

Development of accountability for academic performance model based on management information system

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Abstract

Purpose – This study aims to evaluate and develop a model for an internal quality assurance system for school self-evaluation based on a management information system (MIS) for Vocational High Schools based on National Education Standards. MIS has been implemented by the Ministry of Education and Culture of the Republic of Indonesia since 2016, which is called SIAP-PADAMU NEGERI Application. Although that MIS has been running, it still needs analysis and development in terms of both MIS and education management function. The purpose of the development model of self-school evaluation is to manage data and information online, real-time and integrated to control educational quality as a baseline for stakeholders to make further strategic policies.

Design/methodology/approach – This research methodology uses Research and Development (R&D) with a unified theory of acceptance and use of technology as a research approach where research techniques use triangulation techniques. The education management function uses the POAC approach (planning, organization, actuating and controlling).

Findings – The achievement of standar nasional pendidikan (SNP) quality in the education level of Sekolah Menengah Kejuruan (SMK) in Semarang City Central Java Province in 2016 is generally categorized to SNP level 3. Thus, SNP internal quality achievement in SMK education level in Semarang City in the year 2016 has not reached SNP. For SMK education level, the best quality achievement is at the lowest standard of content and quality achievement in the assessment standard. In theoretic integrated MIS model makes it easy in quality data reconnaissance and accreditation school. All of the process flow has been integrated into one framework so as to facilitate the monitoring of internal and external quality of school conducted by stakeholders.

Originality/value – SNP quality achievement in SMK/Vocational High School Education Level in Semarang City is categorized in SNP quality achievement in level of 3 from 5 of SNP. Because of that, the internal quality achievement of SNP in SMK/Vocational High School in Semarang City in 2016 does not reach SNP yet. The achievement of quality for SNP in vocational high school education level in central Java still above of quality achievement of vocational high school in Semarang City.

Keywords Internal quality assurance system, School self-evaluation, POAC, National education standards, Vocational high school, UTAUT

Paper type Research paper



1. Introduction

1.1 Background

Education is the main need of society in development science and the establishment of character. From the education that can increase the quality and level of social life through the skill and knowledge that can be obtained in the level of education in the institution of

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education. Central government has been attempting to make fundamental law for the implementation of guarantee of education quality through The Laws number 20/2003 about the system of National Education. In the implementation of education quality distribution needs standardization in its implementation and control, because of that the central government writes down the standardization in the education sector through the regulation of government Number 32/2013 about education National Standardization as the guidance of implementation for national standardization education program. In the Regulation of Government number 32/2013 be mentioned that there are eight National Education Standard:

- (1) Graduation Competency Standard;
- (2) Content Standard,
- (3) Process Standard;
- (4) Education and Education Manpower Standard;
- (5) Media and Infrastructure Standard;
- (6) Management Standard;
- (7) Education Budgeting Standard; and
- (8) Education Appraisal Standard.

And for accreditation and school quality guarantee in Vocational High School/Sekolah Menengah Kejuruan (SMK) also have been using united management information system (MIS) and for accreditation appraisal calculation model use standard indicator and subindicator of appraisal that have been decided through the guidance of internal and external from Central Government in this matter be represented by Directorate of General for High and Elementary School of The Ministry of Education and Culture of Republic of Indonesia

Based on the data of LPMP Appraisal Result of Central Java Province through Map Report if Educational Quality that has been done in 2016, the map of achievement for standar nasional pendidikan (SNP) of central Java for Vocational High School is about 4,994 and for Vocational High School in Semarang City that consists of 24 school is about 4,875 [Lembaga Peta Mutu Pendidikan (LPMP)].

From data that has been obtained (Table I), the SNP quality achievement in SMK/ Vocational High School Education Level in Semarang City is categorized in SNP quality achievement in level of 3 from 5 of SNP. Because of that, the internal quality achievement of SNP in SMK/Vocational High School in Semarang City in 2016 does not reach *SNP yet*. The achievement of quality for SNP in vocational high school education level in around of cental Java still is above of quality achievement of Vocational High School in Semarang City.

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1.2 The formulation of problem

Based on the result of discussion in the background subtitle can be concluded where the internal quality achievement for SNP in Vocational High School education level in

Table I.

Score of the map of achievement for SNP for education level of SMK of Semarang City 2016

Regency/City	Average Scorea-rata	Description
Semarang City	4,875	To SNP 3
Central Java Provinsi Jawa Tengah	4,994	To SNP 3

Source: LPMP of Central Java province (2016)

Semarang City in 2016 *do not reach SNP yet*. Meanwhile, for process of accreditation and internal and external quality guarantee for school that have united Sistem Informasi Manajemen (SIM) base have been applied by Directorate of General of high and elementary school for the Ministry of Education and Culture Republic of Indonesia have been operating since 2016. Because of that, the formulation of the problem in this research analyzes the quality achievement for the education of the Vocational High School level in Semarang City which does not reach SNP and evaluate the application of accreditation and School internal. After that will be made a final model that answers the problem to educational quality achievement and make it easy the performance of the officer in implementing the process of school quality appraisal.

1.3 The purpose and function of research

The technical purpose of this study is as follows:

- to know and inform the obstacle about the achievement of SNP level for Vocational High School in Semarang City and concept of accreditation and school internal quality guarantee that have united SIM base which is factual for vocational high school base on SNP that have been done by badan akreditasi nasional sekolah madrasah (BAN SM);
- to find out and inform the development of model for concept of accreditation and school internal quality guarantee that have an united SIM which is suitable for appraisal of SNP for accreditation of vocational high school; and
- to know and inform the result from the application of concept of accreditation and school internal quality guarantee that have united SIM base that be suggested in vocational high school level in Semarang City.

Meanwhile, for practical functional that can be obtained from the result of this research, namely, as the incoming material and basic for making the decision for the decision-maker of education policy in deciding the strategy and the direction of policy for the good distribution in reaching the quality of SNP for accreditation of vocational high school.

2. The literature of theories

(1) *Information System*: Information systems can be defined as follows:

- A system made by humans consisting of components in the organization to achieve a goal that is to present information.
- A set of organizational procedures that when implemented will provide information for decision-makers and/or to control the organization.
- A system within an organization that meets transaction processing needs, supports operations, is managerial, and strategic activities of an organization and provides certain external parties with the necessary reports.

2.1 Educational management concept

According to Rahayu (2015, p. 8), school-based management is a management concept that distributes authority to policymakers to encourage participatory decision-making from each policymaker to improve the quality of education based on national policies or regulations.

Based on the above opinion, school-based management is a management concept in which authority is delegated to an educational organization, namely, a school as a unit that has a development function within the scope of decisions made by decision-making in this case the school principal.

2.2 School evaluation

School self-evaluation has four functions:

- (1) planning function, which means that the school can conduct self-evaluation as a basis for planning the activity program within a predetermined period;
- (2) improvement function which can be interpreted to be able to know the strengths and weaknesses of the school so that it can be used as a basis for improvement of the activity program in the following year;
- (3) an enhancement function which means that the results of the evaluation are intended as a basis for making an activity program to improve the quality of the performance of the education unit; and
- (4) an expansion function which means that the results of self-evaluation can be used as a basis for development programs to expand themselves (Nuchron, 2013; p. 84) (Figure 1).

One model of self-evaluation that has been widely used in an organization is the model of achieving the target or congruency model. This model emphasizes the quantification process (quantitative measurement) that compares the achievements that have been achieved with the desired goals. The use of this model has an impact on the difficulty of precisely measuring the impact (impact) of a development process. In general, the use of this model is based on determining clear goals/objectives and is closely related to the determination of minimum needs that must be met by MNR (Minimum Necessary

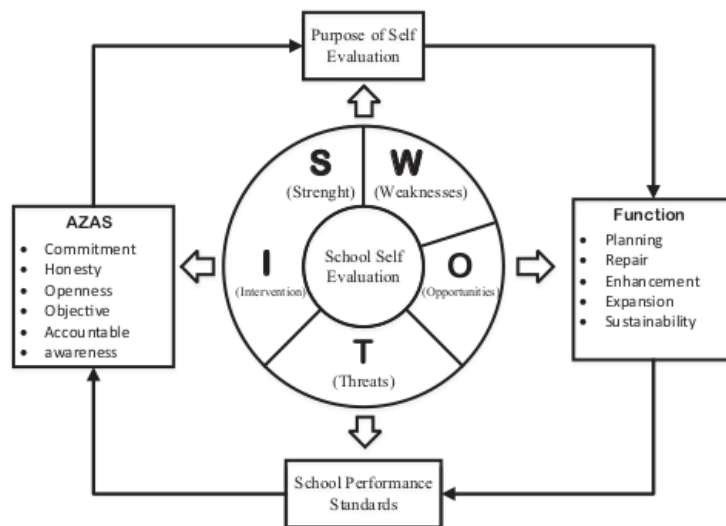


Figure 1.
Rationale for
developing a self-
evaluation model

Source: Nuchron et al. (2013)

Requirement). Determination of MNR for input, process and output is the target of evaluation. The evaluation model of achieving this goal schematically can be seen in Figure 4 and it gives a clear figure of what is meant by inputs, processes and outputs. The illustration, shown in Figure 4, is a model scheme for the education process (Ali, 2015).

2.3 School internal quality assurance system

According to Morley and Rassool (1999) in Botha (2010), the effectiveness of the education paradigm is determined based on three components, namely, leadership, management and organization. Whereas according to Djam'an Satori (1999, p. 3) in Tukiyo (2014, p. 13) explains that a quality assurance system (quality) is a system that consistently demonstrates or shows the products and services produced, have met the specification standards or criteria set and meet consumer expectations. It can be concluded that the system of quality standards, is the process of determining and meeting quality management standards that are consistent and sustainable, so that consumers and interested parties get satisfaction.

According to Vincent Gasperz (2003) in Miftahul (2017), there are several general characteristics of a quality management system:

- (1) *The quality management system covers a broad scope of activities in modern organizations:* Quality or quality can be defined through five main approaches:
 - transcendent quality is an ideal condition towards excellence;
 - product-based quality is a product attribute that meets quality;
 - user-based quality is conformity or provision in the use of products (goods and/or services);
 - manufacturing-based quality is conformity to standard requirements; and
 - value-based quality is the degree of excellence at a competitive price level.
- (2) The quality management system focuses on the consistency of the work process. This often includes several levels of documentation of work standards.
- (3) The quality management system is based on error prevention so that it is proactive, not detection of reactive errors.
- (4) Quality management systems include elements, namely, goals (objectives), customers (costumer), results (outputs), processes (processes), inputs (suppliers), suppliers and measurement of feedback and measurements for feedback and feedforward.

This can be abbreviated as SIPOCOM – Suppliers, Inputs, Processes, Outputs, Customers, Objectives and Measurements.

Further, Maile (2012, p. 326) based on Potgieter, Visser, Van der Bank, Mothata, and Squelch (1997, p. 11) in Karyanto *et al.* (2015) states that school governance is an act of determining policies and regulations that allow a school can be organized and controlled. For The Auditor-General (1988: B2), school governance is the use of the power of management resources. Meanwhile, for Buckland and Hofmeyr (1993, p. 30), school governance is the whole process in which educational policies are formulated, adopted, implemented and monitored.

As for Rifai (2014), a conceptual model for internal quality assurance systems for vocational schools in Yogyakarta Province has four processes starting from:

- (1) the standard preparation process;
- (2) the process of determining procedures for implementing quality;
- (3) the process of implementation and monitoring; and
- (4) the process of evaluating the achievement of quality standards.

Where the conceptual model is integrated with the process with the desired output is quality improvement (Figure 2).

Rifai (2014, p. 2) states that education quality assurance is a series of systemic, planned and integrated activities, through a process of determining and meeting management quality standards consistently and sustainably to provide evidence that the system, process, procedures are in accordance with standards and can give satisfaction to various interested parties. The four stages of this activity have fulfilled the definition of the process of determining and fulfilling the quality management standards to provide evidence that the system, process, procedures are in accordance with the standards they refer to. Equally important is the Internal Quality Assurance System for Vocational Schools, which can provide satisfaction to various interested parties, namely, students or students, parents of students, users of labor (graduate users), society in general and government.

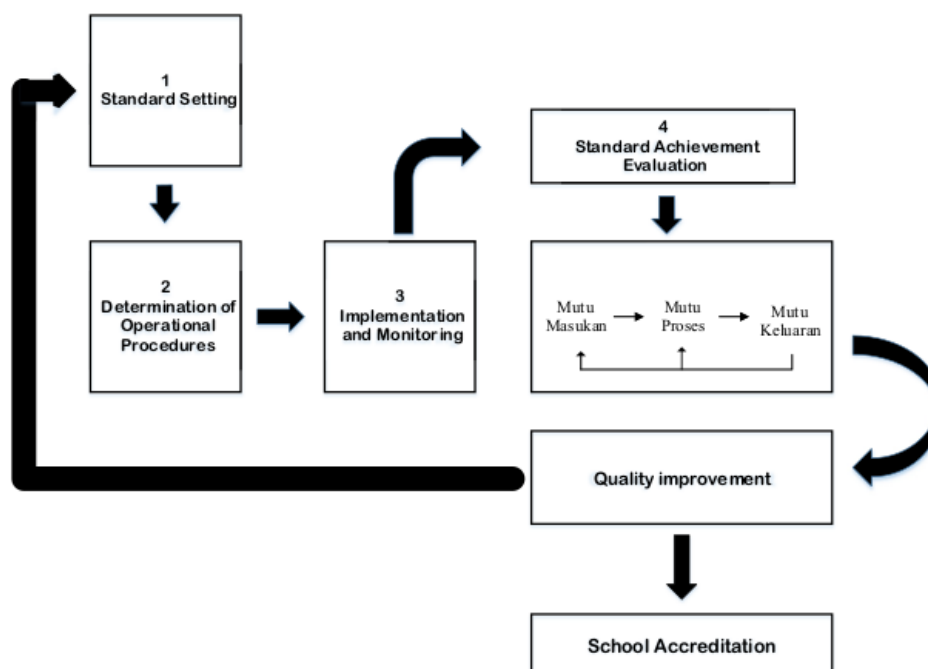


Figure 2.
Model of internal
quality assurance of
vocational schools

Source: Rifai (2014)

2.4 Management information system

Mulyanto (2009, pp. 31-34) describes an information system has five components:

- (1) human resource;
- (2) hardware source;
- (3) software source;
- (4) data source; and
- (5) network source.

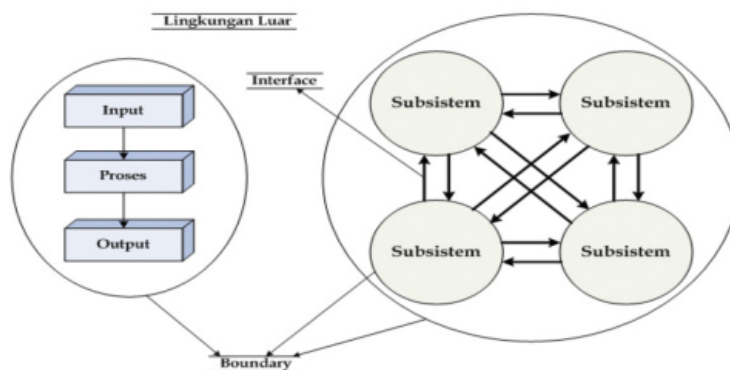
Basic components from the information system are *input*, *process* and *output*. To make it clear about the description can be observed in Figure 3 (Mulyanto, 2009).

The *Input of system* is all of something which is entering to a system that will be processed to become an output. *Process* of an information system is a part which is doing the reformation or transformation from various input that is entered into the system in producing the output. The action that is done in the part of this process is about the reformation, the transformation, detailing and deleting. The *output* of the system is the result from the process of input. The output of the system is about advice of command or report (Mulyanto, 2009).

Education management information system is the combination of human resource and information technology application in choosing, keeping, managing and taking again the data to support the process of decision-making in the education sector. Other definition of education MIS is the system that is designed in supplying the information for supporting the decision-making in the activity of management (planning, moving, organizing and monitoring) in the education sector (Rochaety et al., 2010).

In an educational institution, the component that is needed for operating the education such as, student/academy or university student, media and infrastructure, organization structure, process, human resource (teacher manpower) and organization budget. The information system is formed from the component of hardware, software and brainware in management theory for the operation of educational institution and information system must be supported each other so that can create the beneficial in the competition of related educational institutions (Rochaety et al., 2010).

The study of Ismarmiaty (2016) states that the level of acceptance of the base application of education quality assurance data of the Unitary Republic of Indonesia is significantly



Source: Mulyanto (2009, p. 3)

Figure 3.
System characteristic

influenced by two factors, namely, social influence and trust in the internet. Database Applications Education Quality Assurance Data of the Unitary Republic of Indonesia will improve job performance, business performance and trust in both the internet and intermediary media.

By the application of MIS in educational institution be hoped become the device as the supporting activity in the function of management such as function of *planning, organizing, staffing, directing, evaluating, coordinating* and *budgeting* as the effort in supporting the achievement of target and purpose of the function of operational which is in educational institution. With the MIS in an educational institution it can be hoped to have the functions for:

- the supply of an information system that receive all data and information that is needed for education;
- data and information about education which is combined in order that can become the fundamental and to monitor in making the decisions; and
- The supply of information and data complete, detail and valid can be used by stakeholders who have some purposes in the education sector.

The process of developing MIS in an educational institution that can answer the challenges that be faced by the educational institution in competition to *global* standards that can give the information more faster, accurate and comfortable to increase the quality in serving so that it can become a *competitive advantage* (Mu'alimah, 2009).

2.5 School accreditation

According to Handayani (2016, p. 8), the main foundation of the school accreditation policy in Indonesia is the obligation of the government as an education provider through education units to be able to provide quality education provided to every Indonesian citizen. To achieve quality education, each education unit is obliged to implement national education standards where the purpose of the accreditation is to fulfill the feasibility of each national education standard that has been established through the education program made by each education unit (Handayani, 2016).

The Quality Assurance System of Primary and Secondary Education is an integrated element consisting of organizations, policies and integrated processes that regulate all activities to improve the quality of Basic and Secondary Education systematically, planned and sustainable (Direktorat Jenderal Pendidikan Dasar dan Menengah, 2016).

According to Handayani (2016, pp. 7-8), school accreditation is a process in which the assessment is carried out by the government through an independent institution that is authorized and has the objective to determine whether or not a plan and implementation of an activity program carried out by a good education unit through the formal education as well as through non-formal channels carried out at every level and type of education and carried out based on the stipulated provisions and other objectives of accreditation is to provide reports to the public in the form of accountability processes carried out through the principles of objectivity, fairness, transparency and comprehensiveness based on the Standards National Education (Handayani, 2016).

3. Method of research

3.1 Design of research

In this study using the Research and Development (R&D) method for the development of its MIS where development will be carried out for product MIS that has been running. This

R&D research model is an effort to develop science and find new findings from findings that have been studied previously. According to Borg and Gall (1983, p. 775) there are ten steps for implementing research and development strategies:

- (1) research and data collection (research and information collecting);
- (2) planning (planning);
- (3) development of product draft (develop preliminary form of product);
- (4) preliminary field testing;
- (5) revise the main product revision;
- (6) field trials (main field testing);
- (7) refinement of field test products (operational testing fields),
- (8) field implementation tests (operational field testing),
- (9) final product revision; and
- (10) dissemination and implementation (dissemination and implementation).

For this research approach, we used mix method methodology approach of Borg and Gall (1983).

The approach of this research method using Unified Theory of Acceptance and Use of Technology (UTAUT). Where is the UTAUT model developed by Venkatesh *et al.* (2003). This model synthesizes eight models of technology acceptance that have been developed previously. The eight models include Theory Reasoned Action, Technology Acceptance Model (TAM), Motivational Model, Theory of Planned Behavior (TPB), Combined TAM and TPB, Model of PC Utilization, Innovation Diffusion Theory and Social Cognitive Theory (Venkatesh *et al.*, 2003).

As for the triangulation technique where the triangulation technique itself is a research technique, a combination of qualitative and quantitative research and as a technique or method of checking the validity of data. Triangulation is a term introduced by Denzin (1978) by borrowing terminology from the world of navigation and the military, which refers to combining various methods in a study of a particular phenomenon. Reliability and validity of data are guaranteed by comparing data obtained from a particular source or method with data obtained from other sources or methods. This concept is based on the assumption that any bias inherent in data sources, researchers or certain methods, will be neutralized by data sources, researchers or other methods. The term triangulation is known as a combination of qualitative methods and quantitative methods that are used together in a study (Denzin, 1978).

For preliminary data using a quantitative approach from statistical data obtained from the Institute of Education Quality Maps (LPMP) and in a descriptive qualitative manner by presenting data from samples obtained directly by researchers. Following steps are taken. The research instruments in this study can be carried out with the following steps:

Data collection. Data collection activities in principle are activities using methods and instruments that have been determined and tested for their validity and reliability. Data collection is needed to test the existing hypothesis.

- *Primary data:* is the data directly taken from the object of research by researchers. In this case the researchers used data from several SMKs that had certain qualifications as a measurement tool.
- *Secondary data:* is the data obtained indirectly from the research object. In this case secondary data is data that has been collected by the Institute of Education Quality Maps.

Interviews with SNP stakeholders such as BAP-SM and the Central Java Provincial Education Office regarding the data obtained. The data that has been collected will be analyzed using an inferential statistical approach. Its function can be seen from the results of the analysis obtained from the phenomena that occur and subsequently become the object of research, besides that the data can also be generalized more broadly into the population area. Therefore, the use of inferential statistics requires strict requirements in the sampling problem, because of the strict requirements that can be obtained a representative sample; a sample that has characteristics as a population. With a representative sample, the results of inferential analysis can be generalized into the population area.

3.2 Instrument and technical data collection

For research instrument in this research can be done with following steps:

- (1) Data Collection. At this stage the reference data in identifying problems were obtained from the Central Java Province LPMP in the form of the latest Education Quality Map Report. Data collection is needed to test the existing hypothesis.
 - Primary data in the study using data on the application of National Education Standards that have been assembled by all SMKs in Semarang City who have certain qualifications as a measuring tool. Secondary data in this study was obtained from the Provincial Accreditation Board of Schools or Madrasahs of Central Java Province during the past three years as a reference comparison of accreditation achievements before and after applied MIS for National Education Standards.
 - Secondary data in this study were obtained from the National Accreditation Board for the past three years as a reference for comparison of accreditation achievements before and after the application of MIS for National Education Standards.
- (2) Observation and observation in each process when carrying out an assessment of accreditation of a School or Madrasah.
- (3) Interviews with stakeholders accredited to SNPs such as reviewers from LPMP of Central Java Province and Administrators of the accreditation MIS of schools and Assessor BAP-SM Central Java Province, Supervisors from the Central Java Provincial Education and Culture Office and Vice Principals for Academic Affairs and Vocational High School Educators related to the data that has been obtained.

4. Discussion and result

The research of [Hidajat \(2013\)](#) describes the implementation of education MIS in vocational SMK in Mojokerto in the administration of Vocational Administration has not used the information technology-based MIS optimally. Whereas from the research data, it is explained that the role of information technology-based education management systems in the management of vocational administration is very important. This can be evidenced from the average value (mean) perception of the role of information technology-based education MIS s in the administration of vocational schools which is equal to 161.76 or 80.88 per cent and falls into the category of Very Important ([Hidajat, 2013](#)).

To strengthen the research gap in advance, the following is the result of preliminary research that the data is used to analyze the real needs at Semarang Vocational High School. The results of the initial research data in the framework of system requirements analysis are needed to produce a system that is expected to be in accordance with the needs of the

vocational school. The system requirement analysis is one part of the dissertation that is being developed by the researcher. Data collection techniques used in this analysis process are questionnaires and interviews. Respondents from the analysis of this system are principals, deputy principals in the academic field, teachers and IT staff. The interview was conducted at SMKN 7 Semarang.

The result of the system requirement analysis shows that the school does not have a system that integrates all management functions. The existing SIM has not been able to accommodate the needs of the system related to the evaluation and monitoring process undertaken by the Supervisory Board of the Department of Education and Culture of Central Java Province. Therefore, it is urgently needed to increase the capacity of SIM applications for school accreditation in BAP-SM based on MIS so that the quality and quality of education through achievement of national standard of vocational education in vocational high school can be further leveled to the fulfillment of national standard of education level.

The result of requirement analysis also shows that not yet has for integrated MIS for all functions of management, such as function of planning, organizing, f execution as well supervision and evaluation of SMK accreditation for SNP implementation. In other words, SMKN 7 Semarang desperately needs a SIM that integrates all management functions. For the achievement of education quality level of SMK education in Semarang City can be seen in the following table that has been done by LPMP Central Java Province (Table II).

The results of the analysis carried out by the Central Java Province LPMP in 2016 through the Semarang City Education Quality Map Report of Central Java Province in 2016, where the results of an analysis of SNP achievements in Vocational Schools in Semarang City were adjusted to the weakest indicators where quality achievement was based on each sub indicator of each indicator for each standard. To clarify the results of these analyses then can be seen in the following table (Table III).

Direktorat Jenderal Pendidikan Dasar dan Menengah (2016) also explains that the primary and secondary education quality assurance system aims to ensure the fulfillment of standards in systemic, holistic and sustainable primary and secondary education units, so as to grow and develop a quality culture in an independent educational unit. The quality assurance system of education serves as the controlling of education implementation by educational unit to realize the quality education. The secondary education quality assurance system consists of two components: Internal Quality Assurance System (SPMI) and an External Quality Assurance System (SPME):

- (1) SPMI is a quality assurance system carried out in educational units and carried out by all components of the education unit.

Standards	Average score	Explanation
Standard of graduate Competence	5,400	Going to NES 4
Standard of Contents	5,523	Going to NES 4
Standard of process	4,525	Going to NES 3
Standard of assessment	4,054	Going to NES 3
Standard of management	4,875	Going to NES 3
National Education Standards (NES)	4,875	Going to NES 3

Source: LPMP Center Java province Provinsi (2016)

Table II.
Score of achievement
mapping of SNP for
vocational high
school (VHS) level of
semarang city 2016

Standard	Indicator	Strength	Weakness
Graduation competency standard	The graduate has competency in knowledge dimension	–	Less in having factual, procedural conceptual, mega cognitive knowledge
Standard of content	KTSP is suitable to national curriculum	1. Having the media in developing KTSP 2. Involve the decision maker of organizing of KTSP	Less in doing socialization of media to the decision-maker
Standard of process	Learning process planning is suitable to SNP	1. RPP is evaluated by the headmaster 2. RPP document quality is suitable to national curriculums 3. The content of RPP is suitable to national curriculum	Teacher do not make yet learning planning autonomy. The organizing of RPP do not involve the decision-maker.
Standards of assessment	Transparently for assessment	–	Documents cannot be accessed by related parties

Table III.
Analysis of strength and weakness NES for VHS level of Semarang City in 2016

Source: Lembaga Peta Mutu Pendidikan (LPMP) Provinsi Jawa Tengah (2016)

- (2) SPME, namely, a ⁵ quality assurance system implemented by the government, regional government, accreditation institutions and educational standardization institutions.

The internal and external quality audit models of elementary and secondary education have been implemented by the Directorate General of Primary and Secondary Education of the Ministry of Education and Culture of the Republic of Indonesia which has been implemented since 2016. To clarify the existing descriptions at this time can be seen in Figure 4 (Direktorat Jenderal Pendidikan Dasar dan Menengah, 2016).

From Figure 4 it can be explained that the implementation of the secondary education quality assurance system can follow each process in accordance with each component. The internal quality assurance system cycle consists of:

- mapping the quality of education conducted by educational unit based on SNP);
- establishment of quality improvement plan as outlined in School Work Plan;
- implementation of quality fulfillment both in the management of education units and learning process;
- monitoring and evaluation of quality fulfillment implementation process; and
- setting new standards and formulating quality improvement strategies based on monitoring and evaluation results

In Figure 5, it is explained that the proposed MIS model for education quality assurance still combines six processes:

- (1) mapping for the school's vision and mission in the future;
- (2) planning for work activities and budgets to be carried out annually; and

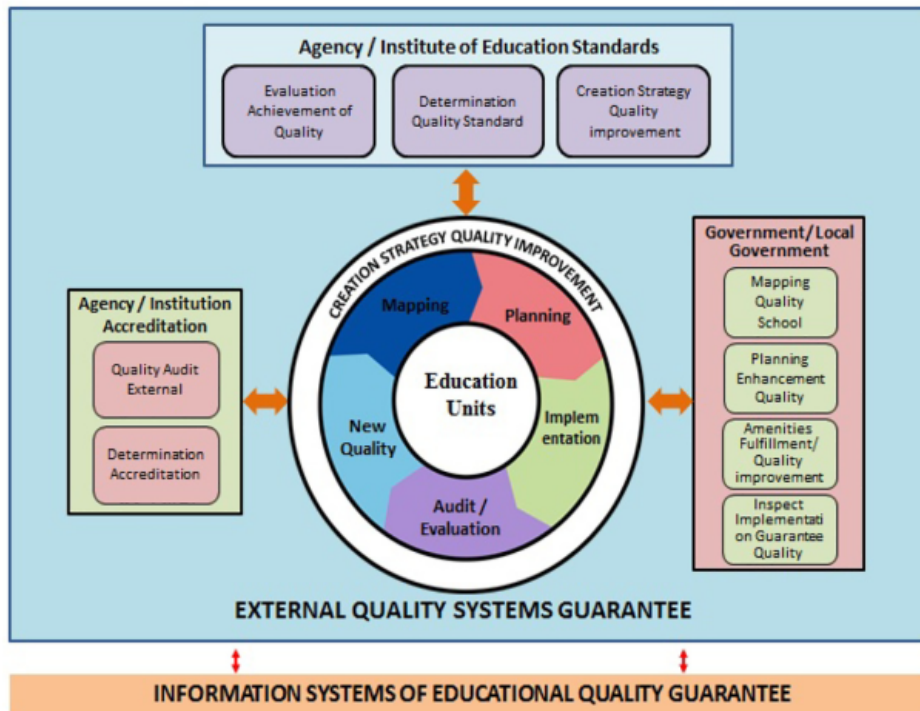


Figure 4. Education quality assurance system

Source: Direktorat Pendidikan Dasar dan Menengah (2016)

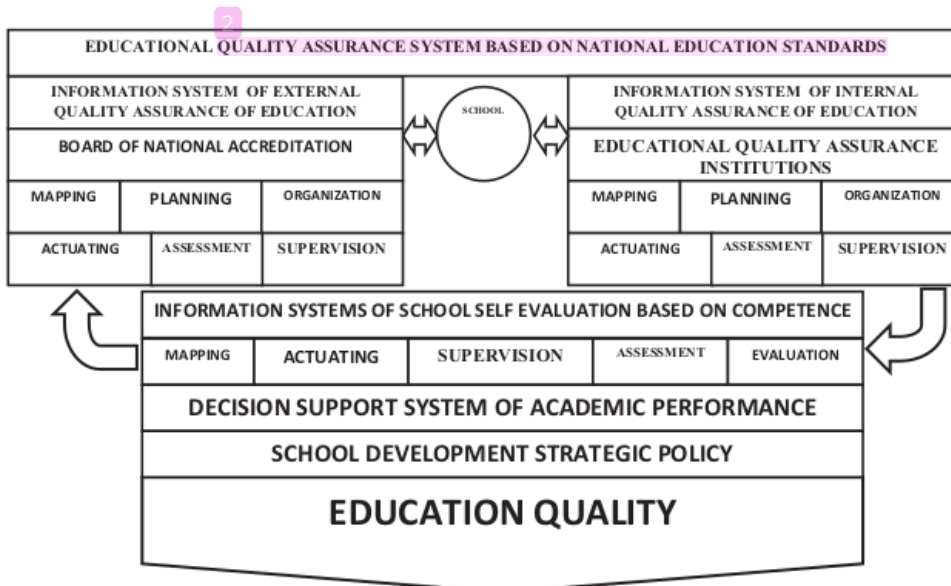


Figure 5. Scheme of information systems for education quality assurance

- (3) organizing the authority of work to be carried out by BAN-SM and LPMP;
- (4) Implementation of work programs carried out by BAN-SM and LPMP;
- (5) assessment or accreditation of the performance of education units in this case schools and related stakeholders; and

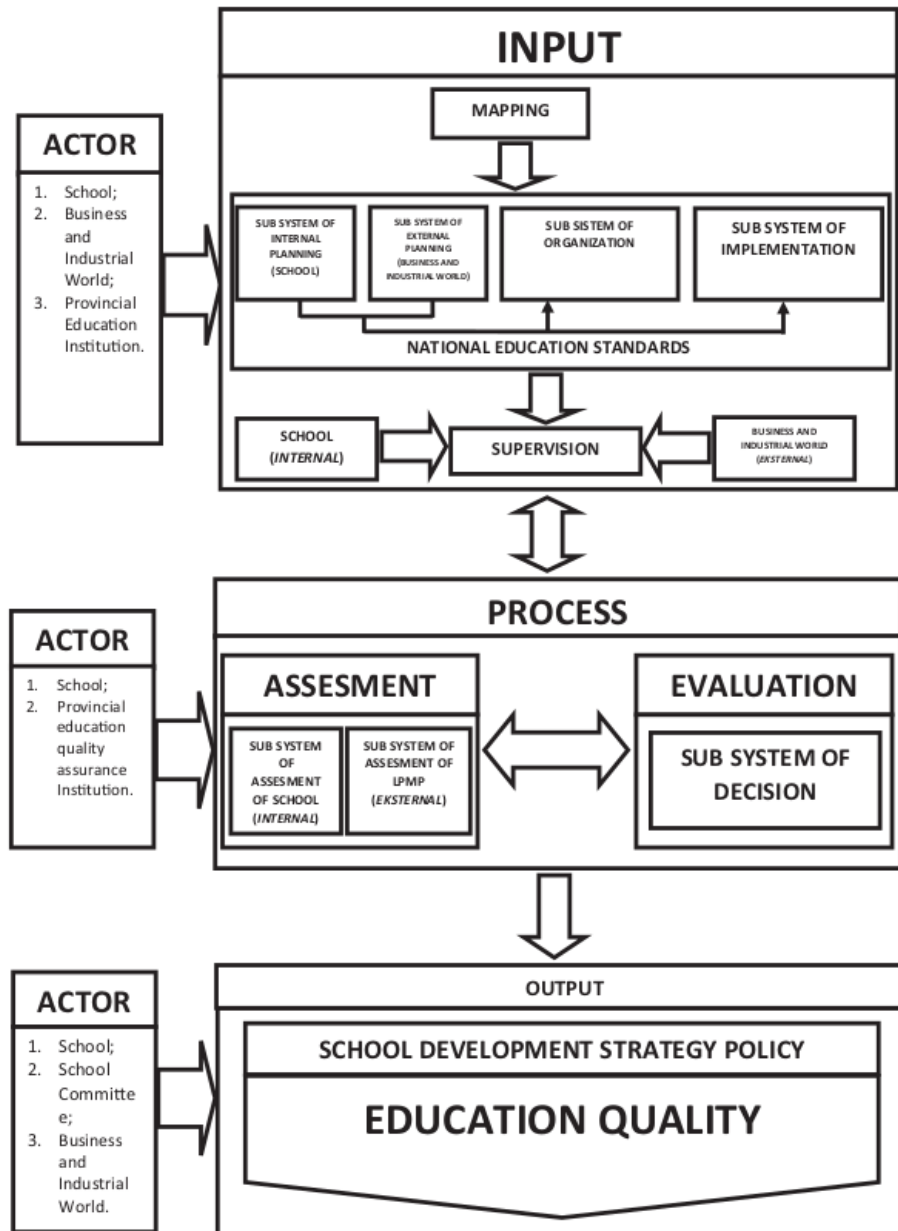


Figure 6.
Theoretic model of management information systems of self-evaluation for vocational schools based on competency

- (6) supervision (monitoring and evaluation) carried out by BAN-SM and LPMP towards the School related to the process of preparing the planning and implementation of the School work program.

Where each process has each activity that has been regulated by the MIS starting from the access rights and application features that have been adjusted to their needs and based on the National Education Standards. The scheme for the process of quality education is divided into 2 authority charts, namely the authority of BAN-SM and LPMP. Then for the compilation of the system for school self-evaluation is integrated with the external education quality assurance sub-system and the internal education quality assurance sub-system. So as to make it easier for BAN-SM and Provincial LPMP to carry out supervisory functions in schools.

In Figure 6 theoretic model of MIS s of self-evaluation for vocational schools based on competency is a MIS for Vocational High School self-evaluation, where the input, process and output of education quality data has five phases of activity:

- (1) mapping phase;
- (2) mentoring phase;
- (3) assessment phase;
- (4) evaluation phase; and
- (5) policy development phase of school development strategies.

Where in the mapping phase consist of for sub-information systems:

- internal planning sub-system carried out by the school;
- external planning sub-system carried out by the Business World and Industrial World (DUDI);
- organizing sub-system; and
- implementation sub system.

From the data that has been inputted in the four sub-systems of information, it will be assisted by external parties of the education unit, namely DUDI and the Department of Education and Culture of Central Java Province. Then after the assessment phase which contains 2 sub-assessment systems, namely the internal assessment sub-system that will be carried out by the school and the assessment sub-system, namely the internal assessment sub-system that will be carried out by the provincial LPMP. From the assessment

Standards	Recommendations of facilities
Standard of graduate competence	The education unit needs to receive surgical training/workshops for graduate competency standards
Standard of content	Education units are encouraged to socialize KTSP tools to stakeholders
Standard of process	Technical guidance for the preparation of RPP for teachers Increase the involvement of stakeholders in preparing learning planning
Standard of educational assessment	Technical guidance for the preparation of assessment tools/instruments
Standard of education management	Training in preparing school work plans based on the results of school self-evaluation

Source: LPMP Provinsi Jawa Tengah (2016)

Table IV.
Facilitation recommendations for education levels of vocational high school in Semarang city, Central Java province in 2016

sub-system, a periodic report will be made in SB decision support system in the evaluation phase. From the report data, the education stakeholders in this school will take steps in the form of strategic policies to improve the achievement of educational quality at the vocational education level. As for the strategic policy-making, the Principal must coordinate with other stakeholders such as the Education Unit, School Committee and DUDI.

5. Conclusions and suggestions

The conclusions that can be drawn from the above discussion are as follows:

- (1) The achievement of SNP quality in the education level of SMK in Semarang City Central Java Province in 2016 is generally categorized to SNP level 3. Thus, SNP's internal quality achievement in the SMK education level in Semarang City in the year 2016 has not reached SNP. For SMK education level, the best quality achievement is at the lowest standard of content and quality achievement in the assessment standard.
- (2) Theoretic integrated MIS model for accreditation and quality assurance of education makes it easy in quality data reconnaissance and accreditation school. All of the process flow has been integrated into one framework so as to facilitate monitoring of the internal and external quality of school conducted by stakeholders.
- (3) The suggestions that can be given in this study are as follows:
 - Based on the results of the discussion then the suggestions for the manager of the educational unit, in this case, is the manager of SMK sourced from the Report of Quality Education 2016 is as follows (Table IV).
 - Further analysis is needed for the functionality of each feature in the application of the quality assurance system of education and interviewing each user of the system using Soft Systems Methodology (SSM) so that the analysis data will see the direction of integrated SIM development for external quality assurance and internal education with each standardization of connected sailing to be proposed.

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