verb Paser language like “*mengembalikan*” in Indonesian verbs. Based on the form of the verb “*nempuli*” with prefix *ne-* has allomorph *nem-*. When the base word “*muli*” is experiencing a change in the initial phoneme before using phoneme / m / when combined with prefixes *ne-*, the phoneme / m / will turn into phoneme / p / in the basic word becomes “*puli*”, after the basic word changed to “*puli*” and coupled with the prefix *ne-* with the initial phoneme / p /, the prefix *ne-* will turn into *nem-* like the *ne- + puli* → *nempuli*.

While the verb of Indonesian language, “*mengembalikan*” is also a process of affixation by adding konfix *me-kan* which basic word “*kembali*” when combined with konfix *me-kan* will be *me- + kembali + -kan* → *mengembalikan*.

The equation verb Paser language with verbs Indonesian language in the process of affixation is using prefix *ne-* are and konfix *me-kan* right to combine basic words in order to become an active verb.

Differences between verb Paser language with verbs Indonesian language if the verb Paser language on the basis of the word “*muli*” changes in the initial phoneme / m / transformed into phonemes / p / and the verb Paser language is not used at the end of the word suffix *-kan*. While the verb Indonesian language use the suffix *-kan* at the end of base.

- (7) *Aku nengkujur patok ene.*
(Saya **meluruskan** patok itu.)
(I **straightened** the peg.)

Data (7) in the verb of Paser language, “*Aku nengkujur patok ene.*” as “*Saya meluruskan patok itu.*” The verb “*nengkujur*” in verb of Paser language like “*meluruskan*” in Indonesian verbs. Based on the form of the verb “*nengkujur*” prefix *ne-* has allomorph *neng-*. The base word 'kujur' is no change in the initial phoneme.

While the verb Indonesian language 'meluruskan' are also undergoing a process of affixation by adding konfix *me-kan* which the basic word “*lurus*” when combined with konfix *me-kan* will be *me- + lurus + -kan* → *meluruskan*.

The equation verb Paser language with verb Indonesian language in the process of affixation is using prefix *ne-* and konfix *me-kan* to combine basic word in order to become an active verb.

Differences between verb Paser language with verbs Indonesian language if the verb Paser language on the basis of the word “*kujur*” and the verb Paser language is not used at the end of the word suffix *-kan*. While the verb Indonesian language use the suffix *-kan* at the end of base.

c. Prefiks *be-*

At prefix *be-* in Paser language has allomorph *ber-*. Prefix *be-* some form of verbs joined by the word basic verbs, nouns, and adverbs. The following data were

obtained from native speakers people Paser in this study in the form of a sentence including the following are:

(8) *Dero sumba lang undus beganti.*

(Mereka masuk kamar mandi secara **bergantian**.)

(They get into the bathroom **alternately**.)

Data (8) in the Paser language “*Dero sumba lang undus beganti.*” as “*Mereka masuk kamar mandi secara bergantian.*” in Indonesian. Based on the form of the verb “*beganti*” with prefix *be-*. Basic word “*ganti*” has not changed the initial phoneme. Then prefixes *be-* will not be changed but remain use prefix *be-* as in *be-* + *ganti* → *beganti*.

While the verb Indonesian language, “*bergantian*” with a basic word “*ganti*” by adding konfix *ber-an*. Then konfix *ber-an* will change into *ber-* + *ganti* + *-an* → *bergantian*.

The similary verb Paser language with verb Indonesian language in the affixation process is the same using prefix *be-* and konfix *ber-an* to form an active verb.

(9) *Uma begawi la pabrik rokok.*

(Bapak **bekerja** di pabrik rokok.)

(Father is **working** in the cigarette factory.)

Data (9) in the Paser language “*Uma begawi la pabrik rokok.*” as “*Bapak bekerja di pabrik rokok.*” in Indonesian. Based on the form of the verb “*begawi*” with prefix *be-*. Basic word “*gawi*” is no change in the initial phoneme. Then, prefix *be-* will not be changed but remain use prefix *be-* as in *be-* + *gawi* → *begawi*.

While the Indonesian verb “*bekerja*” with the basic words “*kerja*” by adding a prefix *ber-*. The prefix *ber-* will be change into *ber-* + *kerja* → *bekerja*.

The similary verb Paser language with verb Indonesian language in the affixation process is the same using prefix *be-* and konfix *ber-an* to form an active verb.

d. Prefiks *pina-*

At prefix *pina-* when joined with the word basic category of verbs, nouns and adjective will form into a passive verb. As the data below.

(10) *Pinalosan depo bika apan kate lalo.*

(**Ditembuskan** ke sebelah supaya bisa lewat.)

(**Forwarded** to the next in order to pass)

Data (10) in the Paser language “*Pinalosan depo bika apan kate lalo.*” as “*Ditembuskan ke sebelah supaya bisa lewat.*” in Indonesian. The verb “*pinalosan*” which has the prefix *pina-* when combined with basic word “*losan*” which has the initial phoneme / l / the prefix *pina-* not changed as *pina-* + *losan* → *pinalosan*.

While the verb “*ditembuskan*” also experience a process of affixation by adding konfix *di-kan* on the basis of the word “*tembus*”, then konfix *di-kan* not changed as *di-* + *tembus* + *-kan* → *ditembuskan*.

The similary of verb Paser language with verb Indonesian language in the same affixation process using prefix *pina-* and konfix *di-kan* to form a passive verb and the initial phoneme when combined with prefix *pina-* and konfix *di-kan* does not melt, but remains.

Differences between verb Paser language with verb Indonesian language in the process of affixation if the verb Paser language only use prefix *pina-* at the beginning of the word essentially without a suffix appended to the end the word basic. While the verb Indonesian language appending the suffix *-kan* at the end of the word basic.

(11) *Pinalungo apan nang keo aso.*

(**Dimusnahkan** supaya jangan ada lagi.)

(**Destroyed** lest again.)

Data (11) in the verb Paser language “*Pinalungo apan nang keo aso.*” like “*Dimusnahkan supaya jangan ada lagi.*” in Indonesian. The verb “*pinalungo*” which has the prefix *pina-* when combined with basic word “*lungo*” which has the initial phoneme / l / the prefix *pina-* not changed but remained as *pina-* + *lungo* → *pinalungo*.

While the verb Indonesian language, “*dimusnahkan*” also experience a process of affixation by adding konfix *di-kan* on the basis of the word “*musnah*”, then konfix *di-kan* does not change but remains as *di-* + *musnah* + *-kan* → *dimusnahkan*.

The similary of verb Paser language with verb Indonesian language in the same affixation process using prefix *pina-* and konfix *di-kan* to form a passive verb and the initial phoneme when combined with prefix *pina-* and konfix *di-kan* does not melt, but remains.

Differences between verb Paser language with verb Indonesian language in the process of affixation if the verb Paser language only use prefix *pina-* at the beginning of the word essentially without a suffix appended to the end the word basic. While the verb Indonesian language appending the suffix *-kan* at the end of the word basic.

e. Prefiks *mangku-*

At the prefix *mangku-* are joined at the base word verbs do not have allomorph. The following data were obtained from native speakers people Paser in this study in the form of a sentence including are:

(12) *Ani diang Ina mangkuhadap la meja kuman.*

(*Ani dan Ina berhadapan di meja makan.*)

(Ani and Ina **face** at the dinner table.)

Data (12) in the verb Paser language “*Ani diang Ina mangkuhadap la meja kuman.*”, like Ani “*Ani dan Ina berhadapan di meja makan.*”, in Indonesian. The verb ‘*mangkuhadap*’ in verb Paser language to form a verb by joining a basic word verbs that express each other. Basic

words “*hadap*” the initial phoneme do not experience the process of affixation. then, prefix *mangku-* be *mangku-* + *hadap* → *mangkuhadap*.

While the “*berhadapan*” in verb Indonesian language are also experience a process of affixation by adding an konfix *ber-an* on the basis of the word “*hadap*” the initial phoneme / h /, then prefix *ber-* not change like as *ber-* + *hadap* + *-an* → *berhadapan*.

The similary verb Paser language with verb Indonesian language in the same affixation process adding prefix *mangku-* and konfix *ber-an* to form an active verb.

Differences between verb Paser language with verb Indonesian language if the verb “*mangkuhadap*” with prefix *mangku-* coupled with some of the initial phoneme / a /, / r /, and / t /, then prefix *mangku-* not change. This is because the prefix *mangku-* not have allomorph. While the verb “*berhadapan*” which has konfix *ber-an* if combined with some initial phonemes such as / k / and / a /, then prefix *ber-* will change to allomorph *be-* and *bel-*. This is because the prefix *ber-* have some allomorph them *be-* and *bel-*.

- (13) *Taka harus mangkudokong.*
 (*Kita harus saling mendukung.*)
 (We must **support** each other)

Data (13) in the Paser language “*Taka harus mangkudokong.*”, like as “*Kita harus saling mendukung.*”, in Indonesian. The verb ‘mangkudokong’ in verb Paser language form verbs by joining a basic word verbs that express each other. The basic word “*dokong*” with initial phoneme do not experience the process of affixation. then, prefix *mangku-* to be *mangku-* + *dokong* → *mangkudokong*.

While the “*mendukung*” in verb Indonesian language are also experience a process of affixation by adding prefix *me-* on the basic “*dukung*” !. Then the prefix *me-* has not changed such as *me-* + *dukung* + → *mendukung*.

The similary of verb Paser language with verb Indonesian language in the same affixation process each adding prefix *mangku-* and prefix *me-* to form an active verb.

Differences between verb Paser language with verbs Indonesian language if the verb “*mangkudokong*” with prefix *mangku-* coupled with some of the initial phoneme / a /, / r /, and / t / the prefix *mangku-* not change. This is because the prefix *mangku-* not have allomorph. While the verb “*mendukung*” has prefix *me-*.

f. Prefiks *taru-*

At prefix *taru-* that form passive verbs by combining basic words verbs and nouns. Prefix *taru-* do not have allomorph. The following data were obtained from the original penurur Paser in this study in the form of sentences which are:

- (14) *Taruite regok nau kembang ja ene.*
 (**Terlihat** sangat cantik bunga desa itu.)
 (**Looks** very pretty that girl)

Data (14) in the Paser language “*Taruite regok nau kembang ja ene.*” like “*Terlihat sangat cantik bunga desa itu.*” in Indonesian. The verb “*taruite*” has the prefix *taru-* the initial phoneme / i / are not changed when combined with basic word “*ite*” as in *taru-* + *ite* → *taruite*.

While the verb of Indonesian language “*terlihat*” experience affixation process by adding a prefix *ter-* on the basic of the word “*lihat*” into *ter-* + *lihat* → *terlihat*.

The similary verb of Paser language with verb of Indonesian language is using prefix *taru-* in verb of Paser language and prefix *ter-* in verb of Indonesian language to form passive verbs.

The difference between the verbs of Paser language with verbs of Indonesian language is if the verb of Indonesian language “*terlihat*” in the pronunciation only the verb “*terlihat*”, while the verb of Paser language that have two “*taruite*” and “*teite*”.

- (15) *Danum lang gelas rudak tarusenggol*
 koe okongku.
 (*Air di dalam gelas tumpah tersenggol oleh*
adikku.)
 (Water in the glass **spill** hit by my sister.)

Data (14) in the Paser language “*Danum lang gelas rudak tarusenggol koe okongku.*” like “*Air di dalam gelas tumpah tersenggol oleh adikku.*” in Indonesian. The verb “*tarusenggol*” has the prefix *taru-* the initial phoneme / s / are not changed when combined with basic word “*senggol*” as in *taru-* + *senggol* → *tarusenggol*.

While the verb of Indonesian language “*tersenggol*” experience affixation process by adding a prefix *ter-* on the basic of the word “*senggol*” into *ter-* + *senggol* → *tersenggol*.

The similary verb of Paser language with verb of Indonesian language is using prefix *taru-* in verb of Paser language and prefix *ter-* in verb of Indonesian language to form passive verbs.

CONCLUSION

The Affixation process in verb of Paser language with verb of Indonesian language shows the similarities and differences between them. The findings showed that Paser language verbs in the process afiksasinya not have suffixes and konfix to form verbs in the word derivatives.

The similarities verb of Paser language with verb of Indonesian language in the formation of affixation on the basis of the same word - just use a prefix to form the basis of the word into a verb active and passive verbs. While the difference is the prefix used in verb of Paser language of which is the prefix {*N*}, prefix {*ne-*}, prefix {*be-*}, prefix {*taru-*}, prefix {*pina-*}, and prefix {*mangku*} While the prefix verb of Paser language as parallel e with prefixe in the verb of Indonesian language such as following the prefix {*me-*}, prefix {*di-*}, prefix {*ter-*}, and {*ber-*}, next konfix {*me-kan*}, {*di-kan*}.

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Students' Achievement On Entrepreneur Subject Matter At Fashion Technology Study Program By Applying Project-Based Learning

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Abstract—Entrepreneur is one of some Subject matter who had been followed by the students of Fashion Technology Study Program., has 2 credit semester system. In this subject matter there is no practice, the students only get theoretical material. The aims of this research: to know the students' entrepreneur achievement by using project-based learning model of instruction on Entrepreneur Subject Matter. The experiment method was use in the research. One-shot case study experimental design was used in this research.. The samples were 24 students who attend the Entrepreneur Subject Matter. The data collected used test consist of cognitive, affective and psychomotor domain. The descriptive percentage was used to analyze the data. The result of the research: students' achievement on Entrepreneur Subject Matter was 75% it was in good category. The suggestions were: 1) It was better to apply some instructional model on Entrepreneur Subject Matter. 2) Project-based learning can be applied at another subject matter, such as: Fashion Design, Tailored Management, Children Wear, Lingerie and other.

Keywords: *Students' achievement, Entrepreneurship Subject Matter, Fashion Design Study Program, Project-Based Learning Model*

INTRODUCTION

Fashion Technology Study Program is one of the Three Home Economics Department Study Programs. which produce graduates who can work in vocational schools, as a teacher or an educator. Besides as a teacher, it is possible for graduates become entrepreneur in the field of fashion. Some businesses in fashion such as : business couturier, tailor, haute couture, clothing stores, sewing training managers, intermediaries between wholesalers and clothing stores. Become an entrepreneur takes a variety of skills, but the important one is the source from individual, such as interest, creativity and business skills in the field of fashion.

Fashion Technology Study Program students get an Entrepreneurship Subject, but this in subject the students get only contains the concepts of entrepreneurship development, there are many theories that have not led the students into enterpreneurship. As a candidate of teacher, college students should have enterpreneurship skill and not just be satisfied as an employee. These capabilities can later be passed on to their students and can be used as a side job as a vocational teacher. Vocational Education experts, Prosser (downloaded 2010), stated that vocational education will be effective when taught by teachers and instructors who have experience and success in applying the skills and knowledge of the operations and processes to their work. Based on the experience of Home Economics students who later become an educator in

vocational high school, students will gain knowledge about managing a fashion/food/grooming business, so after graduating from vocational school, students have the courage to manage their own business, not only become a labor on other people's business.

That is the same with one of Home Economics Department mission; developing entrepreneurship in fashion design to lead into independent community. But the traditional learning is usually used explanation method, discussion and giving a task, so that the student doesn't have an ability to start independent business. It can be said that entrepreneurship subject still makes the student becomes a labor, not entrepreneur.

Effort to increase the entrepreneurship spirit in many levels of society should be done by educational institutions, one of them is in Home Economics Department. Therefore, it needs a method or model to train the student to become entrepreneur in the field of fashion by applying project-based learning model.

The problem that can be formulated based on this background are: How high the students/ achievement in Entrepreneur Subject Matter by applying project-based learning?

FASHION TECHNOLOGY STUDY PROGRAM

The vision of Fashion Technology Study Program is as a center of academic education and professional in producing teacher or educator that have an ability in technology and service of fashion, adaptable and competeable. One of the Fashion Technology Study Program missions is developing entrepreneurship in fashion design to lead into independent community.

To reach the mission's target, the students of of Home Economics Department are given some courses or subjects that support the target competency. The courses are given to the students, can be grouped into main courses that appropriate to the concentration of fashion/food/grooming, for example for the Fashion Technology Study Program include: Fashion Design, Fashion Technology, Management of Children's Fashion to haute couture, Textile Science, Textile Design, Fashion Business Management, Tailoring, Product Exhibition. Moreover, there are some supporting competency courses, for example: Consumer and Entrepreneurship Education, and other subjects.

Entrepreneurship course is given in 4th semester for Fashion and Culinary study programs and 5th semester for Grooming Study Program., with 2 credit semester, and with a range of material, namely: (1) the basic concept of

entrepreneurship provides definition and characteristics of entrepreneur, (2) the mental attitude of entrepreneur, include: attributes of entrepreneurship, entrepreneurship philosophy, and the mental attitude of entrepreneur, (3) Competence of entrepreneurship, contains: motivation, management, administration, business accounting, leadership (leadership types), (4) Business Planning, include: the scope of business, type of business clothing, kind of business, the selection of the business type (location, kind of business, type of business), strategic analysis (SWOT), financial cost analysis, marketing, (5) proposal and evaluation, include: business proposal, business execution, and business evaluation (Home Economics Department 2010).

Entrepreneurship course is needed to prepare student with the knowledge, skills and motivation to be success entrepreneur in every situation. The success of entrepreneurship education is influenced by several factors, such as: learning materials, instructional media, teaching methods, learning models, classroom management, evaluation system, teachers and the student. Student-oriented learning requires learning model that accordance with the student's condition. Therefore, in Entrepreneurship course, the learning model should be chosen which can increase the interest and creativity in entrepreneurship, such as: project-based learning, Contextual Teaching and Learning. Etc.

ENTREPRENEUR SUBJECT MATTER IN FASHION TECHNOLOGY STUDY PROGRAM

Fashion Design of Home Economics Study Program has a vision as a center of academic education and professional in producing teacher or educator that have an ability in technology and service of fashion, adaptable and competeable. One of the Fashion Design of Home Economics Study Program missions is developing entrepreneurship in fashion design to lead into independent community. To reach the mission's target, the student of Fashion Design of Home Economics Study Program are given some courses or subjects that support the target competency. The courses are given to the student, can be grouped into main courses that appropriate to the concentration of fashion, include: Fashion Design, Fashion Technology, Management of Children's Fashion to haute couture, Textile Science, Textile Design, Fashion Business Management, Tailoring, Product Exhibition. Moreover, there are some supporting competency courses, for example: Consumer and Entrepreneurship Education, and other subjects.

Entrepreneurship

Entrepreneurship comes from the French word *entreprendre* which means responsibility. Entrepreneur is people who is responsible in preparing, managing, and measuring the risks of business, while entrepreneurship by Hisrich, Peter, and Shepherd, (2008: 8) is: "Entrepreneurial is the process of creating something new with value by devoting the necessary time and effort, assuming the accompanying financial, psychic, and social risk, and receiving the resulting rewards of monetary and

personal satisfaction in independence". Entrepreneurship is a creative and innovative ability (create new and different) that used as tips, basic, resource, process and struggle to create value-added goods and services with the courage to face the risk (Abdullah, 2005). Kao's opinion cited by Aliyah Rashid (2005), entrepreneurship is the practice of creating value by identifying business opportunities, managing risk-taking opportunities and skills through communication and mobilizing human, so that the plan can be well done (Kao cited by Aliyah Rashid, 2005). Drucker quoted by Kashmir (2006: 17) argued that, entrepreneurship is the ability to create something new and different.

Internal and external source of entrepreneurship

Some internal sources that can be found in each entrepreneur are: entrepreneurship interest, motivation, creativity in entrepreneurship, skills, communication skill, and leadership. Besides of internal sources of entrepreneurship, there are some external sources include family environment, society and type of business in fashion.

Interest tends to be relatively permanent on specific subject, feels interested in certain field, and feels happy to dive into that field (Winkel, cited by SitiZuhriyah, 2004: 28). This argument suggested that interest is tendentious statement about the activities that are usually done day by day, it leads to love the activity (Nunally, cited by EssinSintawati, 2009). Hurlock (1980) suggested that interest is humankind activities in learning and freely choose what is preferred; interest is always related to individual skills, needs, and experiences. Interest is individual tendency to prefer an activity to another activity (Munandir, 2001: 186).

Characteristic properties that students need to have if they want to be entrepreneur are closely related to the need to express themselves in developing innovation values in order to obtain the much more promising business changes (EsinSintawati, 2009). Those characteristic properties include: (1) perseverance to do and finish the tasks, (2) having a courage to take risks to the tasks performed, (3) future-oriented, (4) reference to the achievement of success with calculated risks (moderate risk), (5) tendency to reach a higher position (upward mobility), (6) the willingness to complete unfinished works and/or failed to do before, (7) dynamic, i.e. consider that the time is always limited and go fast (time perspective), (8) selecting peer work based on skills and abilities, (9) the desire to gain recognition of their work, and (10) a behavior that always want to be excellent.

Entrepreneurship Creativity originally has been possessed by every individual born, although, with different levels. Creativity form dimension of Press, Amabile cited by Reni Akbar et al (2001) suggested that: Creativity can be regarded as the quality of product responses are judged to be creative by appropriate observes. Guilford cited by Dembo (1981) with his factor analysis found five characteristics that inherent the ability to think: First, fluency is the ability to produce a lot of

ideas. Second, flexibility is the ability to apply a variety of approaches and/or solutions to the problem. Third, originality is the ability to initiate to original ideas as his/her own and not cliché ideas. Fourth, the elaboration refers to the ability to explain something in detail.

Creativity in entrepreneurship can be demonstrated by the students' ability to manage a fashion business; making a new variety of fashion products and household linen by utilizing the old stuffs. The originality of an entrepreneur is characterized by the creation of new products using the stuffs that have already existed. The students, for example, can create a product of cover for a tissue box by utilizing patchworks, making picture frames from recycled paper, and other new products that are simple but a creation of students themselves.

Dressmaking skills are competencies or skills possessed by the students after completing the course, in this case the motoric skills. Students' skills of Fashion Design of Home Economics Study Program in performing a task or job that builds on the knowledge, skills and attitudes have met the requirement of the performance of work or industry standards. When someone acquires a competency, he/she will be able to: (1) perform a task or job, (2) organize the task or job so that can be carried out, (3) take action when something happens that is different from the initial plan, and (4) use the skills to solve problems or perform tasks with different conditions (SKN Clothing Sector, 2003: 10).

Dressmaking skill is one of the factors in entrepreneurship in the field of fashion; starting from designing women, men and children clothing for a variety of occasions; making patterns for a variety of techniques; sewing clothing with a variety of techniques; finishing; making crafts from fabric, flapping and marketing.

Communication ability is very necessary in daily life, as well as in the business world. Communication is the process of delivering message from a communicator to a communicant. In this case, the entrepreneur as the communicator always tries to communicate his/her ideas to the communicant (the employees). Communication can be performed directly or indirectly. The advances in science and technology create a variety of communication tools to use directly and indirectly. The communication ability is very important for entrepreneur in communicating his/her ideas to the employees. This is needed in order to avoid miscommunication, for example, employees who do not understand what is meant by the employer, may make the mistake of making the wrong order, which may result in loss for the company.

Leadership is an ability to manage other people, though the leadership quality one to another is absolutely different. Each company needs a leader that can manage the available human resources. Leader of the company is the important aspect and a resource that is rarely available there. The advance and deterioration of company may be affected by the effectiveness of leadership. Leadership is the process of directing the behavior of others toward the achievement of a specific goal (MasykurWiratmo, 1995: 173). According to Terry (cited by Buchari Alma, 2009: 163) leadership is the activity of the influencing people to

strive willingly for group objectives, which may imply that leadership is the activity of influencing people to strive hard and be happy to achieve group goals.

Family environment in general can affect a person for the decisive step in business activities, for the example in a family in which all the members are entrepreneurs; it will lead to create new entrepreneurs from the very first environment, i.e. family. By itself that people will be familiar with entrepreneurship. Family environment can support the growth of an entrepreneurial spirit. Another example: a batik entrepreneur will inherit his/her business to the children.

In the family, the role of parents and all members of family in the entrepreneurial process can be done in several ways, namely: (a) support children's choices of business they prefer, (b) parents' expectations for their children to be entrepreneurs, (c) parents' expectations in order to inherit the business they own, (d) parents as external motivation can influence children's decisions, and (e) the important parents' role is to make sure the children have skills needed for their future (Yuswati, 2008). Parents' supports in developing the entrepreneurial spirit of the children can be in the form of facilities and infrastructure for their businesses.

Society environment in which almost its members are entrepreneurs can affect the growth of new entrepreneurs. Someone who lives in the neighborhood of batik makers, then it is possible he/she could work on craft of batik. Similarly, a person who lives in the neighborhood of tailor, he/she can be influenced to follow the steps of the neighbors.

Fashion Businesses

The advantages es in science and technology have impacted a lot of people's lives, no exception in the field of dressmaking industry. The discovery of industrial machines by experts and abundance of raw materials of textile have inspired many people to start a fashion business. Fashion business according to RulantiSatyodirgo as cited by Sri Wening and Sicilia Sawitri (1994) mentioned several kinds of businesses, namely: sewing course, business couturier, tailor, haute couture, boutique, small scope garment, large scope garment factories, and intermediate fashion business.

Sewing Course/instead of producing cloths it produces skilled personnel and indirectly represents the fashion business. There are several types of sewing courses and the levels of student ability after completing the course. While the grade levels in the course can be divided into: 1) basic level, 2) skilled level, 3) advanced level, and 4) sewing teaching level.

Couturier business is one of types in the field of fashion businesses for individuals, in this case the customer comes and is measured to fit the appropriate size and then the clothes are produced. Sri Wening and Sicilia Savitri (1994:95) defined couturier (dress maker) as the individual fashion business type by measuring each customer particularly for women and children. At first it is only a side-job for housewives to spend their spare times as well as to earn some additional income for family. All jobs starting from measuring, creating

patterns, and cutting to the final product they perform by themselves. They, generally, use simple equipment. The system used in the couturier business is semi tailoring, i.e. a fashion finishing technique with merely veering process. Service products usually made are women and children clothing.

Tailor business is a service business which receives orders with tailoring systems, typically working on menswear. Tailoring system is a sewing technique in which either the outside and inside of the cloth produces is neatly covered with upholstery fabric (lining). Fashion models in tailor business are generally coats or semi-coats.

Haute couture comes from the French language (Yerusalem, 2011: 17) which means high cutout. Haute couture business is an exclusive fashion business, both in terms of design and materials and finishing techniques. A unique design is intended merely for one customer with good quality and exclusive material given as well as finishing technique needs a special attention; thus the price of a fashion produced in haute couture is certainly expensive. Haute couture is a reserved term and only used on the standards set by the Chambre Syndicale de la Couture. . A couture garment is made to order for an individual customer, and is usually made from high-quality, expensive fabric, sewn with extreme attention to detail and finish, often using time-consuming, hand-executed techniques. The famous Indonesia haute couture designers are: Harry Dharsono, Piter Sie, Adji Notonegoro, Iwasn Tirta. They are really successful entrepreneur.

Boutique is a fashion business that sells clothes and accessories (Dunn, 1980). The quality of these clothes is usually good, smooth and neat stitching, and limited production number. Accessories that are available in the boutique include an assortment of jewelry, shoes, sandals, handbags, scarves, belts and many others. At the boutique businesses, they do not receive sewing orders; the stocks are supplied by other companies that produce clothes and accessories. Type of clothing sold in the boutique is ready-to-wear fashion.

Mass Production Clothing Business provides customers with large quantities and produces ready-made clothing in large quantities and use standard sizes (S, M, L, XL, LLL etc.). The materials that are generally used are less expensive materials, thus the price can be affordable by the lower classes. The selected trends are generally adapted from the clothing worn by famous people. The use of materials with low price and simple techniques with a machine enable to produce cheap-priced clothes. Mass production conducted in the industry is generally called garment, while production conducted in houses is called convection.

Fashion courier business is a business conducted by individuals that become a courier to collect or provide storage places for home-made clothes products and then they sell or find the market in order to get some profits (RulantiSatyodirgo, 1979: 125).

Project-Based Learning At Entrepreneurship Subject Matter

The achievement of students on Entrepreneur Subject matter is depend on the instructional model. Instructional model is one of the processes in instructional design system. A system is defined as a set of concepts or parts that must work together to perform a particular function. An organization is a system or a collection of systems. Every job in an organization is used by a system to produce a product or service. The product or service is the means by which a organization supports itself (Clark, 2007). In the instructional design system, there are four inputs necessary in every system to produce a product or service: (1) **People**: The workers making up a group and linked by a common activity, (2) **Material**: The raw products which go into the system, (3) **Technology**: The technique for achieving a practical purpose or goal, and (4) **Time**: The measured period during which an action or process begins and ends (Clark, 2007)

Instructional design system in process teaching and learning, according Dick and Carey (Lee and Lee 2008) as shown on that figure 1, consist of 10 stages, they are: Instructional Goal, Conduct Instructional Analysis, Entry behaviour and learner characteristics, The Performance Objectives, Determining Criterion-Referenced Test Items, Determining Criterion-Referenced Test Items, Instructional Strategy,

Stage 1 Instructional Goals

On this stage the goals must be stated, which has advantageous state of affairs by instruction. On this stage the Instructional Developer must do a need analysis of a discrepancy between and instructional goal and the present state of affairs or a personal perception of needs,

Stage 2 Conduct Instructional Analysis

The purpose of instructional analysis is to determine the skills involved in reaching a goal. Task Analysis (procedural analysis): about the product of which would be a list of steps and the skills used at each step in the procedure. Information-Processing Analysis: about the mental operations used by a person who has learned a complex skills Learning-Task Analysis; about the objectives of instruction that involve intellectual skills.

Stage 3 Entry Behaviours and Learner Characteristics

The purpose of doing searching about students' entry behaviour is determining which of the required enabling skills the learners bring to the learning task, intellectual skills, abilities such as verbal comprehension and spatial orientation and traits of personality

Stage 4 Write The Performance Objectives

The purpose of writing the performance objectives is translating the needs and goals into specific and detailed objectives. The functions are: determining whether the instruction related to its goals, focusing the lesson planning upon appropriate conditions of learning, guiding the development of measures of learner performance, and assisting learners in their study efforts.

Stage 5 Determining Criterion-Referenced Test Items

The advantages of determining Criterion-Reference Test Item (CRT) are: to diagnose an individual possessions of the necessary prerequisites for learning new skills, to check the results of student learning during the process of a lesson, to provide document of students progress for parents or administrators, useful in evaluating the instructional system itself (Formative/ Summative evaluation), and early determination of performance measures before development of lesson plan and instructional materials.

Stage 6 Instructional Strategy

The purposes of designing instructional strategy are: to outline how instructional activities will relate to the accomplishment of the objectives, to determine the best lesson design: Demonstrating knowledge about the learners, tasks reflected in the objectives and effectiveness of teaching strategies e.g.: choice of delivering system, methods and model of teaching. Teacher can select the appropriate models to deliver the material, such as: Contextual Teaching and Learning (CTL), cooperative learning, quantum teaching and learning, project based learning etc. All of the selections are oriented in learner not teacher-led any more. On this research used integrated model.

Stage 7 Selecting Instructional Materials

The purposes of selecting instructional material are: to select printed or other media intended to convey events of instruction, use of existing materials when it is possible, need for development of new materials, otherwise, and role of teacher: It depends on the choice of delivery system.

Stage 8 Formative Evaluation

The purposes of formative evaluation are to provide data for revising and improving instructional materials, to revise the instruction so as to make it as effective as possible for larger number of students. The one on one technique is used, for example: one evaluator sitting with one learner to interview, another technique is small group field trial.

Stage 9 Summative Evaluation

The purpose of summative evaluation is to study the effectiveness of system as a whole. It conducts after the system has passed through its formative stage. By using Small scale/ Large Scale and Short period/ Long period.

Stage 10 Revise Instruction

Instructional model determine the approach for achieving the learning objectives and are included in the pre-instructional activities, information presentation, learner activities, testing, and follow-through. The strategies are usually tied to the needs and interests of students to enhance learning and are based on many types of learning styles (Ekwensi, Moranski, & Townsend-Sweet, 2006).

The variations in Instructional Model are important to skill for a future teacher to master. Students in a class will become bored quickly if only one instructional strategy is used. For this reason, it is important for future teachers and for current ones to read and observe new teaching methods. They must self evaluate each

instructional strategy and try to comprehend which would be good for their class. They must also see which strategy would be good for their lesson. When evaluating strategies, teachers must look at what their students will be getting out of the lesson. Will this instructional strategy teach them? Will the students be involved in their education? Will this keep the students attention the entire period? All of these are important questions to ask before a teacher begins their lesson each day (Bochert, 2008). Some models of teaching can be applied in the instructional strategy, such as: Contextual Teaching-Learning, Quantum Teaching and Learning, Project Based learning and Cooperative Learning

Applying project-based Learning on Entrepreneur Subject Matter

Project-based Learning (PBL) is a model that organized learning around project (Thomas, 2000:1). According to the definitions found in PL handbooks for teachers, projects are complex tasks, based on challenging questions or problems, that involve students in design, problem-solving, decision making, or investigative activities, give students the opportunity to work relatively autonomously over extended periods of time and culminate in realistic products or presentation (Thomas 2000: 1 as copied from Jones, Rasmussen & Moffits 1977; Thomas, Mergendoller & Michaelson, 1999). According to Katz and Chard (cheated by Marsh, 2008:174) a project is an in-depth investigation of a topic worth learning more about, undertaken by a small group of students within a class, the whole class or individual students.

The key feature of a project is to focus on finding out answer to questions posed by the teacher or by the students. It is typically undertaken by early childhood and primary school children. Project work complements the more formal aspects of teaching. Unlike systematic instruction which concentrated children acquiring skill, project work concentrate on children applying skills using intrinsic motivation

There are some stages on the PBL, such as: (1) Planning the Project, (2) Conducting the Project, and (3) Evaluating the Project (Herminarto Sofyan, 2007: 302-305). According

Planning the Project, in this stage, students were divided in groups, and they have to discuss about the project, collecting data from the market. Based on marketing analysed the students create new product, especially fashion product. After the students have some data about the product in the market and create new design, they discuss about produce the new fashion products. It was included in second stage, we called Conducting the Project, and the last stages was Evaluating the Project, by using instruments such as questionnaire.

Project Based Learning is developed based on five main pillars: (1) contextual, (2) real problem, (3) collaborative, (4) significant product and (5) student autonomy (Herminarto Sofyan, 2006: 302). The five main pillars can be applied in entrepreneurship education and can be explained as follows:

Activities that will be implemented, are: (1) initial test and final test of student entrepreneur spirit before and

after participating in a PBL, (2) visiting successful entrepreneur, (3) preparing research reports, (4) preparing the seminar results, (5) report multiplication.

By using PBL, students in Entrepreneur Subject Matter learn from the experiences and take them into account and apply them to their lives in the real world. The first step of PBL in Entrepreneur subject matter was students studied in the field of fashion around the campus, the found some of fashion products which become students favourite. The second steps was: students create a plan to produce another product in a unique. The third was to produce the unique produce and sell out in a shop, did an exhibition, door to door selling.

THE RESEARCH METHOD

The location of research was Fashion Technology Study Program, and conducted in Juni-August 2015. The activities carried out in this study, are: (1) initial survey to know the condition of the location and needs analysis, (2) create an instructional model, (3) develop instruments, include: needs analysis instruments, questionnaires of entrepreneur spirit, (4) conducting research with the experimental method, which provides training to implement project-based learning model

Needs analysis in the location was conducted on June 18, 2012, the results in Table 1, it can be concluded that, in relation to the Fashion Design Study Program at Magelang Geverment Vocational High School 3, it doesn't have specific tool to furture new entrepreneur, and student needs to be trained to develop new products, so, it needs project-based learning as a place for student practice in developing an entrepreneurship spirit.

By using Research and Development, this research will be conducted. The research processes are: (1) Doing preliminary study, (2) Needs analyze, (3) creating instructional Strategy. Questionnaire will be used to collect the data in Entrepreneur subject matter instructional process. Data colleting about the instructional process in in Entrepreneur subject matter used Cognitive test, Affective questionnaire. The development the instructional model will use the Borg and Gall model.

One-shot Case Study experimental design will be used to know achievement of students on Entrepreneur Subject Matter. Post Test experiment research design (Sugiyono, 2006: 415).

X O1

FIGURE 3. THE ONE-SHOT CASE STUDY
DATA ANALYSED USE DESCRIPTIVE PRESENTATION.

RESULT AND DISCUSSION

Data analyze use descriptive. The obtained result is the score of student entrepreneurship achievement include cognitive, affective and psychomotor was 75 % , it was high category.

Based on the result of descriptive analysis, it can be seen that the entrepreneurial spirit and the ability to create

new product was quite satisfactory, for the percentage of entrepreneurship achievement 75 % belongs to good category. That may cause, before the students joint the Entrepreneur Subject Matter, they got another subject matter, such as: Fashion Design, Children Wear, Women Wear, and Basic Management. It can be interpreted that they already have the entrepreneurship spirit and the ability to create new products and worth selling. It can be seen, that the results of pre-test products, and products during the program can be sold. Thus the entrepreneurship products have a good selling power.

Students who participated Entrepreneur Subjec Matter, given brief training on entrepreneurship to revitalize the theory they have learned before. Strategy of product development is integrating entrepreneur material, each student must have the courage to make their own product plans, make up marketing.

Step taken in developing entrepreneurship product is surveying the market, by looking at the product around Magelang, then student are designing similar product but with its own uniqueness. Marketing is done by visiting the shops in Magelang

By applying project-based learning in Entrepreneur Subject Matter in Fashion Design Study Program, the students could create some products and can increased the entrepreneur spirit the class can be used as a training factory and a place for students to do Job Training.

CONCLUSION

The students' achievement in Entrepreneur Subject Matter was 75 % , it was goo category. It can be increased more than today, if the lecturers always give support to the students to create new products.

Based on the result, project-based learning can be applied in another subject matter, such as: Children Wear, Men Wear, Women Wear, Fashion Management, Haute Couture Subject Matter etc.

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Student's product in Entrepreneur Course



Hand bags created by the students of Entrepreneur Course

Forming Arabic Linguistics Terms (Analysis of Morphology and Syntax)

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Abstract - Term is word or language formula used only in knowledge/ science, sector or particular circumstances. Term is formed from most appropriate word contains certain concept or from borrowing word from other language when there is no appropriate word contains it. Word or phrase that becomes term have constant meaning correspond to knowledge or particular circumstances. It is different from word that is formed in a general way by morphological process, such conversion, affixation, reduplication, composition, abbreviation and so on, term is formed by translation, generation, dan borrowing. But that term is word or phrase on grammatical perspective, so forming term can not be separated from morphological or sintaxical process. This research works through the way of forming Arabic linguistic term that focused on morphology at *Dictionary of Linguistic Terms English-Arabic* written by Ramzi Munir Baalbaki that published by Dar El-Ilm Lil Malayin in 1990. This research also works through gramatical aspect of linguistic term in that dictioanary. There are 413 linguistic terms formed by translation, 376 terms formed by generation, and 55 terms formed by borrowing. The terms that were formed by translation can be classified into form based translation, meaning based translation, and element based translation. Element based translation can be classified into direct translation, structure and pattern translation, and form/ slot translation. The terms that were formed by generation can be classified into derivation includes affixation and mutation; and methapore. All terms that were formed by borrowing are integration form. Those were formed by appropriating to phonology, morphology, an sintax rules.

The terms also were formed by following some certain stucture/pattern and form/ slot. There are 636 terms of masdhar form, 285 terms of *ism fa: 'il* form, 256 terms of *ism mansu:b* form, 118 terms of *ism maf' u:l* form, 52 terms of *'adad* form, 11 terms of *ism tafdhi:l* form, 5 terms of *shifat musyabbihah* form, 5 terms of *fi' l ma: dhin* form, 3 terms of *fi' l mudha: ri'* form, and 2 terms of *ism maka:n* form. Despite of form, there are composite words are made for forming terms that are 423 *na'tiy construction*, 198 *idha:fiy construction*, 21 *ja:riy construction*, 4 *'athfiy construction*, 3 *mazjiy construction*, 2 *isna:diy constructions*, and 2 *tami:ziy construction*.

Keywords : term, forming term, morphology and sintax analysis

PREFACE

Language is not static but dinamyc. The growth of language is depend on societies development. Language change appears from attitude and things that are releated to some needs (Pateda, 1990: 77). Besides concerning with societies living, language contact also had an effect on language change. That effect appears in vocabularies borrowed from some languages (Ruskhan, 2007: 1). This is common phenomenon that happen in any languages.

One of lexicon which continually experience developing concerning with lingual change is

terminology. Terminology is word or phrase that carefully reveals concept, process, situation, or typical character in scientific field (Kridalaksana, 2009: 97). Terminology constitutes word or phrase that its purpose (its meaning) in a bind by an certain activity or scientific filed (Chaer, 2007: 19). Terminology in arabic so-called *mushtalach* (مصطلح) (Baalbaki, 1990: 500).

Human gnostic developing which happens quick cause handicap in new terminology creations that espouses it. On the other side source language (mother) not enough for provide a place for concepts in scholarly areas that its amount goes on amends as a lot of. For example in chemistry exists concept that total four million, eventually greatest dictionary of languages whichever entry it not exceeds seven hundred thousand. Therefore passes through language activity, seen to need to do terminology creation effort (Qunaybiy, 2000: 54).

Even in terminology grammar viewpoint includes in word but terminology category have many distinctive by words. The difference word with term is that term constitute to word or phrase that its meaning was constant, duly, must, clear, and steady; and just is utilized in certain activity or scholarly field. Meanwhile word, still has unclear meaning because besides word has lexical's meaning, word also potentially has grammatical meaning that really clings to its sentence context or its situation context. According to Nur (2010: 53), new word meaning as clear if was utilized in a sentence. Besides, terminology is made or is formed for avoid from misunderstanding in given knowledge area. Term doesn't happen by itself as well as word. Term shall be formed consciously by some experts at its area each. Since the experts it who know to hit scholarly concepts that is at its area each (Chaer, 2007: 89) (Mackey, 1986: 57).

Term is formed from word, which is word which seen by match contain particular and also word concept that permeated of other language because has no word that is seen fastens to get contain particular concept (Chaer, 2007: 91). Forming term can thru do conversion process, affixation, reduplication, composition, abbreviation, and analogy as well as word forming (Chaer, 2007: 102).

In arabic, from semantic perspective, there are three ways forming new lexicons or terms: (1) arising so long (old) word (neighboring its meaning) with meaning a new one or so called *tauli:d* (rebirth of old); (2) making analogy in meaning to word interns into arabic or *qiya:s* that so calleds or *maja:z* (metaphor); and (3) translating in

cliches of intern model or called by *tarjamah*. From morphology perspective, there are also three ways to form new lexicons. There are (1) derivation, (2) abreviation, and (3) arabization (Bakalla, 1984: 12 - 13), (Khasarah, 2008: 19 - 20). Forming word or that new term according to Qunaibiy (2000: 66) can't be seperated independently but through one procedure, which is (1) documentation range many references and needed document on given area; (2) terminology formings; (3) legalization by language institutes.

Neologism the ins and outs and arabic terminology pulls to be assessed because besides gets complex character also experience developing or update. This study will add Arabic morphology study treasury that all this time in particular at Indonesia is still a lot of dominated by traditional morphology. Besides it also been expected gets to enrich Arabic lexicology's study. Focus this research on area linguistics terminology aught morphology in lexical linguistics terminology that gets title: dictionary of Linguistic terms English Arabic is Ramzi Munir Baalbaki's opus Dar El Ilm Lil Malayin's derivative year 1990. Background of this research on area linguistics terminology morphology or linguistics area that in focus its study main is word and forming / its change (as object formal observational) are because (1) as lingual as flexy typology comes to fruition at syllabic, Arabic word has particular individuality character complexeses to concern its elements and also forming and classification process it; and (2) studies about terminology forming so concerning hand in glove with forming word since basically terminology get word raw product. So morphology option theme at second hand really back up its following on forming study enrichment terminology.

Meanwhile linguistics terminology dictionary that gets title: dictionary of Linguistic terms English Arabic is Ramzi Munir Baalbaki's opus Dar El Ilm Lil Malayin's derivative year 1990 one is chosen as object of researches (object significant observational) was grounded by data equipment factor that needed in this research. That dictionary load needful data deep observational it, which is (1) Arabic morphology terminologies and (2) morphology terminology non Arab which the two available in that dictionary.

In this research at revealing: (1) by whatever area linguistics terminologies morphologies in arabic formed, (2) whatever linguistics concept non usable Arabs in arabic (3) how area linguistics terminologies morphologies in arabic being sighted from grammar aspect.

ANALYSIS

The Ways of Forming Linguistic Terms

Linguistics terminologies on morphologies that most loads on Linguistics Terminology Dictionary by title dictionary of Linguistic terms English Arabic Ramzi Munir Baalbaki's opus was gathered to amount to 717 terminology gets to be clasified bases its meaning themes in morphology study viewpoint becomes two bodyworks,

which is (1) units of morphologies and (2) morphology processes.

On the part of morphology units, data can be agglomerated as many sub section covers (1) word element, (2) word form, (3) noun, (4) verb, (5) particles, and (6) relationship morphologies forms. Meanwhile on part of morphologies's process, data can be agglomerated as many sub section covers (1) morphologies's processes, (2) morphologies's analysis, (3) structures/ morphologies's patterns, and (4) slot (*si:ghah*). Terminology distribution following on their sub section that in table:

TABLE OF LINGUISTICS TERMINOLOGY DISTRIBUTION

| No | Section/Sub Section | Total of Terms | Ways of Forming Terms | | |
|----|--------------------------------------|----------------|-----------------------|---------------|----------------|
| | | | Translation | <i>Taulid</i> | <i>Ta'ri:b</i> |
| 1 | Morphology's Units | | | | |
| | Word element | 114 | 16 | 61 | 37 |
| | Word form | 111 | 52 | 57 | 2 |
| | Noun | 40 | 21 | 19 | 0 |
| | Verb | 182 | 106 | 76 | 0 |
| | Particle | 23 | 6 | 14 | 3 |
| | Relationship morphologies forms | 61 | 38 | 23 | 2 |
| 2 | Morphology's Process | | | | |
| | Morphology's Process | 106 | 43 | 60 | 3 |
| | Morphology's Analysis | 26 | 15 | 5 | 6 |
| | Structures / morphologies's patterns | 65 | 45 | 19 | 1 |
| | Slot | 114 | 71 | 42 | 1 |
| | Total | 842 | 413 | 376 | 55 |

There are differences among totals terms that gathered and total result amount because of many terms which can at entry more than one classification.

Linguistics Term Used Non Translation

From this reseach, writer finds many formed terminology by non translation (*tauli:d* and *ta'ri:b*) usable or is applied in Arabic morphology study, which is as it were following in table:

TABLE OF LINGUISTICS TERMS VOLUME USED FOR NON TRANSLATION

| No. | Section/Sub Section | Total of Terms | Percentage |
|-----|--------------------------------------|----------------|------------|
| 1 | Morphology's Units | | |
| | Word element | 64 | 65,31 |
| | Word form | 32 | 54,24 |
| | Noun | 3 | 15,79 |
| | Verb | 56 | 31,82 |
| | Particle | 3 | 17,65 |
| | Relationship morphologies forms | 8 | 32 |
| 2 | Morphology's Process | | |
| | Morphology's Process | 30 | 63,49 |
| | Morphology's Analysis | 11 | 100 |
| | Structures / morphologies's patterns | 8 | 40 |
| | Slot | 18 | 41 |
| | Total | 233 | |

Formings Grammatical Aspect of Linguistics Terms

Based on distributional method tech for elemental and tech model process, writer describes element or morphology's process in unit of language that becomes construction part on it on area linguistics terminologies morphologies. Writer agglomerates morphology terms into structure or its mold patterns then form which followed by it and construction that bands it.

At least there are 45 patterns on terminology as word of independent that are not phrase construction part. Severally form which made by base in formation area linguistics terminology of morphology is *mashdar*, *ism fa':il*, *ism mansu:b*, *ism maf'u:l*, *'adad*, *ism tafdhi:l*, *fi'l ma:dhi*, *fi'l mudha:ri'*, and *ism maka:n*. Severally syntaxmatic construction that is used in linguistics terminology forming morphology area is *na'thiy*, *idha:fiy*, *ja:riy*, *'athfiy*, *mazjiy*, *isna:diy* and *tamyi:ziy*.

There 636 terms were formed to follow forma *mashdar*, 285 terms were formed to follow *ism fa':il* slot, 256 terms were formed to follow *ism mansu:b* slot, 118 terms were formed to follow *ism maf'u:l* slot, 52 terms were formed to follow *'adad* slot, 11 terms were formed to follow *ism tafdhi:l* slot, 5 terms were formed to follow

shifat musya:bihah slot, 5 terms were formed to follow *fi'l ma:dhin* slot, 3 terms were formed to follow *fi'l mudha:ri'* slot, and 2 terms were formed to follow *ism maka:n* slot.

There 423 terms are formed in *na'tiy* construction, 198 terms are formed in *idha:fiy* construction, 21 terms are formed in *ja:riy* construction, 4 terms are formed in *'athfiy* construction, 3 terms are formed in *mazjiy* construction, 2 terms are formed in *isna:diy* construction, and 2 terms are formed in *tamyi:ziy* construction. Its rest 117 terms constitute to say independents.

CONCLUSION

This research result gets to be concluded that according to writer what do intended as translation in formation this terms is that of opposition or contrast form to make the point forming so called other term *tauli:d* particularly if its context is foreign term brought up by Arab terminology. Translation has circumscribed meaning in forming this term, which is arise equivalent already there is concept it on arabic, on the contrary *tauli:d* are make new name for term is undiscovered equivalent its concept in arabic. The two actually so-called translation if is seen from translation perspective because the two constitute lingual shift form of english language goes to arabic. But if is seen from term forming perspective what do at conceive of translation on formation this term not such translation product and more correct actually at conceive of product *tauli:d*, which is term stabilization and or term similarization in arabic. It because of basically that term was preexisting and its concept were had and don't take concepts of another languages, which is english language via processes translation.

Meanwhile in lending perspective (borrowing) particularly if its context is foreign term brought up by Arab term therefore range it not only on the way the so called term forming *ta'ri:b* but forming trick *tauli:d* even gets to be ranged in lending. It because of if refers on that lending agglomeration lending can be agglomerated as two, which is full lending that cover concept and pronunciation and lending plays favorites that just cover its concept only, therefore forming by *ta'ri:b* constituting full lending form, meanwhile forming by *tauli:d* constituting lending form plays favorites. But if is seen from terminology forming perspective, terminology forming by *tauli:d* and *ta'ri:b* can at conceive of form of forming term, which is make new term that haven't available its concept in arabic. In contrast is if *tauli:d* form with Arabic word, meanwhile *ta'ri:b* forming terminology by uses pronuciation intern that is borrowed and adjusted by its uttering with persons pronounced tradition Arabic (*mu'arrab*).

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Prevention and Control of Academic Plagiarism Based on Information Technology

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Abstract - The Case of academic plagiarism is increasingly uncovered, either intentionally or not. Therefore, it is necessary for prevention and control in order to avoid further similar cases. Rules and policies established and enforced Higher Education are the same and binding on all universities in Indonesia. However, in practice, still common reference uncertainty of each College so that it becomes a standard. The research objective was to find a model of prevention and control of academic plagiarism in universities that are simple, easy to understand and WARRANTIES certainty in the process of resolving the problem of plagiarism, so it can be applied to all universities in Indonesia, both PTN and PTS. This research approach is qualitative research with descriptive data. The data used are primary and secondary data. The sample was selected using purposive sampling approach with non probobabling sample types. Samples selected is two State Universities and two Private Universities. The results showed the Information Technology can be used as one of the prevention of plagiarism.

Keywords: Prevention, Control,, Plagiarism, Information Technology

INTRODUCTION

The last few years more and more cases of plagiarism surfaced and made headlines in various media. Data indicate plagiarism increasingly often done by academics with various affirmative, both by lectures and students. Noted some big names in the academic world has made plagiarism for the sake of promotion and popularity, as a candidate professor of education at the University of Indonesia, Professor at the Catholic University of Parahyangan, Lecture of ITB and UGM lecturer. The punishment that has been imposed also vary depending on their institutions. (<http://kumpulan-berita-unik.blogspot.co.id/2014/02>)

Plagiarism is “[t]he use of another writer’s words or ideas without acknowledging the source” and is “[a]kin to theft,” according to the Harbrace College Handbook. In 6 Writing with Sources, plagiarism means “passing off a source’s information, ideas, or words as your own by omitting to cite them—an act of lying, cheating, and stealing.”

Simply put, plagiarism is the theft of intellectual property belonging to another. This includes both the theft of unwritten ideas and concepts as well as the theft of written texts, notes, computer programs, designs, and/or visual materials. In many cases, the theft of intellectual property is intentional and, in some cases, malicious in its nature. Such students simply don’t think they will get caught. In some cases, the theft of intellectual property seems to be the result of ignorance and could have been avoided had the student better understood the nature of plagiarism. Since instructors cannot know what a student

really intended to do, they have no choice but to treat each case of plagiarism as a serious offense. (Lars R. Jones;2011:5)

Another definition of plagiarism is “plagiarism occurs when you use another’s words, idea, assertions, data or figures and do not acknowledge that you have done so. (Patricia Brennecke; 2012:5)

Many reasons people commit plagiarism. For student, the most common reason because students do not care. No matter likely to cause to forget, so until the last minute to collect duties. Students, of this type often rely on “steal” a variety of ways so that the target can be met. (Hamilton;2003 in Paynter and Mills;without year: 2) Meanwhile, according to Lako (2012) there are three factors trigger does plagiarism, namely:

First, the students wanted to complete the thesis/dissertation to achieve academic degree as soon as possible. Trigger factor in these conditions is a student wanted to completion of studies and academic process so loose and only oriented quantity.

Second, the lecturers eager to move up the academic or their class rank. Then, they justifies any means including doing plagiarism in producing scientific papers, and third authors wanted widely known and remains famous for his writings on the mass media.

There are several possible modus operandi is usually done by the perpetrators of plagiarism. According to Lako (2012) the modus operandi is: first, pick up and claimed the writings of others as his own writings; second, taking other people’s ideas into his own idea;third, take on other people’s research into his own invention; fourth, acquired research result into the the results of his own research group; The fifth republish the results of his own previously published even though the source is acknowledged, and the sixth, summarizing and paraphrasing a thought from asource to his writing without citing sources.

Today, the cases of plagiarism isi show up significantly. The Minister of Research and Higher Education was concerned and asked that universities to create a detector plagiarism system in order to be able to track plagiarism in their university. The sentences for perpetrators of plagiarism is the authority of the university. (Tri Wahyuni:2015)

METHODE

This study used a qualitative approach with descriptive data. The data used are primary data and secondary data. The primary data obtained through

interviews of a sample unit, while the secondary data obtained from studies literatur, either from reference books, research and legislation. Sample selected is two universities and two colleges.

The data were analyzed using the methode of Miles and Huberman. This method includes three activities. There are: (1) Reduction of data: refer to the electoral process, focusing, simplification, abstraction and transforming the raw data; (2) The data model: a collection of structured information, which allows the description of the conclusions and taking action; (3) Verification/conclusion: researchers decide whether the meaning of something, noting regularities, patterns, explanations, possible configurations, causal flows and propositions. (Sugiyono;2013:334)

RESULT AND ANALYSIS

Prevention and Academic Plagiarism in Higher Education

National Education Minister Regulation No. 17 of 2000 on the Prevention and Combating Plagiarism Academic College of mandates to all universities in Indonesia must do Plagiarism Prevention Academic. Precautions done through the creation of a code of ethics and style *selingkung* (Siti Zulaekha et al; 2013). College leaders are required to disseminate and supervise the code regularly.

In general, each College has implemented the provisions *Permendiknas* although in different forms. Soegijopranoto at the Catholic University of Semarang, the authority to establish a code of ethics submitted to the Task Force consisting of members of the senate, the elements of leadership and representatives of each study program. Task Force established by the university senate. In addition to setting, the task force is also authorized to supervise the implementation of the code of conduct. In practice, such supervision is delegated to the Head of Library Unit under the coordination of Vice Rector since 2013. Similarity of UNIKA Soegijopranoto, University of Atma Jaya Yogyakarta has Honorary Board Code of Ethics established by the University Senate. UNNES have a different system to supervision of the code of ethics. The supervisory board code of conduct has not been established, so that oversight be submitted in each section.

Dissemination of the code of ethics in UNIKA done to the students since their freshman with distributing the guidebook "The writing Academic Ethics Free Plagiarism" so that students early understanding of plagiarism and will not do. Information literacy for lecturers conducted at each study program. At the University of Atma Jaya Yogyakarta, dissemination carried out in stages starting from the level of the university senate members to the faculty forum, whereas in UNNES, dissemination is done by utilizing the intranet technology in coherent with the workshops.

Fulfilling the mandate *Permendiknas* 17 In 2000, the College has also been set *selingkung* style. UNIKA and Atma Jaya Yogyakarta *selingkung* handed style of writing scientific papers and thesis for each program of study, while UNNES referring to the international journal accreditation.

Benefits of Information Technology in Academic Plagiarism Prevention.

Information Technology / Internet provide enormous benefits in human life. In addition, also bring adverse effects if not use it wisely. Through the Internet publication of scientific papers easier, but also higher levels of plagiarism and easily detected. Referring to the opinion Denise Hamilton (2003), Paynter and Mills said "Technology has made plagiarism Easier, but it has also made easier to detect."

In the past, to prove a scientific achievement is the result of plagiarism or not is very difficult and tiring. We had to track down one by one document used or referenced scientific papers have even had to argue with the professor for m, aying that the paraphrase in the scientific work is plagiarism. (Bugeja; 2000 in Paynter and Mills)

In general, there are some software to detect plagiarism scientific work. This software can be used before scientific papers published, or to check whether a scientific paper is the result of plagiarism or not. Some software such as written by Susan Dwi Anggriani (2015) for example:

1. Anti-Plagiarism

This software was created to help reduce the impact of plagiarism on education and educational institutions.

The software program is also designed to effectively detect and thus prevent plagiarism. The program just checks the document in the format *.rtf, *.doc, *.docx, *.pdf

2. DupliCheker

The program is free to use, we live our manuscript copy-paste or clicking his -Upload, later click search, then in seconds will obtain analysis reports.

3. PaperRater

This software is free to use by offering three tools namely Grammar Check, Plagiarism Detection and Writing Suggestions.

4. Plagiarisma.net

A search box and download software available for Windows. It can also be used to fiile in the form of HTML, DOC, DOCX, RTF, TXT, ODT and PDF as well as the entire URL.

5. PlagiarismCheker.com

A program that provides an easy way for teachers / lecturers to check the paper pupil / student is the result of plagiarized or not. The program can also be used to check whether we plagiarized other people's writings or not.

6. Plagium

The program is free, but limited to a maximum of 250 characters.

7. PlagTracker

An online plagiarism detection service to check

whether the contents of the same text appears anywhere else on the web.

8. Viper

Plagiarism detection tool is free, but only available to users of Microsoft Windows only.

9. SeeSources

An online tool to check plagiarism-free automatic pay. Can be made to the .doc / .docx, .htm, .text with a maximum of 300 kb or 1000 words.

10. PlagiarismDetector

This software is designed to provide instant reports when detecting plagiarism in a scientific work. The script does not have to be in a certain format.

Some universities in Indonesia has used the Internet to commit plagiarism prevention and tracking of texts that allegedly the result of plagiarism. This is done by the universities in order to improve the quality of scientific work of students and faculty, as well as to avoid plagiarism.

Plagiarism prevention and control policies launched by the Higher Education beginning with the upload policy scientific work. This is to detect whether the scientific papers produced by students of the original or the result of plagiarism. After performing upload scientific work, according Rikarda Ratih (May 18, 2015) found several cases of plagiarism concerning the institution. A scientific paper (thesis) of students who have long passed, known to be the result of plagiarism. Author of the original report to the institution and, ironically, the result of the work of plagiarism it also has plagiarism again by others.

Learning of the incident, according to Ratih immediately to reform the institution with outreach to students since they were freshmen and dissemination through scientific writing courses / methodologies with 0. SKS also subscribe www.turnitin.com institutions to check the scientific work of students and their lecturers before it is published on the Internet. It is unfortunate turnitin subscription prices are still very expensive, around Rp. 90,000,000, - each year, so that not all universities in Indonesia, especially private universities can subscribe. It is highly inversely with conditions abroad. Paynter and Mills mention that www.turnitin.com can be accessed for free in the country.

As same as ratih, A. Tri Susiati (2015) mentions if the institution also to check the scientific work and research proposal and dedication in stages. This meant that the scientific work and the proposals are selected before exiting the campus, thus preventing plagiarism results published works out. Further Susiani explain if new institutions utilize free software pay for checking the scientific work for the academic community

In contrast to the two previous College, at College this does not have provisions and plagiarism prevention and control structures are institutionalized. According

Sucihatningsih (2015), the rules are still in the process of drafting and laneways while, supervision and anticipation performed by each faculty to utilize the free paid app. The lecturers are performance monitored by their immediate leaders of each as a means of control.

CONCLUSION

1. Implement the mandate Permendiknas 17 of 2010 Concerning the Prevention and Combating Plagiarism Academic College, each of the universities in Indonesia have to implement it with the style of each university, although with the same purpose
2. Information technology is able to provide benefits in the prevention and control of academic plagiarism through software that can be used to detect plagiarism. Only a few universities have been able to subscribe to a paid software such as www.turnitin.com, and others still take advantage of the free software pay even though its capacity is not great.

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Mung Bean Biscuits For Early Childhood

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Abstract—Early childhood are on the stage of growth where they require high quality of protein. Snacks which are mostly consumed by children second to milk are biscuits. The nutrient content on the biscuits made of wheat needs to be increased by combining their ingredients with mung beans. The composition of the biscuits consisting of 60% mung beans flour, 20% wheat flour, and 20% maize flour requires margarine to make it crispier. The variations of margarine usage are 25 %, 30 %, and 35 %. The analysis were conducted to figure out the content of energy, protein, fat, fiber, sensory quality and preference. The nutrient content of 25% - 35% margarine usage doesn't show stark difference, 402 - 453 kcal energy, 10,6 - 11,3 %, 22,2 - 24,6 % fat, and 9,5 -13,2 % fiber. The energy density of mung bean biscuits is 5.9 - 6.3 g/1000 kJ. The biscuits composition of 60% mung bean and 35% margarine really support the growth of early childhood with the 55 - 110 g/day consumption with snacks sufficiency of 225 - 450 kkal/day. The margarine usage gives significant difference on sensory quality on the crispiness, sweetness, and tastiness aspect. Meanwhile, the degree of preference on early childhood is significant on all indicators such as colot, mung bean aroma, fragrance, crispiness, sweetness, and tastiness. The biscuits of 35% margarine results in good sensory quality and maximum score on the degree of preference. Meanwhile, the results on the biscuits of 25% and 30% margarine are quite good and likable. The industrial scale production needs to spread the consumption on mung bean biscuits with 35% margarine, especially for early childhood.

Keywords: *biscuits, mung bean, early childhood*

INTRODUCTION

Early childhood is the golden period in the development of human which requires high quality food. In order to fulfill the nutrient needs of early childhood, they need to consume main meal for three times a day and snacks for 2 up until 3 times a day. The limited stomach capacity for early childhood limits their needs of consuming food. The daily routines of having main meal and snacks play important roles for early childhood in order to 1) prevent children from becoming too hungry or too thirsty during the meal time interval, 2) prevent giving meal for children when they want to sleep or they are too tired to eat, 3) prevent giving them less nutritional food, 4) prevent the children from being full during meal time [1].

One of the requirements of high quality food is the protein content, both quantity and quality. Early childhood require food with high energy density which is 1000 kJ (1 cal = 4.2 kJ) [2]. Based on the research of Fathonah, Rosidah, and Sarwi, biscuits are snacks which are mostly consumed and are only second to milk [3]. Biscuits are food produced by baking dough of wheat and other food ingredients with or without additional food ingredients [4]. The main ingredient for biscuits is wheat flour, which is still imported from another country up to

now. Mung beans are used as substitution for wheat in order to decrease the dependency of using wheat and to increase the nutritional content. Mung beans contain high protein (22.2 g), iron (6.7 g), and fiber (6.5). Arisanto argues that biscuits made of mung bean are quite fragile, the biscuits consist of 80% mung beans flour and 15% margarine [5]. Therefore, more maize flour and margarine are added to fix the problem. The margarine usage is still below the standard recipe which is 40% [6]

The aims of this study are 1) to figure out the difference of margarine usage to the quality of the biscuits, 2) to figure out the degree of preference, and 3) the content of energy, protein, lipida and crude fiber on the mung bean biscuits.

RESEARCH METHODOLOGY

Biscuits Ingredients

The ingredients of the mung bean biscuits are 60% mung bean flour, 20% wheat flour, and 20% maize flour. The usage of margarine was divided into three which were 25 %, 30 %, and 35 % out of total flour. Other ingredients are sugar powder, egg yolk, and baking powder. The complete composition of the mung bean biscuit can be seen on the Table 1.

TABLE I. THE INGREDIENTS OF MUNG BEAN BISCUITS

| Ingredients (g) | Margarine Usage | | |
|-----------------|-----------------|-----------|------------|
| | 25 % | 30 % | 35 % |
| Mung bean flour | 180 | 180 | 180 |
| Wheat Flour | 60 | 60 | 60 |
| Maize Flour | 60 | 60 | 60 |
| Margarine | 75 | 90 | 105 |
| Sugar Powder | 90 | 90 | 90 |
| Egg yolk | 66 | 66 | 66 |
| Baking powder | 3 | 3 | 3 |

Biscuits Making Process

The steps of making mung bean: 1) the peeled mung beans were washed 8 times and soaked for 20 minutes, 2) the mung beans were washed for 5 times and steamed for 30 minutes (low heat), 3) the mung beans were dried and pounded using 80 mesh. These steps were carried out in order to replace the unpleasant smell of the mung beans. The following steps of biscuits making process are adapted from Arisanto [5].

1. Mix the sugar powder and the margarine for 5 minutes.
2. Add the egg yolk and mix them thoroughly for 2 minutes.
3. Add mung beans flour, wheat flour, maize flour and baking powder then mix them thoroughly for a minute.
4. Roll the dough with 3 mm thickness then cast them.
5. The casting results were then arranged on the pan then baked inside the oven for 5 minutes.
6. Then Cool them down for 5 minutes.
7. Pack them inside hermetic package.

Analysis

The stages of analyses in this study were conducted through 1) sensory testing by trained panelists with these indicators: color, texture, aroma of the mung beans biscuits, aroma of the biscuits, sweetness and tastiness, and 2) preference testing to early childhood, and 3) Energy content, protein, lipida, and crude fiber. The energy testing was conducted using calorimeter bomb, the protein testing was completed using micro kjeldahl, lipida by soxhlet method and crude fiber using gravimetri [7].

TABLE II. QUALITY SENSORY CRITERIA OF MUNG BEAN BISCUITS

| Score range | Criteria | | | | | | |
|-------------|----------------------|------------------------|---------------------|-------------------|------------------|-----------------------|----------------|
| | Color | Flavor of sweet potato | Fragrant | Crispness | sweet taste | Taste of sweet potato | Overall |
| 1,00 – 1,75 | whitish yellow (WT) | Not tangible (NT) | Fragrantless (FL) | not crispy (NC) | not sweet (NS) | Not tangible (NT) | Very poor (VP) |
| 1,76 – 2,50 | yellow (Y) | Less tangible (LT) | Less fragrant (LF) | Less crispy (LC) | Less sweet (LS) | Less tangible (LT) | Poor (P) |
| 2,51 – 3,25 | brownish yellow (BY) | Quite tangible (QT) | quite fragrant (QF) | quite crispy (QC) | quite sweet (QS) | Quite tangible (QT) | Fair (F) |
| 3,26 – 4,00 | Golden yellow (GY) | Tangible (T) | Fragrant (Fr) | Crispy (C) | Sweet (S) | Tangible (T) | Good (G) |

RESULTS AND DISCUSSION

The mung bean biscuits had the criteria of a good biscuit, with the crispy texture as the main indicator. The color of the biscuits depends on the basic ingredient of the flour which was golden yellow.

The nutritional content of biscuits fulfill the requirement of the high energy snacks. Snacks can be categorized as high energy if the energy content is 400 kcal [8]. In addition, other nutritional content also fulfill the requirement of the SNI standard. These biscuits were recommended for early childhood due to their high protein and fat content because the early childhood require high protein and fat content to support their growth and immune system.

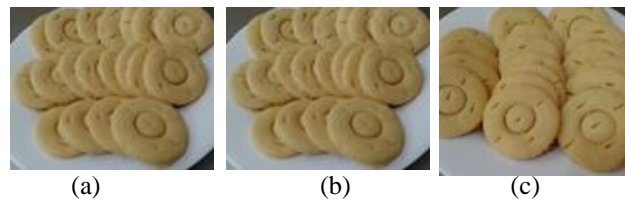


FIGURE 1. THE MUNG BEAN BISCUIT WITH (A) 25 %, (B) 30 %, AND (C) 35 % MARGARINE.

The research about biscuits made of cassava reveals that the biscuits contain high content of protein and fat. The protein and fat contents of the flour blend (soybean flour (SF) and cassava flour (CF) were prepared on a replacement basis (CF/SF, 100:0, 90:10, 80:20, 70:30, 60:40, 50:50, 40:60, 30:70, 20:80 and 0:100) biscuits increased with increasing levels of SF. [9]. The nutritional content of 80% peeled mung beans with 10% sugar resulted in 12,92% protein content, 3,2% crude fiber, and 1739 ppm betacaroten [5].

TABLE III. NUTRITIONAL CONTENT OF MUNG BEANS BISCUITS

| Nutritional Content | Margarine Usage | | | SNI 01-2973 -1992 |
|----------------------------|-----------------|------|------|-------------------|
| | 25 % | 30 % | 35 % | |
| Energy (kcal) | 402 | 427 | 453 | Min 400 |
| Protein (g) | 10.6 | 10.8 | 11.3 | Min 9.0 |
| Fat (g) | 22.2 | 23.5 | 24.6 | Min 9.5 |
| Crude fiber (g) | 9.5 | 11.1 | 13.1 | Min 0.05 |
| energy density (g/1000 kJ) | 6.3 | 6.0 | 5.9 | tad |

The amount of fat in the mung bean biscuit is 22.2 – 24.6% which is still normal, because according to the research in Pakistan, the content of fat the biscuits is 13.7 – 27.6% [10]. The results of analysis of 46 biscuit samples sold in Indian market showed that the total fat content ranged from 9.5 to 25.0 g/100 g of biscuits [11]. Total fat contents of the biscuit samples of six types of biscuit produced by four different Turkish ranged between 8.5% and 26.0% [12].

The content of crude fiber in this biscuit is very high which is 9.5 – 13.1 g. The high fiber consumption can lead to healthy food digestion and decrease the risk of contracting cancer and coronary heart disease [13]. The consumption of 50 g biscuit is able to fulfill the needs of 25% fiber for early childhood (16 – 22g/daily) [14].

The results of this current study with regard to biscuits fiber content were as follows; 1) Crude fiber content of biscuits increased significantly ($p < 0.05$) from 1.1 to 3.6% with increasing extent of mung bean flour and plantain flours in the blends. [15]. 2) Biscuits were enriched with 35 % of fruit and vegetable residue (FVR from orange, passion fruit, watermelon, lettuce, courgette, carrot, spinach, mint, taro, cucumber and rocket) flour

presented significantly higher fibre, ranging from 57 % to 118 % [16].

The energy density of the mung bean biscuit is very high ranging from 5.9 – 6.3, the higher the fat content is, the lower the energy density will be. Biscuits with high energy density is recommended to be consumed by early childhood whose stomach capacity is limited. The small portion of the biscuit consumption can fulfill their nutritional needs.

The colors peeled mung bean (yellowish white) and wheat flour (white) are almost similar and did not give significant effect on the color of the biscuits which was golden yellow. The color was the result of sugar heating reaction which caused non enzymatic browning. The reaction between sugar and fat which induced biscuits' aroma did not affect the biscuits significantly on the different usage of margarine [2].

The usage of margarine gave significant effect on the crispiness, sweetness, and tastiness aspects of the mung bean biscuits. Those effects occur due the function of the fat as shortener [2]. The use of margarine of more margarine resulted in crispier texture on the biscuits [2]. It

happened because the margarine's function to soften the texture of the biscuits and made quality crumbs [6]. The function of the margarine is as the shortener. The fat covered the extract and gluten from the flour using oily thin layer, so that it can break the structure and prevent the hard mass formation so that the biscuits have crumbs which are soft and short. The bigger the portion of fat in the dough is, the bigger the effect of the shortening will be [16]. According to the research on the use of 50% peanut butter, Overall sensory quality of experimental biscuits improved when 50% vanaspati (hydrogenated fat) replaced by peanut butter in the standard biscuits recipe. Biscuits prepared with 50% supplementation of peanut butter had a greater acceptability by sensory evaluation panel [17]. Biscuits with flour composite (cereals, legumes, millets, soy-protein isolate, dairy ingredient and fruit without refined flour) with sprouted flour had higher acceptability and were superior refined-flour biscuits [18]. Other researches about the use of 20% plantain and chickpea flour show that the biscuits have sensory quality which is similar to that of wheat flour [19].

TABLE IV. THE RESULTS OF THE SENSORY QUALITY ON MUNG BEAN BISCUITS

| Sensory Aspects | Margarine Usage | | |
|--------------------|-------------------|-------------------|-------------------|
| | 25 % | 30 % | 35 % |
| Color | 3.07 ^a | 3.13 ^a | 3.53 ^a |
| Mung beans Flavour | 2.97 ^a | 3.20 ^a | 3.37 ^a |
| Fragrant Flavour | 2.97 ^a | 3.12 ^a | 3.28 ^a |
| Crispness | 2.88 ^a | 3.00 ^a | 3.50 ^b |
| Sweetness | 2.68 ^a | 2.88 ^a | 3.47 ^b |
| Tastiness | 2.35 ^a | 2.88 ^b | 3.35 ^c |
| Average | 2.75 | 3.02 | 3.42 |
| Criteria | Fair | Fair | Good |

Information: Means followed by the same letter in a row are not significantly different at $p < 0.05$.

TABLE V. THE RESULTS OF PREFERENCE OF MUNG BEAN BISCUITS

| Sensory Aspects | Margarine Usage | | |
|--------------------|-------------------|-------------------|-------------------|
| | 25 % | 30 % | 35 % |
| Color | 2.83 ^a | 3.05 ^a | 3.55 ^b |
| Mung beans Flavour | 2.58 ^a | 2.99 ^b | 3.53 ^c |
| Fragrant Flavour | 2.48 ^a | 2.69 ^a | 3.56 ^b |
| Crispness | 2.38 ^a | 2.85 ^b | 3.56 ^c |
| Sweetness | 2.26 ^a | 2.50 ^a | 3.09 ^b |
| Tastiness | 2.56 ^a | 2.84 ^a | 3.33 ^b |
| Average | 2.52 ^a | 2.82 ^b | 3.44 ^c |
| Criteria | Quite like | Quite like | Like |

Information: Means followed by the same letter in a row are not significantly different at $p < 0.05$

The almost similar result was found on the preference test early childhood. The usage of margarine resulted in 60% mung bean biscuits with high preference degree, on all aspects of preference, the difference was significant (Table V). It shows that margarine has positive effects in increasing the organoleptic quality of the biscuits. Margarine has plastic nature which can easily blend in with the biscuits' dough and expand well during mixing process so that the texture is crispy. Fat can make food tastier [16]. The result of the research about cassava flour biscuit shows that the biscuits are acceptable and favorable compared to the wheat biscuits [20]. The use of SF flour with the 50% composition resulted in good quality. Meanwhile, the 5 – 10% substitution of Reb Ibi Ngaoundre (RIB) were either acceptable as or better than 100 % wheat biscuit [21].

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Development of Chemistry Teacher Professionalism Through Pedagogical Content Knowledge Training

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Abstract—This study aims to analyze the impact of Pedagogical Content Knowledge (PCK) training to the development of chemistry teachers' professionalism through MGMP. The study involved 5 chemistry teachers who measured the PCK capability through filling CoRe (Content Representation) and writing PaP-eRs (Pedagogical and Professional-experience Repertoires), which represents the PCK of a teacher as proposed by Loughran. Quantitative data drawn from the results of the filling CoRe, Lesson Plan (RPP), and PaP-eRs instruments, whereas qualitative data were taken from the three linkage analysis

supported by the results of the interview. Based on the results of data analysis revealed that PCK training can develop the teachers professionalism as measured by the PCK capability especially in minimizing the weaknesses that have been prevalent as how to express apperception, the depth of the material, determine the learning strategies, and pay attention to the prerequisites material.

Keywords—Pedagogical Content Knowledge, teacher professionalism, training

FOREWORD

Formally Teachers and Lecturers has been recognized as professionals with the task of planning and implementing the learning process, assessing the learning results, coaching and training, and conduct research and community service, particularly for educators in universities (Depdiknas, 2003). As professionals, the consequences to be faced is that the teacher must have the standard competencies, i.e. pedagogy, personality, social, and professional competence (Peraturan Pemerintah No. 19/2005). Standard competencies for teachers for each subject is increasingly evident with the release of Permendiknas No. 16 Th. 2007. For professional competence, high school chemistry teacher required competence in a quite complex academic fields. As an illustration, there are 14 things that must be held by chemistry teacher, among which are: (1) understand the concepts, principles, and theories of chemistry and its application in a flexible and (2) creative and innovative in the application and development of chemistry and related science (Permendiknas No. 16/2007). Both kinds of competence requires deep mastery and understanding of the chemistry content as same as the ability to teach it. Shulman (1987) argued that the two should be integrated in learning to generate new knowledge that is Pedagogical Content Knowledge (PCK). In other words, PCK is the knowledge in organizing content that suited to the task of teaching, which is beneficial to improve the understanding of the learners.

In order to represent the PCK of a science teacher, Loughran, et al. (2006) developed a format that includes the important aspects of a successful science teacher in understanding the subject matter knowledge of science and pedagogy. PCK special format consists of two elements. The first element is called CoRe (Content Representation; 'core') offer a perspective of specific content being taught when teaching a topic. The second

element is called PaP-eRs (Pedagogical and Professional-experience Repertoires), which is a short but has specific meaning and is intended to demonstrate the implementation of the CoRe's aspects. PCK capability of a teacher is represented by CoRe and related PaP-eRs, combined to produce PCK Resource Folio on specific content.

Teacher has task of reforming the students' knowledge, and culture in schools. Reformation cannot be done by top-down or outside the will of the teacher. Teachers need to be convinced of the importance of change, and perform vigorously to implement these changes. If teachers do not fully understand their duties or are not sufficiently equipped with adequate preparation to teach new content and how to teach it, then the reformation will be hampered. One improvement of teaching profession is through teacher training activities by Subject Teachers Council (MGMP). Subject Teachers Council provide a container that enables chemistry teachers achieve maximum professional development through self-capacity development. Various Chemistry MGMP in Semarang which had collaborated with researcher team of which is assistance in developing problem-based learning tools, including media and assessment (2009-2014). Nevertheless, the PCK capability of a teacher relating to professional competence and the implementation of learning in the classroom has not been done. Through this study the assumption that the implementation phase is the authority of teachers, others do not need to know, even taboo if viewed by the others can be eliminated because of the feedback would be very useful for further improvement.

Taking into consideration the importance of professional competence of teachers devoted to completely combining pedagogy ability and

comprehension of material content, the PCK training through MGMP is a real need, is very important and potential to do. **Therefore, specific training aimed to combine pedagogy ability and comprehension of material content or training themed Pedagogical Content Knowledge (PCK) needs to be done.** Implementation of training programs that equip this PCK concept provide wider opportunities for teachers to play

RESEARCH METHOD

This descriptive study was conducted through MGMP Semarang, with research subjects 5 chemistry teacher. The basic consideration choosing the research subject because teachers who are members of the Chemistry MGMP that previously been established a cooperation began in 2008, either through community service activities and collaborative research. Research design using triangulation to simultaneously collect qualitative and quantitative data, comparing results, and then use the results to see linkages (Creswell, 2009). Research procedure begins with briefing material PCK conducted through lectures and question and answer session, followed by the writing of the CoRe document for each teacher (Table 1) and writing lesson plans and worksheets with material based on CoRe, classroom practice, and ends the writing PaP-eRs that written after carrying out classroom practice. Interviews were conducted to explore the relationship between writing CoRe, lesson plan, the implementation of classroom practice and PaP-eRs were written. In addition, interviews were also intended to find

an active role in developing the competence in designing Lesson Plan (RPP) (Loughran, et al., 2006; Purwaningsih, 2011; and Hamida, 2011). PCK capabilities focused on the competence of teacher candidates in preparing CoRe documents, lesson plan, and PaP-eRs. The question that arises is: Do the training will changes the teachers' PCK capabilities?

the factors that influence and constraints of teachers' PCK development.

Data is collected using instruments of the CoRe question sheet as a form of teachers' PCK capability (Loughran et al., 2012), lesson plans evaluation sheets, PaP-eRs assessment sheets, and unstructured interviews as field notes. Teacher professionalism in this study were identified from the ability to represent the content to be taught (CoRe) as a form of PCK capability of teachers (Loughran et al., 2012) and is associated with the lesson plan. CoRe results were scored using the CoRe rubric, as well as for the lesson plan and PaP-eRs were analyzed by lesson plan and PaP-eRs rubric, CoRe, lesson plan and PaP-eRs assessment results (Figure 1), used to see the trend of the three. Qualitative analysis is done by analyzing the links between CoRe, lesson plan and PaP-eRs, all data collected in the form of portfolio: lesson plan, the process of assistance with the research team, CoRe, PaP-eRs, and interviews. This portfolio is collected to describe the overall study results.

TABLE 1. CORE ASPECTS GUIDANCE

| This Core is designed for student in Middle Secondary School | important science ideas/concepts | | | | |
|---|----------------------------------|---|---|---|-----|
| | A | B | C | D | dst |
| What you intend the students to learn about this idea? | | | | | |
| Why it is important for student to know this? | | | | | |
| Why it is important for student to know this? | | | | | |
| This Core is designed for student in Middle Secondary School, i.e., year 10. | | | | | |
| What else you know about this idea(that you do not intend students to know yet) | | | | | |
| Difficulties/limitations connected with teaching this idea. | | | | | |
| Knowledge about students' thinking which influences your teaching of this idea. | | | | | |
| This Core is designed for student in Middle Secondary School, i.e., year 10. | | | | | |
| Other factors that influence your teaching of this idea. | | | | | |

RESULTS AND DISCUSSION

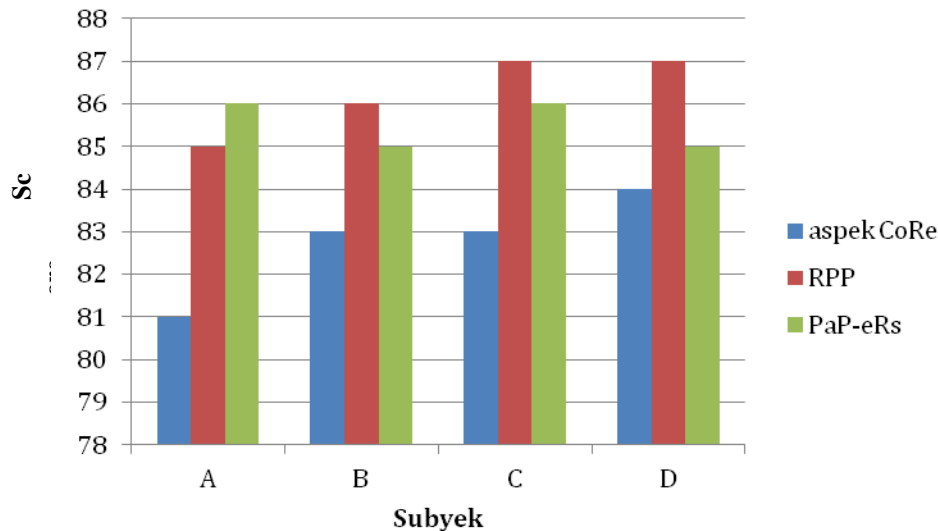
Instruments to measure the PCK capability refers to Loughran et al. (2004) have reported the research is a 2-year longitudinal study using CoRe and PaP-eRs data to document and display PCK of science teachers. Research conducted by Loughran produce CoRe documents and PaP-eRs for different range of subjects (ie. chemical reaction, ecosystems, force, genetic, circulation systems). Another interesting thing that was found was each topic contains a need to better understand the complexity of the content and pedagogy, which creates different

expectations, which also applies to the teachers concerned. Table 1 shows the CoRe components that must be written by teacher before designing the lesson plan. The three documents writing on this research is still in the testing phase, each teacher was starting to write one material so that from the three documents that have been analyzed is only one.

Once teachers acquire PCK debriefing materials including example to fill CoRe data from Loughran, then teacher trained to design CoRe according to the

previously agreed materials. At first the teachers seem not many ask the question, but after writing independently they stated to have difficulties, just not try seeking information or assistance. The PCK capability of a teacher analyzed from the CoRe was descriptive associated with compiled lesson plan. Interviews are used to support linkages to the three documents, and are reflective to the PCK capability. Based on Figure 1 can be seen that the teacher's PCK capability measured through

core and papers in line with the ability of lesson plan preparation. The findings of this study are consistent with findings of Goolamhossen (2013) which found that the higher the teacher student conceptual understanding, the higher the pedagogical abilities owned (Ozden, 2012). Nonetheless, Ozden stated that there are teachers who have good pedagogical abilities because of the other factors, which is communication skills.



Along with the CoRe document and PaP-eRs preparation activities, also held discussions with each of the research subjects. The issues discussed between researchers and teachers, among others: (1) preparing apperception so that learning becomes meaningful, (2) a prerequisite material, (3) the depth of the material, (4) misconceptions that may arise, (5) preparation of lesson plan based on learning models, and authentic assessment. Here is the example of description linkages of CoRe document preparation and PaP-eRs with the preparation of lesson plans written by the research subject equipped with CoRe assessment rubric.

CoRe Document Questions, number 1: What do you want students to learn from this idea?

Determination of the content that will be given to students by teachers an important concept as a great idea represented with how teachers identify indicators of learning in different ways. A large number of ideas which are written by the teachers varied from 3 to 5. Some teacher candidates using sub subject of the order required competencies. As an example for the material solubility and solubility product consists of three important concepts, in contrast to the buffer solution consists of 6 important concepts. Relating to the material order, to buffer and hydrolysis there are two important concepts that can be combined into one concept. For example, for mixture of buffer solution teacher sorts important concepts as follow: the concept of a buffer solution, a mixture of buffer solution, acid-base reactions, type of buffer solution, pH determination and usefulness of buffer solution. The important concept that does not exist is the

mechanism or how the buffer solution work, while the mixture of buffer solution and the type of buffer solution in the content can be put together, while the acid-base reaction in the content contains the making of a buffer solution. Furthermore to the idea of the hydrolysis between types of salt material, the concept of hydrolysis and the hydrolysis reaction is almost similar content, in addition to these three important concepts overlapped and inverted. As an example for the concept of hydrolysis contains the types of salt based on its acid-base constituent, while the hydrolysis reaction is more appropriate included in the concept of hydrolysis. However, there is one teacher with colloidal material which order of the material was appropriate and important concept had been written all.

Once confirmed by the lesson plan written and the interview turned out to be so common, the order of the material in the lesson plan also not sorted according to the indicators or learning objectives. Thus it can be said that the depth and breadth of material not in accordance with the specified indicators. It should be noted, teachers not yet encourage students to get used to derive a formula such as the determination of pH and K_{sp}, and have not thought about the important concept as a prerequisite material relating primarily to the concept of equilibrium. The order of the material is associated with the prerequisites material and relates also to write apperception on the preliminary activities. In addition, it also deals with the CoRe question number 2.

CoRe Documents Question, number 2: Why is it important to know by the students?

Reason consideration the importance of the concept to be delivered, all teachers wrote that this concept relates to the concept of the next big idea. Not a single teacher who wrote the benefits of studying this concept so that it can be connected with preliminary activities that include orientation and apperception. Based on observations of the research team until now, generally both teacher and teacher candidates in writing orientation and apperception on preliminary activities only write to motivate students, but how to motivate students is not included. Similarly, almost all the written lesson plans, rarely even almost no one expressed the importance of studying the material that will be discussed. After the interview, known that the teacher having difficulty making questions and scoop out prerequisite knowledge to build new knowledge, also difficult in connecting students' prior knowledge with the material to be studied. This condition can be resolved though not optimal, the teachers will improve the writing of the next CoRe.

CoRe Documents Question, number 3: The other thing from this material that you know, but not yet known by the students?

This question relates teacher knowledge in determining the depth and breadth of the material provided, in addition to the teacher's ability to make decisions about what needs to be given and what has not yet to be given to students so that the students' knowledge is not ambiguous. For this question, none of the teachers who wrote the CoRe. If the terms of the order of how the teacher write the material on the CoRe question number 1, was detected that teachers pay less attention to the order of the material and the prerequisite materials, let alone limit of the material to be given such this CoRe question number 3. This fact is in contrast to teacher candidates who tried to pay attention to this problem, for example, teacher candidates wrote the following: students do not know about the stability of the elements, students not yet know about the Lewis structure.

CoRe Documents Question, number 4: Difficulties/limitations related to how to teach this material?

Difficulties of teachers in teaching important concepts different from one another, there is a review of the limitations of equipment and chemicals, the prerequisite materials, the use of formulas, and some other important concepts have no trouble. Teachers have not done the analysis of the difficulties that may arise based on the method to be used, the newly linked with a big idea. After the interview, the teacher becomes more understood and to answer the CoRe question number 4 will be corrected in the next CoRe writing, so that the writing lesson plans, especially for core activities would be better.

CoRe Documents Question, number 5: Knowledge of students' thinking that affect you in teaching this material?

This question relates to the ability of teachers in analyzing the knowledge that has been owned by the students, and in predicting the ability of students to absorb the material provided by the teacher. Relating to the lesson plan, this knowledge is found in preliminary activities (apperception), description of the learning activities, and the writing material. The condition of the students described by teachers' testimony were varied like weak in math lead to difficulty in calculating the pH of the solution, difficult to distinguish between ionization and precipitation reactions, difficult to distinguish between a strong acid and a weak acid, distinguish between the dispersed phase and the dispersing medium. If the teacher has well consider whether prior knowledge/students' thinking condition will be able to identify misconceptions that may be experienced by students. According to Loughran (2001), this aspect is much related to the knowledge of teachers based on teaching experience. However, it turns out teacher candidates to answer this question in more detail.

CoRe Documents Question, number 6: Another factor that affects the way you teach this material?

Each teacher has a specific consideration in designing the learning conducted or teaching a material. The number of students, limited equipment and material, and the allocation of time takes into teachers' consideration and different from each other because of the different learning environment and conditions. This identification requires deep thought and the ability of teachers to associate the concept with a variety of things. However, the facts that occurred to date in the implementation of classroom learning is done with steps of teachers start explanations, exercises, then give the problem to be done or homework. For material that is considered easy by teachers such as colloidal even students were told to read on their own, then given the task to make summary.

CoRe Documents Question, number 7: The procedure of teaching (and the specific reasons for its use)?

Every big idea or the important concepts can be taught with different methods and different media. Teachers' knowledge in selecting model/approach/method and strategy and the right media to teach concepts with a certain indicator is an important aspect in the PCK (Loughran, 2011). A teacher propose innovative and creative learning than other teachers. Innovation held by teachers related to newly drilled learning models in this research activity, and teachers want to put into practice directly in the class corresponding to written lesson plan. Having introduced the CoRe document writing, the implementation of learning in the classroom that designed in the lesson plan are to enable students through practical work and discussion groups. While before introduced with CoRe writing, generally teachers using conventional procedures that dominated by lectures, giving the example problems and exercises, although in the writing lesson plans to write a scientific approach. All teachers also found practicum conducted after the theory, and this fact

suggests that in order to make students construct their own knowledge is not true. However different after writing CoRe, made practical first followed a group discussion. As an example of writing CoRe written by teacher: with the approach of Problem Based Learning in order to better understand the material and be able to prove the theory with experiment, experiment continued with discussions and exercises in groups so that discussions took place between the students who quickly understand the material with students who need more time in understand the material, and the teacher gives a little explanation then students had discussions with peer tutors.

CoRe Documents Question, number 8: The specific way to ensure students' understanding or confusion regarding this material?

A way to know that the students have grasped the material provided can be done in various ways. This question also relates to authentic assessment should be prepared for indicators in certain basic competencies and allows teachers to design a follow-up to improve the learning process. Readiness of research subject in designing an evaluation tool on the lesson plan appears from the statement in the CoRe document as follows: Each group is represented by a student to present the results of experiments in front of the class, and students are asked to work on the problems on the board and then the teacher confirmed other solutions: through written test and done problems on worksheets as a practical guide for students, from lab reports were written.

CoRe instrument (Table 1) is the most appropriate techniques for direct recording of teachers' PCK capability. CoRe can help determine problems of content, approach/learning methods, and provokes what is important in teaching the material and why it is important. Even also help teachers to identify what needs to be known and has not to be known by the student. The biggest difficulty experienced by teacher is in determining the limits of material that must be given, although it should not happen because of the knowledge possessed by teacher actually will guide the teachers themselves in defining the limits of material (Shulman, 1986). Another difficulty as stated by Harlen (2010) is to determine the ideas comprehensively in accordance with the curriculum, the selection of important concepts, as well as the depth and breadth of a topic.

Pedagogical content of MGMP chemistry teacher initially was limited to explaining the material in lectures and discussions. Teachers already know there are various models of learning and the media, but the teachers still do not take into account the compatibility between the materials and methods. Through the CoRe writing before preparing lesson plans and PaP-eRs after teaching teacher slowly began applying appropriate learning strategies. For example, there are implementing problem-based learning and inquiry, and experiment done before the theory for further doing group discussion in order to construct

knowledge. The existence of association of teachers like MGMP is a facility for teachers to learn by sharing their knowledge and their experiences in the classroom, school, books, the Internet, or outside the school. Community together proven to be effective in helping teachers to question the routine and examine new ideas while engaging in collaborative efforts to build knowledge (Grossman in Wilson, 2008).

PaP-eRs is a form of teacher reflection after the learning process in narrative form. This document differs from the CoRe document that can be done in groups, since PaP-eRs done individually. Based on the results of the teacher writing can be described as follows. None of the teachers who wrote the problems faced, all of them write down the problems faced by students, and none of the teachers were telling events beyond expectations. In addition to the assessment all teachers do not write down the way assessment done because it considers to be one package with lesson plans, as well as the learning stages activities is not written in detail, because it was written in the lesson plan.

Pedagogical Content Knowledge is knowledge that requires special expertise, for a teacher this knowledge is formed through a combination of in-depth mastery of content and good pedagogical knowledge so as to create an effective learning by considering various things (Loughran, 2011). Teachers should be familiar with the concept and the difficulties to be faced by the students and to organize, prepare, execute, and assess all of those are summarized in the PCK. Related to the concept there are three things which are important concepts, breadth and depth, as well as the identification of misconceptions. Misconceptions that often occurs because students' prior knowledge, teachers' teaching strategies, textbooks, and its relation to other concepts such as mathematics and physics (Tekkaya, 2003). Besides that, one important reason for their difficulty in mastering chemistry concept closely related to multiple levels of representation used in describing and explaining the chemical phenomena (Johnstone, 2000a, 2000b; Tasker & Dalton, 2006; Eilks, et al., 2007, Chandrasegaran et. al., 2007). Mastery of learners to the chemistry concepts should be demonstrated by the ability to transfer and links between the three levels of representation of the chemical that consists of macroscopic, submicroscopic and symbolic level (Johnston, 2000a, 2000b; Treagust & Chandrasegaran 2009; Talanquer 2011; Tuysuz, et. al., 2011). Through this CoRe writing is expected to improve understanding of chemistry materials of teacher candidates as well as how to teach it, as has been drilled through the CoRe writing numbers 4-7. CoRe has the potential to help teachers gain access to the knowledge and experience as an expert or an experienced teacher (Eames et al., 2012).

Some of the factors that constrain the feasibility of activities are: (1) the busyness of teachers are highly dense (2) some CoRe document items is still difficult to be expressed by teacher, and this is primarily related to the weakness of the depth of the material owned by

teachers, and (3) the teacher is also not accustomed to write, so that the reflection in the form of PaP-eRs need more exercise. Factors supporting the implementation of the research is that the teacher enthusiast for this

Based on the analysis of the study result description showed that PCK description of a teacher which analyzed through the preparation of CoRe documents and PaP-eRs correlated with improved performance of chemistry teacher in preparing the lesson plan. Some things that have been considered by the teacher before writing lesson plans and classroom practice is the breadth and depth of the material, misconceptions identification, and learning strategies so that students are able to construct knowledge. Constraints faced by teachers is mainly

additional task because have useful in filling MGMP and intend to make a book that contains the CoRe documents, lesson plans, worksheets and PaP-eRs documents.

CONCLUSION

concerned with the busyness of teachers, lack of mastery of concepts that are owned, and the teacher has not been used to write the PaP-eRs as a reflection of what has been done. However, teachers feel happy doing CoRe document preparation and PaP-eRs as well as feel the need to be trained and the results are reproduced in order to be useful, especially for chemistry teachers in the MGMP group. To analyze the development of teachers' PCK need to do teaching practice through Lesson Study for further documented in the form of learning CD.

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The Self Concept in Children with Asthma to Participation in Physical Activity

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Abstract—Now days, a view people know how the important of physical activity (PA) for their live. The technology make them life with gadget and less physical activity. As specially for children, there is time for fun and do so many work with their PA. Children with asthma also must do PA, to increase their body fitness and endurance. The motivation how the children must can do PA, it needs self concept in their self. The self concept is perception about of himself or herself . It need cooperation from the social support likes from parents, peers, friends, school and also government to working together to management asthma in medical and environment. If the PA of children with asthma increase also will increase of body fitness, it help they to get better of life.

Keywords: Asthma, Self Concept, Physical Activity

INTRODUCTION

Asthma is one of chronic diseases in respiratory system. Over than 80% asthma death occurs in low and lower-middle income countries. Children is the most prevalence asthma than adult (1).

Global asthma reported there are 334 million people have asthma, 14% of the world's children experience asthma symptoms, 8.6% of young adults (aged 18-45) experience asthma symptoms, 4.5% of young adults have been diagnosed with asthma and/or are taking treatment for asthma (2).

In Taiwan specially at Taipei, asthma in the children 13-14 years old for 12 month prevalence has been reported wheezing 5.2%, S4 attack 1,6% wheezing disturbing sleep 0.4%, severe wheeze limiting speech 0,8%, exercise wheeze 8.2%, night cough 10.4%, ever had asthma 9% from 11.400 population (3). In fact 50% children with asthma less exercise (4). The frequency and number of exercise per week, non asthmatic students higher than asthma students (5).

Physical activity (PA) is body movements that works your muscles and requires more energy or increased metabolic rate than resting energy expenditure (6). The studies reported that breaststroke swimming three times a week for two month increased peak flow rate (7). The other studies showed swimming exercise increased lung function and cardiopulmonary fitness also decreases of bronchial hyperresponsiveness (8,9). PA indicated increased PC20 (provocative concentration of methacholine causing a 20% fall in FEV1, MIP (Max inspiratory pressure), MEP (Max expiratory pressure),

decrease in bronchial hyperresponsiveness and improvement in elastic recoil of the chest wall (9).

Based on the studies, it's generally assumed that children with asthma less to participate physical activity, needed encourage to do PA cause had beneficial effect for fitness. This is need a mediator to make children easier do physical activity.

LITERATURE

The Self Concept

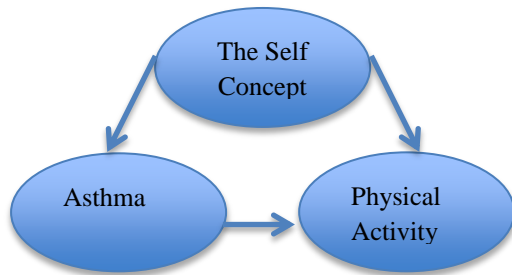
The self concept is individual perception about himself or herself. A positive self-concept has been demonstrated to be particularly beneficial for anxiety, impaired motivation, and poor performance following failure or negative feedback in specific subject areas (10).

The development of a positive self-concept is prized as desirable for psychological well-being in and of itself, as well as a mediator of an array of other valued outcomes (e.g. educational and career aspirations, increased adoption of adaptive striving behaviors, and improved achievement/performance (11).

Self concept is one of the most all-pervasive characteristics of humans that is central to psychological well-being and a powerful mediating influence on psychosocial constructs that underpin human potential. Clearly, self-concept makes a difference; people who think positively about themselves achieve more, are healthier, happier, and get more out of life (10). Marsh also argued a positive psychology approach is a potentially potent new preventative strategy as well as a basis for developing potentially powerful new interventions (10).

Hypothesis of Self concept

The Self concept as mediator to encourage children with asthma to participate physical activity. If self concept enhance will be stimulate children to participate physical activity. Cause when self concept increase they will increase self confidence than not afraid again to do PA.



THE DIAGRAM OF HYPOTHESIS

The self concept also needed social support to increase herself or himself perception. The social support from parents, peers, friends, school and also government to working together to management asthma in medical and environment.

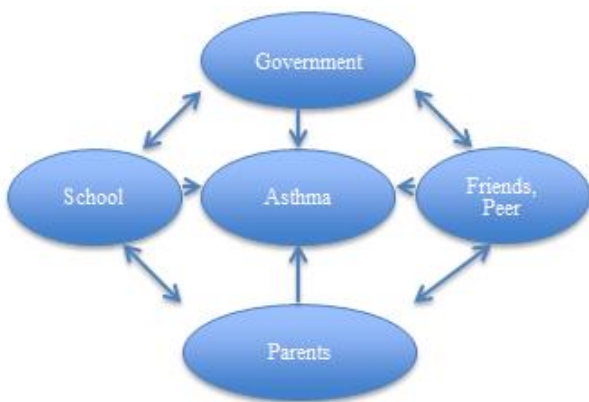


DIAGRAM OF SOCIAL SUPPORT

DISCUSSION

The research identified a statistically significant correlation between physical self perception and moderate to vigorous physical activity (MVPA) in children and adolescents (12).

The other hand study reported asthma was the primary factor determining vigorous physical activity level, but gender was the primary factor determining physical self-concept, especially in terms of endurance, obesity and strength. No statistically significant relationship were noted between asthma and gender in terms of effect on physical activity and physical self concept (13).

The success of asthmatics at the highest levels, in almost all sports, is testimony to the benefits of exercise in overcoming their disability and stimulus for others to include physical activity and sports in their daily lives (14).

CONCLUSION

Exercise Physical self concept is an important variable in the relationship between self esteem and participation in physical activity, and also can lead to mental and emotional benefit for children (15).

The self concept is can be stimulated children with asthma to participation in PA. It's play important role to increase self perception and self esteem in children with Asthma. If the children have good and increase their self concept will encourage them to do physical activity.

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Development of Industry Practice Model in Vocational High School Based Entrepreneurship

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Abstract— The main objective of this research is to find models of Industry Practice based entrepreneurship that oriented to the preparation of students and / or vocational school graduates to become entrepreneurs. This Research is designed in two years using the approach to Research and Development (R & D). Subjects were two vocational high school (public and private SMK) Semarang, study program of Mechanical Engineering. Data were collected through interviews, questionnaires, observation, and documentation. Analysis of data through qualitative and quantitative approaches, including the stages of data reduction, data presentation, data verification, and conclusion are carried out simultaneously. While the research results show that the implementation of the Industry Practices (Prakerin) at vocational high school (SMK), both in public or private vocational high school is not specifically designed to prepare students to become entrepreneurs. It is therefore important to develop a Industry Practice Model based entrepreneurship.

Keywords: industry practice, entrepreneurship, vocational high school

INTRODUCTION

One of the government's efforts are intended to make quick work of vocational graduates are programs Dual System Education (PSG) which is in force since the school year 1994/1995. Through the PSG program, organized education in schools and in businesses and industries (DUDI) causing link and match between school and the world of work (Department of Education, 1994). After more than fifteen years running, the impact of the PSG program for the reduction of unemployment is almost non-existent. As an illustration, the unemployment rate vocational graduates in 2004 amounted to 12.23% (BPS, 2004), is not much different from the situation in the following years, for example, in 2013 the unemployment rate of vocational graduates as much as 11.8% (BPS, 2013).

Classic reason often cited is, unemployment occurred due to the work force or more job seekers than jobs available. This paradigm is actually true when the labor force are those who are just looking for a job (job seeker) and does not apply to job creators, the entrepreneurs (entrepreneur) or the self-employed (independent worker). For an entrepreneur, there is no term limited amount of employment, because employment is not to be sought but were created. If the entrepreneurial paradigm is understood and applied in vocational, is expected to be more vocational graduates who become entrepreneurs or entrepreneurs who in turn will reduce the number of unemployed vocational school graduates.

Does not rule out the still high unemployment vocational graduates precisely because of the impact of the program PSG. As part of the implementation of the PSG in SMK is a student carrying out Industry Practices (Prakerin). Prakerin implementation that took place during this time, especially in vocational areas of expertise Mechanical Engineering, has the following characteristics: 1) as an institutional partner (DUDI) general industry / medium or large-scale enterprises; 2) as a field supervisor is the worker / employee / operator; 3) The main purpose so that students master the skills of the technical aspects / operator; 4) focuses on preparing students to fill vacancies in the industry.

With this pattern, then students are more likely to mentally workers rather than as entrepreneurs. Implementation Prakerin with pattern as above has several drawbacks, among other things: 1) Because as a partner / institution partner in Prakerin is DUDI bersklala medium / large, the student is not possible to study directly to the owner of the business / industry that in fact as an entrepreneur (entrepreneur); 2) students only master the technical aspects, and less control of aspects of business management, but to become an entrepreneur is not sufficiently armed with technical capabilities; 3) As a further impact, when graduate students are less daring entrepreneurship, students are more interested to become employees, but jobs are also limited.

If the implementation Prakerin still with a model or a pattern like that took place during this time, the effort to prepare the entrepreneur difficult to materialize. This is contrary to the principles of entrepreneurship, where to become entrepreneurs should master the two aspects at the same time, the technical competence and business management skills (Pearce II, 2013: 435).

Cooperation between the SMK-DUDI in organizing PSG so far despite the judge quite successful, but faces many obstacles, especially in terms of the management of industry practices (Sonhaji, 2013: 164). One of the obstacles is still having trouble finding a school DUDI partners as institutional partner in the implementation of PSG or Prakerin.

If the implementation Prakerin still with a pattern like that took place during this time, the effort to prepare the entrepreneur difficult to materialize. This is contrary to the principles of entrepreneurship, where to become entrepreneurs should master the two aspects at the same time, the technical competence and business management skills (Pearce II, 2013: 435).

To overcome the drawbacks of existing Prakerin implementation so far, it is necessary to develop models

Prakerin more oriented toward preparing students / graduates to become entrepreneurs. This model can be considered as an alternative model, because SMK also be able to perform Prakerin with old patterns along was to prepare the students / graduates to become employees / workers / employees or not entrepreneurs. But schools also have a responsibility to prepare students who are interested in becoming entrepreneurs and / or overcome the problem of unemployment vocational graduates.

Finally it can be argued that the model Prakerin Based Entrepreneurship (PBE) that will be developed later allegedly effective to prepare students or vocational school graduates to become entrepreneurs.

RESEARCH METHODS

This study was designed to be implemented over two years using the approach of Research and Development (Borg and Gall, 1983). According Sugiyono (2013: 528), research R & D is included in penelutian combination (Mixed Method) Sequential models. This implies that there are two stages dilakukan activities in a sustainable manner, which is researching the phenomenon occurs (Research) and continued with the development (Development) in order to obtain better results. In this paper will be presented the results of research in the first year which is a preliminary study.

Research subjects have been two vocational schools in Semarang each with public and private status, study program of Mechanical Engineering. To obtain the necessary data in this study, carried out various techniques of data collection is comprehensive and tailored to the type of data to be obtained, among others methods of questionnaires, interviews, observation, and documentation.

In accordance with characteristics of research data, the analysis carried out in an integrated and support each other both quantitatively and qualitatively. Quantitative data were analyzed with descriptive analysis techniques (statistik deskriptif). Qualitative data were analyzed qualitatively interactive model of Miles & Huberman (Sugiyono, 2008: 246-247).

RESULTS AND DISCUSSION

As a research subject is public vocational high school (named SMK A) and private vocational high school (named SMK B). Source of data in this study is the parties associated with the implementation Prakerin in school, namely the principal, vice principal areas of curriculum, vice principal field of industrial relations, the head of the study program, teacher of entrepreneurship, teachers of produktif subject, and the head of the production unit. The number of respondents are 17 people.

Based on data analysis, it can be seen that the school has to know the legal basis for the implementation of the Employment Practices Industry (Prakerin) at SMK, although different levels of understanding. Both in the public and private vocational no difference in comprehension. It needs to be asked considering the high school level (high school) there is no obligation to carry

out Prakerin. Besides the technical implementation in the field vary between schools, among others, related to the terms of participants, partners DUDI, time, duration, monitoring, and evaluation prakerin.

Prakerin implemented over the years, both in the private vocational school SMK and have the same goal, which is more oriented toward preparing students to become employees (category very well). The school realizes that Prakerin implemented over is not designed specifically to prepare students as entrepreneurs. The school also supports Prakerin if developed models are more oriented toward preparing students to become entrepreneurs. This is evident from the statement in the questionnaire responses are mutually reinforcing. During this time all of the students considered the same talents and abilities and no special selection Prakerin for implementation. If it will be implemented Prakerin based entrepreneurship and the selection for prospective participants, the school is very supportive. Likewise, business and industry partners (DUDI) in the implementation so far there are no special requirements. To support entrepreneurial-based Prakerin need for specific requirements for DUDI which allows purposes Prakerin achieved.

In terms of organization as a container manager Prakerin, both vocational already have. But in terms of the division of tasks and responsibilities, in SMK A is better than in SMK B. In coordination with the leadership, teachers, staff, and Dudi, both schools show different variations as shown in. That need attention is, in the implementation of Prakerin far less or no coordination with the Entrepreneurship teachers.

Before plunging into the field in the execution Prakerin, both schools have been doing debriefing for students. Nevertheless subject briefing is not specifically related to the preparation of students to become entrepreneurs. As a resource has not been involved DUDI.

During the implementation Prakerin in DUDI, students also have not been or are not specifically given materials related to the development of character kewirausahaan. Although it recognized that fact students can learn or practice entrepreneurship through Prakerin. Learning opportunity entrepreneurship is more likely if as a Prakerin company / smaller than the company's industrial / large industry. It is quite realistic because the leadership of the business / small industry in general as well as business owners (entrepreneurs) and directly involved in the business and easy to be found than in the enterprise / large industry.

Regarding the perception of the students Prakerin DUDI, there is still the assumption by the DUDI that students Prakerin "disturb" the company / industry, this has happened to SMK A. But for SMK B, perception DUDI against prakerin better implementation.

In terms of monitoring and supervising students Prakerin, in general at both schools has been going well. There is a slight difference, namely in terms of the frequency of monitoring, report generation Prakerin by students as well as reporting guidelines prakerin, SMK B

is better than in SMK A. But in terms of material reports, the SMK has not relate to aspects of entrepreneurship.

Evaluation of the implementation Prakerin, mainly related to the relevance or impact on the chances of getting a job, in SMK B is better than in SMK A. However, the evaluation of the implementation of Prakerin relation to the upgrading of entrepreneurship students / graduates, at both schools has not gone well.

The main purpose of vocational high school (SMK) actually is to prepare students for work, it is different with the main purpose general high schools (SMA). Work needs to be interpreted broadly, not just an employee, but also as an entrepreneur. To prepare students / vocational graduates to become entrepreneurs is already supported by the Entrepreneurship subjects given from class X to XII. However, based on interim results of the study can be seen that in the implementation of Prakerin less or do not involve entrepreneurship teacher. In other words, a lack of integration or integration of materials and the learning process in order to prepare students to become entrepreneurs.

So that what the objectives of the delivery of vocational secondary education, especially in preparing graduates to become entrepreneurs reached, it is necessary to develop models based Entrepreneurship Prakerin which includes aspects of planning, organizing, implementation, and evaluation.

CONCLUSIONS AND SUGGESTIONS

Conclusion

Based on the stages of research that has been carried out, can be summarized as follows:

Understanding teachers to the legislation relied upon in implementing Prakerin at SMK in the excellent category.

Planning made by SMK in the functioning Prakerin in the excellent category in a sense to prepare students to have the skills and work ethic as an employee, and is not designed to prepare students to become entrepreneurs. Teachers are very supportive when there Prakerin-based models of entrepreneurship.

Organizing or management Prakerin at SMK for this already exists, but has not run as expected. Prakerin implementing coordination with prolific teacher and administrative (Administrative-TU) in the excellent category, but coordination with teachers and partner Enterprise Dudi has not gone well.

Prakerin already well underway in the sense implemented as planned, but did not specifically contain

material of entrepreneurship, either in the briefing, the implementation in the field, as well as reports Prakerin by students.

The execution of the monitoring and evaluation of vocational Prakerin. has been running well, but needs to be improved.

During the SMK has never been examined specifically how Prakerin impact on the interest of students to become entrepreneurs.

Suggestion

Based on the conclusion of the study, could be given some suggestions as follows:

Some things are already well underway related to the implementation of vocational Prakerin at this time in order to be maintained, as the briefing before the students went into the field, the monitoring, coordination with Productive teachers and administration.

There are some things that need to be addressed, among others, related to coordination with school leaders, teachers entrepreneurship, DUDI, as well as the implementation Prakerin orientation.

It should be designed based Prakerin model of entrepreneurship, which is specifically designed to prepare students / vocational graduates become entrepreneurs without having to remove the model Prakerin running during this time, but the new model is complementary / complement existing ones.

Need for a study on the impact of Prakerin against the interest of the students to become entrepreneurs.

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Effect of Use Learning Resources and Learning Motivation for Learning Outcomes Science Subject on Open Junior High School

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Abstract— Open Junior High School is an alternative education for children of junior high school age because of their socio-economic conditions facing barriers to go to school at the Regular Junior High School. The learning process in Open Junior High School unlike in Regular Junior High School, since Open Junior High School students have much to learn independently with very limited infrastructure and only use the modules as a learning resource primarily, but for curriculum and assessment should have the same standards with Regular Junior High School students. While the regular junior high school students learning with face-to-face classes led by teachers using the textbook as the primary source of learning and learning supported by other media (Directorate PSMP, 2009). So that is no academically gap among students at Open Junior High School and Regular Junior High School then Directorate of Junior High School seeks to improve the quality of education in the Open Junior High School by publishing comics as science learning, as a source of learning companion for learning resources that have been used so far (Suara Merdeka, 1 September 2014). This study aims to determine differences influence of independent variables that is a source of learning and learning motivation toward learning outcomes as the dependent variable. In addition, wants to also be known whether there is interaction between the two independent variables that affect student learning outcomes in science subjects.

The method used was experimental design applied is factorial 3 x 2 in which the learning motivation variables are categorized into two, namely high learning motivation and low learning motivation, while the independent variables divided into 3 (three), namely comics books, textbooks and modules. As a sample of schools that are being used as an experiment is Open Junior High School 4 Pemalang, Tegal Adiwerna Open Junior High School and South Tangerang Open Junior High School. The instrument used was a questionnaire to obtain data learning motivation and objective tests to collect data learning outcomes. The hypothesis was tested with a final analysis using analysis of variance (ANOVA) in both directions, namely: the F test.

The results showed there are differences in learning outcomes between students taught with comics as learning resources than the modules, there are differences in learning outcomes between students taught with comics as learning resources than textbooks resources, and there are differences in learning outcomes between students who are taught by a modules as learning resource than textbooks, both in the

students high learning motivation and low learning motivation in students.

Keywords: learning resources; motivation to learn; learning outcomes; science subjects; Open junior high school

INTRODUCTION

Open Junior High School is an alternative education for children of junior high school age because of their socio-economic conditions facing barriers to go to school at the regular junior high school. The learning process in Open junior high school unlike in regular junior high school, since Open Junior High School students have much to learn independently with very limited infrastructure and only use the module as a learning resource primarily, but for curriculum and assessment should have the same standards with regular junior high school students, While the regular junior high school students learning with face-to-face classes led by teachers using the textbook as the primary source of learning and learning supported by other media. This constraint appears from the results of an average National Examination from Open Junior High School students are still always under the National Examination results from Regular Junior High School students, especially in science subjects.

Science is the study of the environment, in this case relating to how to find out about the nature systematically, so that science is not just mastery of a collection of knowledge in the form of facts, concepts, or principles, but also a process of discovery. Cain & Evans via Adnanhero (2012: 1) states that the science contains four things : the content or products, processes or methods, attitudes, and technology.

So that no academically gap between Open Junior High School students and Regular Junior High School. The Directorate of Junior High School seeks to improve the quality of education in the Open Junior High School. One of the measures taken is to publish a learning comics science, as a learning resource for the companion learning resources that have been used over the years.

Important factors that affect the success of learning is sourced from the students themselves are motivated to learn. According to Adi (1994: 54), the term motivation is derived from the word motive which is defined as the power contained within the individual that causes the individual to do or act. Motive cannot be observed directly, but can be interpreted in behavior in the form of stimulus, encouragement or power plant emergence of a certain behavior. Motivation to learn can arise because caused by intrinsic factors such as desires and success wishes and encouragement of learning needs, expectations ideals, whereas extrinsic factor is the existence of the award, conducive learning environments and engaging learning activities. It should be remembered these two factors caused by certain stimuli, so that a person wishes to engage in activities to learn more vigorous activity and spirit. (Dailami, 2010: xiv)

Motivation and learning are the two things that influence each other, because learning is a change in behavior be relatively permanent and potentially occur as a result of practice or reinforcement (reinforced practice) which is based in order to achieve certain goals. According to Smith (2003: 2) study concerning the understanding of the world that are interpreted into knowledge. Furthermore Woolfolk (2004: 198) states, learned as a result of experience resulting in a relatively permanent change in one's attitude and knowledge. Changes can be intentional or unintentional, correctly or incorrectly, knowingly or unknowingly. In line with the above opinion according to Driscoll (2002: 59), learning is a change in a person as a result of interaction with the environment, while according Snelbecker (1974: 12), learning can also mean a change relatively permanent incurred as a result of the strengthening exercises

Based on the background of the problems described above, will be conducted research to determine the effect use of learning resources and motivation study on learning outcomes science subjects at Open Junior High School.

RESEARCH METHOD

This study aims to determine differences in the effect of independent variables is a source of learning and motivation toward learning outcomes as a dependent variable. In addition, want to also be known whether there is interaction between the two independent variables that affect student learning outcomes in science subjects

Research experiment was conducted in three (3) Open Junior High School randomly selected from all open schools in Indonesia with the provisions chosen Open Junior High School considered equivalent and obtained a sample of three (3) location of the school, namely 1) Kandanghaur Open Junior High School, Indramayu, West Java. 2) Adiwerna Open Junior High School, Tegal, Central Java. 3) South Tangerang Open Junior High School, Banten.

Experimental design applied was the factorial 3 x 2 in which the independent variable attribute motivation to learn is categorized into two, namely high learning motivation and low learning motivation, while the independent variable treatment that learning resource is divided into three (3) that is a source of learning comics, learning resources module and learning textbooks source.

Data collected by the motivation to learn the technique of non-test the questionnaire instrument and data collected with the science learning outcomes test technique with instruments in the form of an objective test hypotheses tested by the end of the analysis using analysis of variance (ANOVA) in both directions, namely: Test F. Further analysis conducted by Dunnett t test (two-sided)

RESULT AND DISCUSSION

Descriptive analysis of the results shown in Table 1 demonstrate that the learning outcomes science from high motivation group of students who use the textbook as learning resources have the highest average value that is equal to 25.36 while the use of learning resources Comics and Module respectively by 21.64 or no difference. But in the group of students with low learning motivation average value of the use comics of learning resources was 18.45 higher than that using a modules source of learning that average is only 14.82 while those using the textbook as learning resources at the low motivation group continues to have the highest average value at 21.36. Overall good on the high motivation and the low motivation of the average value of the results of learning science that uses comic learning resources are 20.05, the module is 18.23 and the average textbooks is 23.36, meaning that there are differences in learning outcomes among the three groups which uses the different learning resources. Whereas in total there are differences in learning outcomes in students with high motivation group that averaged 22.88 while the low motivation group average of study results is 18.21.

Based on the table 2 can be seen that the main effect on variable learning resources that $F_0(A) = 6853$ with a $p\text{-value} = 0.002 < 0.05$, or H_0 is rejected, it means that there are differences in the ability of science learning outcomes between comics learning resources, modules and textbooks. While $F_0(B) = 16.502$ with a $p\text{-value} = 0.000 < 0.05$ means H_0 was also rejected. Thus means that there are differences between science learning outcomes of high motivation group with low motivation group of students.

The interaction influence between learning resources and motivation to learn shown by $F_0(AB) = 0.919$ with a $p\text{-value} = 0.404 > 0.05$ or H_0 is accepted, meaning that there was no significant interaction effect between learning resources and motivation toward science on the ability of learning outcomes Open junior high school students. It appears that the major effect of variable sources of learning, motivation to learn and the interaction of learning resources and learning motivation to learn science is the result of 34.8%.

CONCLUSION

There is a difference in learning outcomes between students taught with comics as learning resources comic than the modules, there are differences in learning outcomes between students taught with comics as learning resources than textbooks, and there are differences in learning outcomes between students who are taught by modules as learning resource than textbooks, either on high learning motivation students and low learning motivation students

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Table 1 : Descriptive Statistics

dependent Variable:POSTTEST

| LEARNING RESOURCES | MOTIVATION | Mean | Std. Deviation | N |
|--------------------|-----------------|-------|----------------|----|
| COMIC | HIGH MOTIVATION | 21.64 | 5.240 | 11 |
| | LOW MOTIVATION | 18.45 | 5.336 | 11 |
| | Total | 20.05 | 5.411 | 22 |
| MODULE | HIGH MOTIVATION | 21.64 | 2.976 | 11 |
| | LOW MOTIVATION | 14.82 | 5.344 | 11 |
| | Total | 18.23 | 5.477 | 22 |
| TEXT BOOK | HIGH MOTIVATION | 25.36 | 2.767 | 11 |
| | LOW MOTIVATION | 21.36 | 5.446 | 11 |
| | Total | 23.36 | 4.686 | 22 |
| Total | HIGH MOTIVATION | 22.88 | 4.114 | 33 |
| | LOW MOTIVATION | 18.21 | 5.872 | 33 |
| | Total | 20.55 | 5.553 | 66 |

Table 2 : Tests of Between-Subjects Effects

Dependent Variable:POSTTEST

| Source | Type III Sum of Squares | Df | Mean Square | F | Sig. |
|--------|-------------------------|----|-------------|---|------|
| | | | | | |

| | | | | | |
|-----------------|----------------------|----|-----------|----------|------|
| Corrected Model | 697.818 ^a | 5 | 139.564 | 6.409 | .000 |
| Intercept | 27859.636 | 1 | 27859.636 | 1279.388 | .000 |
| A | 298.455 | 2 | 149.227 | 6.853 | .002 |
| B | 359.333 | 1 | 359.333 | 16.502 | .000 |
| A * B | 40.030 | 2 | 20.015 | .919 | .404 |
| Error | 1306.545 | 60 | 21.776 | | |
| Total | 29864.000 | 66 | | | |
| Corrected Total | 2004.364 | 65 | | | |

a. R Squared = .348 (Adjusted R Squared = .294)

Forms, Development and The Application of Music Media in The Kindergartens: A Comparative Study of Two Kindergartens in Semarang

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Abstract - This study was aimed at investigating the form of music media employed in the teaching and learning process (TLP) in the kindergartens, and the teachers' effort to develop and apply music media in the TLP. The researchers used a qualitative approach. The research was conducted in TK Hj. Isriati Baiturahman and TK Negeri Pembina Semarang. The subjects of the study were principals, teachers, staffs and students. In collecting the data, the researchers used three different techniques: interview, observation and documentation. Then, the researchers used data reduction, categorization and data interpretation to analyse the data. The result shows that the teachers in both schools have utilized varied music media in the TLP. In TK Hj. Isriati, the teachers used music media in the form of music composition and electronic equipment; and the new music instruments were used by the teachers in extracurricular activities. Meanwhile, the teachers in TK Negeri Pembina utilized music media including music composition, music instruments and electronic equipment. The development of music media by the teachers was done by modifying lyrics, composing simple songs, utilizing rhythmical music instruments and employing electronic equipment in the TLP.

Keywords: *form, media, music, kindergarten*

INTRODUCTION

The implementation of teaching and learning process (TLP) in kindergartens has never been apart from musical activities even though it is still in the form of singing. This activity is conducted either inside or outside of the classroom (see Syahrul, 2010; Moeslichatoen, 2009: 12-13). Musical activities, as a kind of teaching and learning process in the kindergarten and a combination of various areas are expected to support the outcome of teaching and learning objectives in the kindergarten.

To create musical activities such as listening to music, singing, playing simple music instruments and others which are meaningful to the students, it needs teachers' skills to develop a plan and an implementation in the TLP. Some of the critical issues related to the teachers' skills concern: (1) the ability to determine the appropriate music experiences which relate to the themes and development aspects in the kindergarten, (2) the ability to design musical activities to be implemented, (3) the ability to determine kinds of music and songs that will be used as teaching media, and (4) the ability to define and use music instruments that support the learning process.

Based on the explanation above, the research questions are outlined as follows: (1) how is the music media used in the TLP to be implemented in the kindergarten? and (2) how do the teachers develop and apply music media in the TLP in the kindergarten?

Musical activity is an important role in the kindergarten education program. Froebel, an expert of kindergarten believes the values of musical experiences for the students as written in his book, *Mother Play and Nursery Songs*. Based on his opinion, the students should be given as much singing and playing experiences through singing activities.

Moreover, Anderson (2004:1-2) states that the kindergarten students are the most original composers. They create more music, explore it carefully, use more consistent and spontaneous music, and have a stronger motivation on music compared to the students in the higher level (adolescence).

Music, as one of the important activities in the TLP in the kindergarten is considered to affecting the children personal development which involve some development aspects such as motoric, language, emotional, social, and intelligence. In addition, it is also due to the music as a part of children's life, cultural heritage, and it is as tools to express themselves (Moeslichatoen, 2009: 12-13).

The scope of the TLP in the kindergarten involves behavior formation through the implementation of moral development of Pancasila, religion, discipline, feelings/emotions, and social skills, as well as the development of basic skills through activities prepared by the teachers which include the development of language skills, critical thinking, creativity, skill, and physic.

To achieve the goals of the TLP in the kindergarten, the teachers have established varied themes. The themes are (1) I, (2) senses, (3) family, (4) houses, (5) schools, (6) food and drink, (7) clothing, (8) cleanliness, (9) plants, (10) vehicles, (11) occupation, (12) recreation, (13) water and air, (14) fire, (15) countries, (16) communication tools, (17) natural phenomena, (18) sun, moon, stars, and earth, and (19) life in cities, villages, coastal areas and mountain (Moeslichatoen, 2009: 13-14).

The varied themes are delivered to the students through integrated activities by including music as one of the components. Music activities such as listening music, responding music with its rhythmical motion, singing, reading music notation, and playing simple musical instruments are the activities in the TLP, the purpose of which is to establish behavior (especially through messages of the lyrics), and to develop their basic skills such as creativity, language, thinking, skill, and physics (through melody, rhythm, harmony, lyric and expression) (Safrina, 1999: 125-166).

In order to achieve its objectives, it needs the teachers' skills to develop and apply the existing music media. The media are anything (hardware and or software) which relate to music, applied as teaching media since they can stimulate the students' thinking, feeling, attention and willingness to promote effective and efficient TLP. In the context of teaching and learning process in the kindergarten, it emphasises on the process (not the goal).

Music media can be divided into three main forms: music composition, music instruments and electronic equipment. The composition of music is in the forms of music vocal, works of instrumental music, or a mixture of both. Based on the character, the instrument can be classified into two types: musical rhythmic and melodic instruments. The rhythmic musical instrument is a musical instrument that can only be used as a rhythmical support. For example, it can be seen from drums, drum, tambourine, castanet, guiro, cymbals, and others. Furthermore, melodic music instrument can function not only to support but also to play melody. For example it can be in the forms of flute, pianika, glockenspiel, guitar, harmonica, and others.

Based on the sound sources, music instruments can be divided into several groups: (1) an instrument derived from human (limbs) such as clapping, pounding feet, excerpting fingers, and others, as well as human voice for more specific, (2) idiophone instruments such as calung, xylophone, marimba, glockenspiel, chimes, maracas, tambourine, castanet, triangle, guiro, etc., (3) aerophone instrument, such as flute, clarinet, saxophone, trumpet, trombone, pianika, harmonica, etc., (4) membranophone musical instruments such as stringed drum, bass drum, bongo, conga drum, drums, terbang, etc., (5) cordophones instrument such as guitar, mandolin, violin, zither, piano, harp, fiddle, etc., and (7) electrophone musical instruments such as electronic organ, electone, synthesizer, sound effects, electric guitars, and others (Pono Banoe, 1994; Safrina, 1999: 15-18).

Electronic equipment included as music media (hardware) are radio, tape recorder, television, cassettes music recorder, music CDs, music VCD, MP3, LD music, sound system and others. Some of those can be used as media for listening or watching music (Rinanto, 2005: 44-63).

RESEARCH METHOD

The study used a qualitative approach. The setting of the study was at TK Hj. Isriati Baiturahman and TK Negeri Pembina Semarang. The principals, teachers, staffs and students became the subject of the study. To collect the data, the writer used interview, observation, and documentation. The qualitative data was analysed for its validity using the degree of trustworthiness, triangulation and also theory. The technique to analyse data used three phases. They were data reduction, categorization, and data interpretation (verification / conclusion).

RESULT AND DISCUSSION

The Application of Music Media in the TLP in TK Hj. Isriati Baiturahman

The forms of music media including: (1) music composition, (2) music instruments, and (3) electronic equipment have been implemented as a part of the TLP in TK Hj. Isriati Baiturahman. The utilization of those music media could be seen from their varied activities. Vocal works like children's songs have always been used as teaching media in the pre activity for 30 minutes started from 07:00 to 07:30. It was held in the hall attended by all students in class A at the same time (A1, A2, A3, and A4). Not only to support pre activity, the children's songs were also used for other purposes such as to strengthen messages for the students and to improve students' vocal skills (singing lesson).

In addition, there were also some other TLP that utilized music composition such as musical composition and instrumental mixture. Based on the data, the use of music instrument as teaching media in TK Hj. Isriati was implemented in the extracurricular activities. Classroom teachers or the students only used clapping hands in their pre activity, main activity, post activities and singing activity to support the TLP.

There were various numbers of musical instruments used in the extracurricular activities, among others were: (1) a set of musical instrument drum band, (2) a set of angklung musical instrument, and (3) keyboard to support singing activities. There were some activities in which electronic equipment was used in TK Hj. Isriati such as (a) before the class began around 6:00 to 7:00, the teachers used music media to welcome the students' arrival and when students were playing outside while waiting for the bell rang. It was the recording of children's songs in the form of either instrument or mixture (vocal with musical accompaniment). In doing so, the teachers played the songs using a tape deck with its sound system in order all students could listen, (b) teachers also used electronic equipment as the teaching media in the TLP on pre-activity, main activity and post activity. The electronic equipment used by the teachers during the pre activity in the hall were a mic wireless and a big tape functioning as sound control. When the TLP

was held in the classroom, the teachers also used loudspeakers such as mic wereles, amplifier and speaker.

Those employing electronic equipment as music media in the TLP in TK Hj. Isriati were the teachers teaching dance and music. On the dancing activity, the electronic equipment used as music media was tape and cassette recorder as musical accompaniment. While in the music learning activities, there were a keyboard (Roland EM 25) and two electrical equipments, a tape as sound control and mic wereles for students to sing in turns.

The Effort of Teachers to Develop and Apply Music Media in the TLP in TK Hj. Isriati Baiturrahman Semarang

An effort to develop music media in the TLP undertaken by the teachers in TK Hj. Isriati was still by using music composition media in the forms of childrens's songs and sound system. The development of children's songs could be seen while the teachers were doing improvisation of the lyrics and the TLP. It happened when they found interesting things or events that needed appropriate songs with their proper lyrics to reinforce the atmosphere of the TLP. Beside modifying the lyrics, the teachers also created their own songs.

On the other hand, to develop electronic equipment in the form of sound system as teaching media in the pre-activity, main activity and post activity the teachers always utilized the existing sound system. It was due to its precision tone, rhythm and articulation in reciting the lyrics by the teachers in order the students could hear and follow.

The Implementation of Music Media in TK Negeri Pembina Semarang.

Similar to TK Hj. Isriati, music media were in the forms of (1) music composition, (2) music instruments, and (3) electronic equipment which have become an important part of the TLP. The details are as follow:

The utilizaion of music compositions as teaching media in TK Negeri Pembina involved vocal, instrument and mixture works. Vocal works in the forms of children's songs were always used as teaching media while the students were doing pre-activity at 07:00 in the morning.

Moreover, the teachers also used mixture works in the main activities. For example, the students were doing some ativities such as drawing, coloring and sticking. Meanwhile, the teachers also played children's songs to accompany the students' activities. Then, the teachers of TK Negeri Pembina kalso utilized music composition both instrumenal and mixture music especially by those teaching dance. They used it as accompaniment "move and song" for class A. Furthemore, the teachers used folk and "dolanan" songs to accompany "move and song" learning for the male students of class B.. For the female students of class B, musical composition for gamelan (gending) was used as learning accompaniment since the teaching material was the new dance creations.

Both classroom teachers in their main classes and art teachers in their classes in TK Negeri Pembina used isnrumental music. The classroom teachers in their pre-activity, main activity and post activity in the classroom utilized a number of music instruments such as (1) castanet, (2) maracas, (3) triangle, and (4) tambourine. Meanwhile, the art teachers used two main music instruments: a set of kulintang and angklung instruments. There were two main activities which utilized electronic equipment in TK Negeri Pembina: (1) at the TLP conducted by all classroom teachers and (2) at the TLP of music. The details are outlined as follows:

The use of electronic equipment as music media by the classroom teachers were conducted in the pre-activity, main activity and post activity. Mini compo as one of electronic equipment was used not only to play children's song recording to accompany the students while they were doing several activities such as drawing, coloring, cutting, etc. but also to play cassette recorder either instrumental or mixture works in the rhythmic and physical activities.

The use of electronic equipment as music media in the art learning was conducted by the art teachers. The equipment was a tape deck or tape mini compo available in each class. It was to play music as accompaniment in the motion and song TLP, "dolanan" dance and new dance creations.

The Effort of Teachers to Develop and Apply Music Media in the TLP in TK Negeri Pembina Semarang

To develop music media which related to problems of choosing media, the use of varied media and teachers' creation in utilizing music media in TK Negeri Pembina were conducted by modifying the lyrics of the existing children's songs and creating simple songs of their own. The lyrics were adapted based on the existing themes in the TLP.

Finally, to develop the utilization of music media was done by developing rhythmic instrument including: 1) castanet, (2) triangle, (3) maracas, and (4) tambourine as well as tape recorder while the students were doing a number of activities such as drawing, sticking, cutting, coloring, printing and others.

CONCLUSION AND SUGGESTION

Conclusion

The use of music media in the forms of: (1) music composition, (2) music instrument, and (3) electronic equipment has been conducted by the teachers both in TK Hj. Isriati and TK Negeri Pembina Semarang.

Music media in the forms of vocal, instrument and mixture works have been done by the classroom teachers in the TLP in TK Hj. Isriati Baiturrahman Semarang. Otherwise, music media in the forms of instrument was still limited only by the use of natural instrument such as clapping. The use of musical instruments avaiable in the

school was only conducted by extracurricular teachers such as singing, angklung and drumband. Electronic equipment such as sound system, tape recorder, cassette recorder have already been used by the classroom teachers both before the class started and in the TLP inside the classroom started by pre activity, main activity and psot activity by utilizing sound system as the loud speaker.

To develop the utilization of music media by the teachers in TK Hj. Isriati can be seen by their courage to modify the original lyrics based on the learning situations. Beside, they also created new songs based on the school needs and creations to utilize electronic equipment in many TLP.

On the other hand, music media in the forms of vocal, instrumet and mixture works have also been utilized by the classroom teachers in the TLP in TK Negeri Pembina Semarang. It was not only limited to use the natural instrument such as clapping, but also rhythmic instrument such as (1) castanet, (2) triangle, (3) maracas, and (4) tambourine. Then, the other music instrument was still used by those teaching music art. Finally, tape and cassette recorders as electronic equipment were used during rhythmic activities performed in the pre-activity, main activity and post activity.

The effort to develop the utilization of music media in TK Negeri Pembina was shown by the courage to modify the lyrics, to create simple songs, and to utilize rhythmic music instrument in the rhythmic and singing activities. Not only tape and cassette recorders, music media was also utilized to support the TLP in the classrooms.

Suggestion

Based on the result, the classroom teachers should apply some extracurricular activities and the existing music subjects as media to learn music by which they can utilize the existing facilities optimally to support some of the TLPs.

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Creativity of Students in Creating Ornaments/Accessories Hair with Waste Material

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Abstract— This research aims to develop the work and new products, innovative creative, and gives a new understanding that the waste can be maximized made products that have aesthetic value, conservation and economics. This research is descriptive and sample in this research is student class of 2012 beauty procedures that have been through the course of hair piece so-called population research. Data collection technique used to test the performance appraisal form by using a Likert scale. Test the validity of the instrument using the product moment with valid results. While the use of inter-rater reliability test with a reliable level of 0.838. Analysis techniques using descriptive statistics with percentages. The results showed that (1) Design and product accessories / decoration bun and brooches overall prioritize aesthetic aspects and also aspects of conservation included in both categories (83%) 2) the level of creativity of the students are in the creative category (93%), while 3) engineering manufacture in realizing the idea and create works relatively well (77%) as well as in 4) tidiness and completion included in the category fairly good (77%), this is possible because the less scrupulous and careful, especially in the sweepings and the direction of the hair fiber. Product is expected to encourage the creativity of the students to constantly develop and improve ideas, in addition to making the environment more healthy if managed properly can become small and medium enterprises are progressive even waste utilization process capable of creating jobs.

Keywords: hair waste, student creativity, decoration / accessory

INTRODUCTION

Waste is waste resulting from a production process both industrial and domestic (household, better known as trash), whose presence at a particular time and place unwanted environment because they do not have economic value (Erika, 2014: 5). There are several types of waste that can be used directly or carried by a particular process.

Proper utilization of waste in addition to making a healthier environment can also help the economy get better. Garbage collection process that still has value for reusable called recycle. Utilization of waste, especially through recycling method implemented in many household scale. If managed properly can become small and medium enterprises and even the progressive utilization of the waste able to create jobs as well.

Similarly, hair waste, which is waste or scraps of hair salons, which is usually after the cutting process thrown away. Human hair pieces obtained from the salon

is still largely a waste that has not fully exploited its use. But according to some research results of hair waste can be used as a catalyst or a heat shock. In addition waste or residual haircut is usually used as raw material for making the bun, but in this study, waste or residual researchers haircut will be used as an accessory / decoration bun or as a brooch complementary fashion.

Based on these conditions, the problem that arises is: how student creativity in creating ornaments / accessories with waste materials hair?

CONCEPT CREATIVITY, ACCESSORY AND HAIR WASTE

Creativity is a skill that is based on the intellectual abilities such as intelligence, aptitude, skills learning outcomes which are also supported by a factor of affective and psychomotor. In addition to being someone who still need a productive creative potential that comes from personality characteristics and a conducive environment. Through the creation of a conducive learning atmosphere learners will be able to develop the activity and creativity of an optimal learning according to his ability. This is also confirmed by Utami Munandar (2004: 12), that creativity is the result of the interaction between the individual and his environment. Someone affect and are affected by the environment where it is located, thus the change in the individual and in the environment can support or can hinder creative effort. The implication is that creative ability can be improved through education. In line with this concept of creativity is based on the basic functions of thinking, feeling, sensing copyright talen, and intuition (Conny R. Semiawan, 2002: 60).

According to George Land, creativity is a skill that can be developed and a process that can be managed. Learning to be creative like doing sports. It requires training to develop correct muscle and engaging environment to develop it (Linda Naiman, p.3). This means that creativity can be developed through intensive exercises, because the creativity is one person's intellectual ability or thinking. Creative thinking exercises can be done through general knowledge or specific knowledge. Various ways, techniques or strategies that can be used to improve the ability to think creatively.

Increase creativity is also done on the student system in an effort to create ornate beauty / hair accessories from

waste materials. Accessories are items that serve as a complement and sweeteners fashion. Objects that add beauty to the wearer, such as hair bands, combs, headbands, hairpins ornamental, tie clip, cufflink (manchet), earrings, necklaces and pendants, bracelets, anklets, watches, glasses, rings, brooches, crown (KBBI).

In use the accessories need to be selected and tailored to apparel / clothing worn, time and chance upon use. It also needs to be adapted to the body shape, face shape and color of clothing. (Arifah A. Riyanto, & Liunir Zulbahri, 2009).

Based on the types and kinds of accessories that can be used, the accessory chosen in the study only decoration bun and brooches, it is based on the basic ingredients of hair waste obtained so chosen form of rather large.

While waste is discarded objects, either from nature or from the results of the technological process. Waste can be a pile of junk, the rest of the manure, crops, or vegetables (Erika J, 2014: 5). Based on the level of danger posed by the waste poisoning depends on the type and character. Waste has characteristics: a) micro-sized, b) dynamic, c) broad impact (the spread), d) Long-term impact (between generations). According to the type of waste is classified based on the source:

1. Organic Waste perishable. Example: leftover vegetables, food scraps, leaves, grass clippings and manure
2. Organic Waste that is not perishable. Example, paper and wood
3. Anorganic Waste. Example: plastic, glass, rubber, glass, bottles, and iron.
4. Hazardous Waste. Example, nails, a used fluorescent lamps, residual poison rats or insects, expired drugs and rock used batteries.

By its nature, the waste can be divided into two groups:

- Waste can change naturally (degradable waste = readily biodegradable). Ie waste that can be decomposed by bacteria and fungi, such as leaves, food waste, dirt, and others.
- Waste that will not / very slow changes naturally (nondegradable waste = not biodegradable). For example, plastic, glass, cans, and trash like.

Based on the definition, nature and characteristics of the waste, the hair waste is included in the organic wastes that are not easily decomposed, solid waste and waste that do not belong to the will / very slow changes naturally (nondegradable waste = not biodegradable).

For the treatment of hair waste is recycled done. Recycling is a process to make a scrap materials into new materials with the aim of preventing the waste that can actually be something useful, reducing the use of raw materials are new, reduce energy use, reduce pollution, land degradation, and greenhouse gas emissions when compared with the process of making new stuff.

Process Recycling is one strategy of solid waste management which consists of the activities of sorting, collecting, processing, distribution and manufacture of products / materials used, and the main component in the

management of modern waste and the third part in the process hierarchy garbage 4R (Reduce, Reuse, Recycle, and Replace).

In utilizing the residual waste which is the result of hair haircut in the salon recycling process to be performed is the reuse of the same material into different products through a certain process becomes decoration / accessory hairpin and brooch. So, recycling is the reuse of material into different products.

WASTE CREATIVITY CREATION HAIR ACCESSORIES

A. Stages Student Creativity

Wallace explained at the beginning of the process of creativity is ranked collect and assemble the data and materials necessary for the completion of the problems or something creative thinking. At this rank is also an individual that needs to be sensitive to the problems or issues to be tried solved. The creative process includes four phases:

1. Preparation, preparing to solve the problem by collecting data / information, studying the pattern of thinking of others, ask others.
2. Stage Incubation, at this stage of information gathering is stopped, individual escape for a while the issue. He did not think about them consciously, but "precipitate" in pre-conscious nature.
3. Stage Illumination, this stage is the stage of the emergence of "insight" or "Aha Erlebnis", when the onset of inspiration or new ideas.
4. Verification Phase, this stage is the stage of testing new ideas or creations of reality. Here the necessary critical thinking and convergent. The process of divergence (creative thinking) must follow the convergence process (critical thinking) (Wallace)

Stages in the creative process is also done by the students in creating trimmings / accessories and hair brooch of materials, phases increase the creativity of students as follows:

1. Preparation:
 - In this phase the students are given the theory of utilization of waste hair thoroughly and given examples of how to manufacture, examples of real objects, pictures or photographs. The next stage students are required to demonstrate ideas, ideas and creativity to make the design decoration / accessories chignon or bun brooch by type and arrangement
2. Implementation:
 - At this stage the student must embody ideas, ideas and creativity to make ornaments / accessories bun or chignon brooch according to the type and arrangement and with regard to the manufacturing procedure.
3. Completion
 - Stage of completion in the manufacture of trimmings / accessories hairpin or brooch is the final step necessary with the addition of ornaments or decorations that results in accordance with a design that has been made.
4. Evaluation

- An assessment of the results of the manufacturing stage decoration / accessories bun or hair brooch from waste materials comprising: a) Design, judging from the shape created; b) creativity, according to the type of bun and arrangement; c) making techniques, based on processing procedures; d) completion / tidiness, the final result as a whole

B. The process of making the hair Waste Accessories

Hair waste obtained from the waste results from a beauty salon haircuts and grouped on the results of the long and the short haircut. Based on the results of short length haircut that will determine the shape or size of the accessories will be created.

Equipment and Materials Manufacturing Waste Hair Accessories :

- a. Haircuts
- b. Comb
- c. Glue
- d. Aluminum foil
- e. Rubber binder
- f. Pot and stove
- g. Towel
- h. Hair dryer
- i. Hairspray (black, neutral)
- j. Duck flops, flip stick, smooth hairpin
- k. Beads, feathers, pin or other appropriate complementary design

Hair Waste treatment stages:

1. Separation and binding

Classified by length of the short hair for ease in processing due to the irregular form of the hair, then tied up and combed for men get regular results.

Figure. 1. Separation and grouping Hair Waste



2. Removal of dirt

Hair Waste boiled to remove impurities contained in hair oils that are likely to exist and soften hair follicles obtained considering the waste consists of various types of hair is oily hair, dry both straight and curly. In addition, to reduce the odor that exist.

3. Drying and combing

Once boiled over towel -dried hair for weeks to facilitate drying while combed towels seep water to tidy haircut and facilitate the next process.

4. Neatness

Prepare for footwear manufacture aluminum foil then trim haircut with sweeping then ironed. That hair is easily

formed then after ironed smeared with glue to get a form of hair neat and rigid. Dry quickly so that the glue can be aided with a hair dryer, then fold the edge of the aluminum foil weeks to try curling hair and allow some time to get the hair straight and stiff. Hair width adapted to the design to be created.

5. Preparation of appropriate design

Results tidiness of aluminum foil if it is dry can start to be made according to the desired design. When hair is plaited select the width of the small but if necessary set up should be cut according to the desired design.

6. Finishing

In order to maximize results and create a durable, which means the hair fibers are not easily separated as well as get a neat shape then spray hairspray black or neutral color and decoration give the sweetener according to the function as a garnish bun or brooches. If it is necessary to broach pinned with safety pins and if used for decoration bun it needs to be mounted on a comb hair comb or barrette given.

RESULTS OF STUDENT CREATIVITY

Data collection technique used performance tests were carried out starting from the assessment

- a. Preparation namely: Preparation of Design, which is based on the selected source of ideas for making ornaments / accessories hairpin or brooch
- b. A process which embodies the creativity / source of ideas that should be in accordance with the type of bun and arrangement
- c. Preparation technique that looks at the sweep / direction of the hair fiber, the process in accordance with the procedures, adhesion
- d. Completion / final results, consisting of neatness, completion of appropriate design

Analysis techniques using descriptive statistics with percentages show that:

- a. Design and product accessories / decoration brooches overall bun and prioritize aesthetic aspects and also aspects of conservation included in both categories (83%), it is evident from the designs are made according to the type and the type of bun planned;
- b. The level of creativity of the students are in the creative category (93%), it is shown in the form of ornaments and the use of complementary beautify bun ornaments and brooches
- c. Making techniques in realizing the idea and create works relatively well (77%), is seen in the sweep, the direction of fibers, adhesion and loading according to the procedure.
- d. Tidiness and completion included in the category fairly good (77%).

CONCLUSION

Overall creativity of the students showed good results it is seen from the variation of the design are realized in the accessories / decoration bun and brooches.

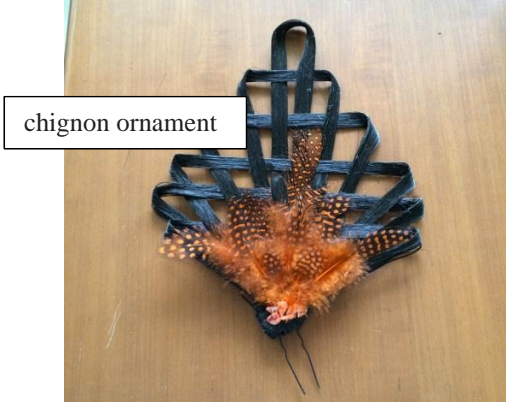
Figure 2. Results of Student Creativity



brooch



chignon ornament



chignon ornament



chignon ornament



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TABLE : RESULTS OF CREATIVITY STUDENTS IN MAKING ACCESSORIES / ORNAMENTS HAIR WASTE

| No | Name | Desain | Kreativity | techniq | tidiness | Score | % |
|----|----------------|--------|------------|---------|----------|-------|-----|
| 1 | Evi Nor | 3 | 4 | 2 | 3 | 12 | 75% |
| 2 | Eris Ambarsari | 3 | 4 | 2 | 3 | 12 | 75% |
| 3 | Ani Maghfiroh | 3 | 4 | 3 | 4 | 14 | 88% |
| 4 | Novi Adriyana | 4 | 4 | 4 | 3 | 15 | 94% |
| 5 | Richkinanda | 4 | 4 | 2 | 3 | 13 | 81% |
| 6 | Nunik | 4 | 4 | 3 | 4 | 15 | 94% |
| 7 | Isnaini Riyadi | 4 | 4 | 4 | 3 | 15 | 94% |
| 8 | Nurul Hakiki | 3 | 3 | 3 | 3 | 12 | 75% |
| 9 | Kiki Mujati | 3 | 4 | 3 | 3 | 13 | 81% |
| 10 | Erma | 4 | 4 | 2 | 3 | 13 | 81% |
| 11 | Wieke Dewi | 4 | 4 | 4 | 3 | 15 | 94% |
| 12 | Paramita Tiga | 4 | 4 | 3 | 3 | 14 | 88% |
| 13 | Difa Nabila | 3 | 3 | 4 | 4 | 14 | 88% |
| 14 | Siti Sukesi | 3 | 4 | 4 | 3 | 14 | 88% |
| 15 | Khoirunisa | 3 | 3 | 3 | 3 | 12 | 75% |
| 16 | Venty | 4 | 4 | 2 | 3 | 13 | 81% |
| 17 | Dewi Irfaul | 3 | 4 | 4 | 4 | 15 | 94% |
| 18 | Istiqomah | 4 | 4 | 2 | 3 | 13 | 81% |
| 19 | Dyah Ayu | 4 | 4 | 4 | 3 | 15 | 94% |
| 20 | Puput | 3 | 4 | 4 | 4 | 15 | 94% |
| 21 | Nur Fitri | 3 | 3 | 3 | 3 | 12 | 75% |
| 22 | Uswah Azizah | 3 | 3 | 3 | 3 | 12 | 75% |
| 23 | Rizqi Aghnia | 2 | 3 | 3 | 3 | 11 | 68% |
| 24 | Hening Jiwanti | 4 | 4 | 2 | 2 | 12 | 75% |
| 25 | Siti Nurlaekah | 4 | 4 | 4 | 3 | 15 | 94% |
| 26 | Indah Luky | 3 | 4 | 3 | 3 | 13 | 81% |
| 27 | K.Larasati | 2 | 3 | 3 | 3 | 11 | 68% |
| 28 | Nilkhla | 3 | 4 | 2 | 2 | 11 | 68% |
| 29 | Sofia Asyifa | 3 | 3 | 4 | 3 | 13 | 81% |
| 30 | Rima Shofyani | 3 | 3 | 3 | 3 | 12 | 75% |
| 31 | Ayu Umi | 3 | 4 | 3 | 3 | 13 | 81% |
| | | 103 | 115 | 95 | 96 | 416 | |

Song as A Means to Convey Educational Messages for Preschool Students

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Abstract - Children songs considered to be useful to be used as one an effective teaching media to convey educational message for students in every school level, especially, preschool students. In relation to that, children's songs seemed necessary to be created and used to convey educational messages for preschool students. This study was aiming at (1) obtaining an overview of concrete and definite about the need for a children's song with the theme of education used by teachers to convey educational messages to students, (2) finding out certain ways to use the songs to convey educational messages for the students, (3) realizing children's songs with the theme of education to be used as a teaching medium in conveying educational messages to students, especially for preschoolers. Method employed in this study was developmental research by using need analysis of the field through observation, interview, as well as conducting need analysis related to the learning implementation for preschool level. Data from field studies were used as materials which later would be realized in the form of children's songs that could be used as a teaching medium to convey messages on children's education. Results showed that (1) Children's songs with the theme of education were considerably needed by school to convey educational messages for the students. (2) The children's songs were used by the teachers to convey educational messages for students in which the implementation was conducted through singing together and singing while illustrating the messages of songs through body movements. (3) The educational-based children's songs had been successfully created and the content had been in line with the school curriculum.

Keywords: *education, song, children, preschool, educational message*

INTRODUCTION

Children songs are started to take part in a more important role in education for preschool students. It is because naturally children tend to not be able to analyze phenomenon that requires reasoning behind it. Children in their early age relatively have more sensitive feeling since their brain is dominantly occupied by their right brain hemispheres. Therefore, through songs, children will be happy in listening and singing since their feeling influences their action more if it is compared to their logical maturity.

Song or music has a significant role towards the human physical and mental growth. Songs are considered to be very important in increasing human's emotional intelligence and logic. In fact, a famous scientist like Einstein also loved music and set his heart on it. He even enjoyed playing violin. Music also can activate the right brain hemisphere that is associated with creativity. In addition, it is also can activate the left brain hemisphere that closely connected with the formation of children intelligence in formal education. The

actor of education in Indonesia, Ki Hajar Dewantara also believed the importance of music and how it is necessary to introduce music to students in their early childhood.

In Indonesian context, especially for preschool education, it is stated in the curriculum that preschool students have to be able to master at least twenty songs. It proves that the importance of songs to be given in preschool has taken into consideration. Here, surely, the songs that are given at preschool needs to be under the theme of education. In addition to this is the goal of teaching the songs that is not for students to be able to sing, but more to ease the students in understanding the learning materials given by their teachers.

The issues raised in this paper are: First, how important is children songs that contain educational meaning in it for the teachers and students of preschool? Second, how do teachers use the songs to convey educational messages to the students? Third, how the children's songs that can convey the educational message for children are created?

METHODS OF THE RESEARCH

Research Development (R & D) approach was implemented in this research. R & D is a research approach that requires a product as the result of the research. It departs from the results obtained from the mapping needs of field /society. This research adopts and develops research methods by Briggs & Wager (1992) and Bogdan & Biklen (1982). As the developmental research, this research is only the continuation of the previous research conducted by researcher (Wadiyo, 2012 & 2013). Therefore, this study need analysis had been conducted before and this study focuses on the product itself.

This study was conducted in both Semarang and Semarang Regency. The subjects are both the preschool teachers and the students. with preschool teacher and also their children as the research subject. The objectives/ goals of this study in particular is the creation of children's songs with the theme of education to deliver educational messages primarily for preschool children. Songs on the theme of education is seen as the songs that had to be given to the students through the learning process. The targets of this research as a whole are related to: (1) the need towards children's songs with the theme of education used by teachers to convey educational messages to students, (2) the use of songs by the teacher to convey educational messages to students and (3) the creation of the song for the sake of delivering educational messages to the students.

The steps of the study were (1) interviewing the teachers to obtain the certainty of the need of songs, (2) looking at the ability of the teachers to sing during the learning process in the classroom, (3) observing the teachers in conveying the educational message through singing, (4) paying attention to the use of songs by the teacher to deliver the educational message, (5) observing and paying attention to the teacher in explaining the message of the song, (6) observing to what teachers do in singing while giving some verbal explanation according to the songs, and (7) creating songs that can help teachers in delivering the educational message based on the materials created by teachers.

RESULTS AND DISCUSSION

The Schools' Need Towards Children Songs

The schools' (or in this case is preschool) need towards children songs is basically originated from the curriculum used by the school. In the curriculum implemented by preschool, there is an indicator that requires arts to be used as an educational tool. It is considered to be beneficial to support the development of children. The factual implementation of that indicator is through the activity of singing. It is in line with Tarwiyah (2004) who argued that art education is one of education means that is helpful in developing children's positive personality. It is also supported by Carr and Lehrer (2004) who said that art education is ideally started to be given for children in their early childhood when the personality of a child started to be shaped.

Art education is given at preschool is not only used to develop children's personality but also to facilitate the development of children's multi intelligences. It has been proven by Merritt (2003) in his book entitled *Simfoni Otak* that says that music is essential to stimulate the growth of IQ (Intelligence Quantum), EQ (Emotional Quantum) and SQ (Spiritual Quantum) of a child. Further, he argued that music will significantly stimulate those three quantum when it is given for children in their early age.

Moreover in curriculum of arts for preschoolers is the establishment of appreciation and creation education. Through the education of creation and appreciation, it is hoped that students will be able to create and gather a considerable number of aesthetical experience. According to Sumaryanto (2001), if the education of both appreciation and creation is developed well, it will influence the development of children's thought process in other fields as well. In short, the education of creation and appreciation will not only increase the ability of children to create but also to increase the strength of their brain generally.

Furthermore, the reasons explained before have become the consideration taken by the Government in deciding to introduce arts or music since early childhood as an educational tool. The creation education that is given at school through the students' activity is conducted by requiring the students to do art works, although the works

they are doing are relatively simple. Further for the activity of appreciating art works is done by the activity of responding to an art work. It is in line with Triana (2005) who argued that creation education is conducted at school through activities that supposedly done by children themselves, while appreciation education is given by the activity responding the art works. In the art activities, students are asked to create a simple art works by brainstorming their ideas and feelings that is related closely to their life and their environment. In this stage, the sensitivity of the students' senses, their imagination, and their ability in identifying, doing experiment, as well as organizing some art elements are trained.

Mainly, what is done by school in using music or songs in its learning process is not only as an education tool to promote appreciation and creation learning but also as a tool to convey educational message. Teachers usually pick certain songs to convey the educational message. This activity will be responded by children when the songs picked by teachers are suitable with their age. This will lead the children to give their respond towards the arts or in this case is the music. The activity of responding the arts is what we call as appreciation education.

The Use of Children Songs to Convey Educational Meaning

During the real practice of learning in the classroom, not all of the languages used in the classroom is delivered verbally. One way of teaching pre school students is by singing. There are a considerable number of songs that can be used by teachers. However, not all of the songs spread around us have educational messages. Moreover, songs that are used here are the one which the educational message is in line with the curriculum of Indonesian preschools.

In addition of using songs to teach preschool students, teachers are also frequently using poems to teach students. What makes it interesting here is the fact that teachers use rhythm in singing the poem. Thus, the poem is sung instead of read. Here, the way of one teacher in singing the poem will be relatively different from one to another. Those poems were made originally by the teachers to suit the preschool curriculum. The educational themes used here are: myself, environment, my need, animal, plant, recreation, occupation, water, air, fire, communication means, my nationality, and universe.

The Creation of Children Songs with the Theme of Education

The creation of children songs with the theme of education is done by researcher while observing the teachers in the classroom. Researcher, while observing the teachers, create songs as a means of conveying educational message through songs. In the end, several songs were created. the following is several examples of the songs.

CONCLUSION

In relation to the problem happens in a classroom, especially the need of a teachers towards songs, songs that have educational meanings and in line with the school curriculum are considerably needed. Further, according to the problem on how teachers use song to teach, in a reality, it is proven that teachers always sing in giving their lesson. Lastly, according to the need of creating the songs, through observation done by researchers, several songs were created.

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