



**CLASSROOM ASSESSMENT BASED ON
A FIVE-DIMENSIONAL FRAMEWORK
FOR AUTHENTIC ASSESSMENT
IN *RATTAPHUMWITTAYA* SCHOOL THAILAND**

A Final Project

Submitted in partial Fulfillment of the Requirements
for the Degree of Sarjana Pendidikan
in Biology Education Study Program

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Saya menyatakan dengan sebenar-benarnya bahwa skripsi saya yang berjudul "Classroom Assessment Based On A Five-Dimensional Framework for Authentic Assessment in Rattaphumwittaya School Thailand" disusun berdasarkan hasil penelitian saya dengan arahan dari dosen pembimbing. Sumber informasi atau kutipan yang berasal atau dikutip dari hasil karya yang diterbitkan telah disebutkan dalam tes dan dicantumkan dalam daftar pustaka di bagian akhir skripsi ini. Skripsi ini belum pernah diajukan untuk memperoleh gelar dalam program sejenis di perguruan tinggi manapun.

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MOTTO

“Do for this life as if you live forever, do for the afterlife as if you die tomorrow.”

(Sayyidina Ali bin Abi Thalib)

“The eye of a human being is a microscope, which makes the world seem bigger than it really is.”

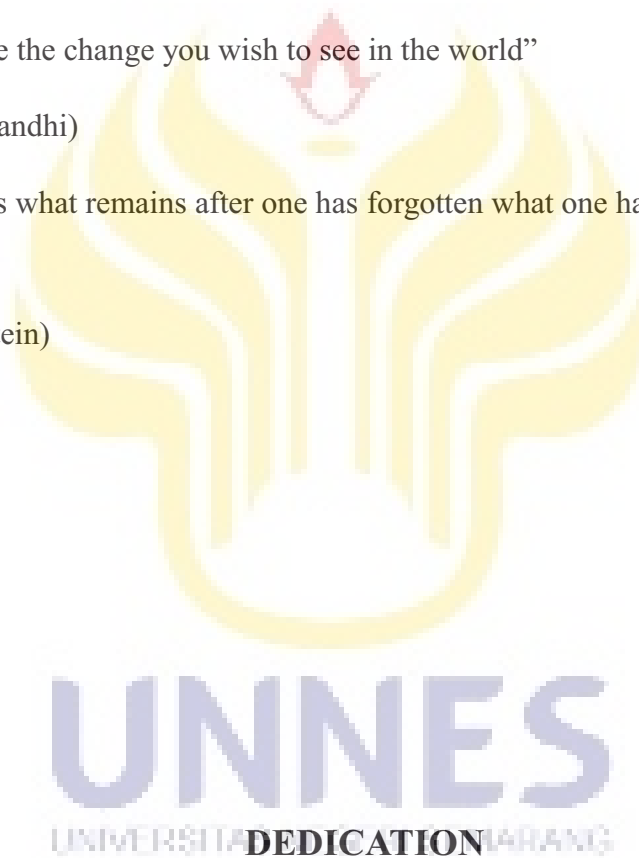
(Kahlil Gibran)

“You must be the change you wish to see in the world”

(Mahatma Gandhi)

“Education is what remains after one has forgotten what one has learned in school”

(Albert Einstein)



For my beloved family and for Biology Education

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May all help given rewarded by Allah. Writer hope this research can provide benefits to all readers.

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ABSTRACT

Larasati. 2017. *Classroom Assessment based on A Five-Dimensional Framework for Authentic Assessment in Rattaphumwittaya School Thailand.* Skripsi, Department of Biology Faculty of Mathematics and Natural Science, Universitas Negeri Semarang. First advisor: Dr. Saiful Ridlo, M.Si. and second advisor: Dra. Ely Rudyatmi, M.Si.

Keyword: assessment, authentic assessment, classroom assessment

Thailand has moved from the largely agrarian low-income society to an upper middle-income country. However, there are still some issues left including the fact that half of Thai students are not acquiring basic skills in order to be a successful person and continue the country's development. Assessment had become one of the critical aspect of education development. The objective of this study was to find out the authentic assessment phenomenon in classroom assessment based on A Five-Dimensional Framework of Authentic Assessment in Biology class of Rattaphumwittaya School Songkhla,

Design of this study was qualitative descriptive that revealed the authentic assessment aspect emerged in the form of narrative text. Method used in this study was case study. Data collection techniques used were observation, interview and questionnaire. Data was analyzed by *a six steps in the process of analyzing and interpreting qualitative data* and continued by descriptive analysis.

Result of study shows that from the 5 elements (task, physical context, social context, form/result and criteria) of A Five-Dimensional Framework for Authentic Assessment, only 4 elements that have been implemented: task, social context, form/result, and criteria. The social context and the form/result are good implemented, while the task is mediocre implemented and the criteria is bad implemented.

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CHAPTER 1

INTRODUCTION

1.1 Background of the Research

Thailand is a key contributor in economic growth in Southeast Asian region. It has moved from the largely agrarian low-income society to an upper middle-income country. The success of its economic development lead to the consideration to education development as well. Thailand has enacted major education reforms and used a large portion of its wealth as a source of the funding. It replaced its content-based curriculum (2001), which focus on the retention and recall of information with curriculum that turn learning process to be more learner-centered and standard-based (2008) (OECD-UNESCO, 2016). *The 1997 Constitution, National Education Act 1999 and amendments made in 2002 (Second National Education Act) and National Education Plan (2002-2016)* are the form of government consideration in education reform. Those are containing the policy supporting a complex education development with the aim of increasing the quality of Thai people's live and to make them live in harmony (ONEC, 2003).

Reformation in education has elevated the participation rates of school. However, there are still some issues left including the fact that half of Thai students are not acquiring basic skills to be a successful person and continue the country's development. The high student participation rates also have not resulting in a high quality of education. It can be seen from the result of OECD Programme for International Student Assessment (PISA) which is below those peer countries (OECD-UNESCO, 2016).

OECD data (2016) shows that Thailand is in a rank of 52 from 72 countries for science. There is no significant change in position of Thailand since PISA 2000 until 2015. Thailand's rank can be said is not in a good position compared to the neighbor country in Southeast Asian region, Vietnam that has achieved ranks of 8 since it first participation on 2012 and consistent until 2015. This is an irony considering that based on the data from World Bank (2016), it is known that in 2015, Thailand's Gross Domestic Product (GDP) is \$ 395.2 billion with 67.96 million population while Vietnam's GDP is \$ 193.6 with 91.70 million

population. This is contrary to statement that “*education has long been viewed as an important*



determinant of economic well-being” (Hanushek & Woßmann, 2010). Thailand's economic prosperity that does not in accordance with the quality of education shows that there are things that should be improved on the education system in Thailand. OECD-UNESCO (2016) analyzed that there are 4 critical areas for progress in Thailand's education development: curriculum, student assessment, teacher and school leader policies, and the use of information and communication technologies (ICT) in education.

Of these 4 factors, student assessment becomes the most important factor, considering that only through the student assessment, teacher can evaluate the teaching and learning process as well as identify the strength and the weakness of ongoing learning activities and determine the achievement of learning objectives. The result of assessment and evaluation is the best reference to make improvements on those aspect as needed. This is in accordance with statement of Dylan Wiliam (2013) that assessment is the bridge between teaching and learning and it is the only way to know whether the learning activities provide lessons for students.

The importance roles of assessment lead to many research about assessment resulted in a renewal of assessment paradigm. Historically, a major role of assessment has been to detect and highlight differences in student learning in order to rank students according to their achievement. This kind of assessment experiences have produced winners and losers. Some students succeed early and build on winning streaks to learn more as they grow; others fail early and often, falling further and further behind (Stiggins, 2007). As time goes by, system of education changes dynamically following the needs of human beings (Johan and Harlan, 2014). Era of globalization requires generations that are not only excellent in terms of knowledge but also in other skills and personality. So, the education nowadays concerns more about human development. It is in line with the changing views of the assessment from a tool for grading into a way to improve the students ability in the aspects of cognitive, skill and attitude. This new form of assessment is known as authentic assessment.

Authentic assessment is significantly different compared with the traditional one. In authentic assessment, students are judged by their own

capability of performing meaningful tasks, while in traditional assessment, students are judged by their score in doing the test like multiple-choice tests, fill-in-the-blanks, true-false, matching and the like that have been and remain so common in education (Mueller, 2016). Authentic assessment is also providing the students with issues that is contextual with a real-world problem, while in traditional assessment, students are simply served the problems related to a factual information of a topic. Authentic assessment represents a paradigm shift of the assessment. Authentic assessment concerns more about the students' needs and goals for their own self-development. Students will no longer be a recipient of knowledge, but become an active learners. Students not only learn from textbooks, but also with a variety of innovative learning per theme. Assessment that originally requires students to work individually, are now direct students to work in teams (Atlas, 2017).

Since the 19th century, many scholars had defined and determined the meaning of authentic assessment from many aspects in many ways. It is resulting in many definitions of an authentic assessment. Gullikers (2006) was synthesized definitions of authentic assessment and built a structural framework of authentic assessment, called "A Five-Dimensional Framework (5DF) for Authentic Assessment". This dimensional framework is consisting of several elements that has become a building block of an authentic assessment. Those elements are Task, Social Context, Physical Context, Form/result and Criteria.

In authentic assessment, *task* should require student to integrate their knowledge, skills and attitude. It also has to be an ill-structured task that is meaningful to students. In completing the task, students work or decision making is reflected in *social context* which is more directed to a group decision making than an individual decision making. Authentic assessment facilitated students to feel the professional environment. It can be seen from the *physical context* that require students to have the environment, tools, materials and a duration of task that is similar to people in professional field. In the end of the task, authentic assessment should require students to make a realistic product and performance that can be observable to everyone. It is mentioned in the element of *form/result*. In judging the students, teacher is must be guided by *criteria* that is made in

accordance with the form of the task and be stipulated in the assessment rubric. 5DF for authentic assessment was used as a theoretical background of this research with by purpose of having the clear and comprehensive definition of authentic assessment.

From all statements above, it can be inferred that authentic assessment is the best way to assess students to produce a high quality human being. It is very important to implement the authentic assessment at school because it is needed to shape the student to be good not only in the domain of knowledge but also in performance of skills and attitude. So, they will be ready to face the real-life especially in their working places. It is in line with the Thailand's needs to build a skillfull workforce in order to move beyond middle-income status and achieve inclusive sustainable growth (OECD, 2016).

At present, Thailand places too much weight on standardized tests rather than using a broad range of student assessments including formative and summative classroom assessment (OECD, 2016). It leads to an urgency to have an overview about the actual classroom assessment implementation according to authentic assessment as a typical character of assessment needed in recent education development.

Based on all those backgrounds, it is important to analyze the emerging character of authentic assessment in implemented classroom assessment in Thailand especially in South Region of Thailand that has lowest score on PISA among all other region as can be seen in Figure 1.1.

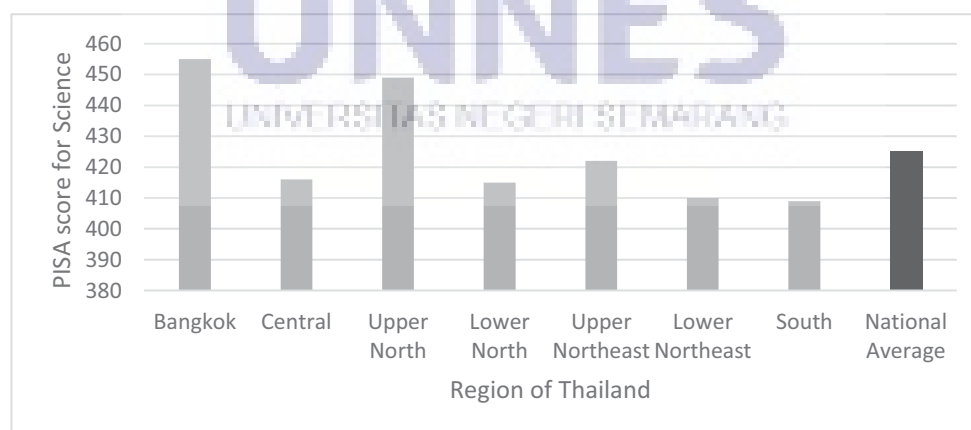


Figure 1.1 PISA score based on the region of Thailand (OECD 2013)

Rattaphumwittaya School was located at Songkhla Province, South Region of Thailand. In its Biology class, teachers have implemented the student-center teaching and learning in which teacher did not explain the whole materials, but asked students to present the materials in the front of the class. In Matayom 4 and Matayom 6, students were asked to make PowerPoint and in Matayom 5 students were asked to make mind map. Based on the form of assessment used in Biology class of Rattaphumwittaya school, a research was conducted to determine the presence of 4 from 5 elements of 5DF for authentic assessment that has been implemented in Biology class of Rattaphumwittaya school as well as its form of implementation. The form of classroom assessment in Biology class of Rattaphumwittaya school indicated that it did not meet the characteristic of physical context element of 5DF. So that, this research focused only on the 4 of 5 elements of 5DF for authentic assessment.

1.2 Focus of the Research

Focus of this research is the appearance of phenomenon of authentic assessment based on 5DF for authentic assessment's elements by Gullikers et al (2004). The framework consists of: 1) Task, 2) Physical Context, 3) Social Context, 4) Form/Result and 5) Criteria. The classroom assessment in Biology class of grade Matayom 4, Matayom 5, and Matayom 6 of Rattaphumwittaya School will be studied to find out the emerging of 5DF for authentic assessment's elements

1.3 Significance of the Research

1.3.1 For Teachers

The result of this research is expected to be used as a reflection for the Biology teachers in Rattaphumwittaya School. With this research, they can determine the strengths and weakness of the assessment they use based on 5DF for authentic assessment.

1.3.2 For Researcher

The result of this research can be an insightful knowledge of teaching especially about the implementation of Authentic Assessment in Rattaphumwittaya School Thailand. In addition, it can be a reference in creating the assessment in accordance with the 5DF for authentic assessment.

1.3.3 For Biology Department, Faculty of Mathematics and Natural Science, Universitas Negeri Semarang

The result of this research give an information about the view of classroom assessment in Rattaphumwittaya School Thailand based on 5DF for authentic assessment.

1.4 Affirmation of Term

1.4.1 Classroom Assessment

Classroom assessment is the process of collecting, synthesizing and interpreting information to aid classroom-based decision making, support student learning (formative assessment) and judge student performance at a specific point in time (summative assessment). It is primarily carried out by teachers and the students in their classrooms, encompassing the formal grading of students' work as well as more informal observations of students (Sui-chu, 2013).

Classroom Assessment in this research refers to the activities in which teachers assessing the students. From these activities, teachers will be able to give the final score for each student.

1.4.2 A Five-Dimensional Framework for Authentic Assessment

A Five-Dimensional Framework for Authentic Assessment is a framework by Gullikers (2004) that simplify the authentic assessment into certain elements. 5DF for authentic assessment consist of task, physical context, social context, form/result, and criteria. 4 of 5 elements

Task is consisting of several subdimension: Integration of knowledge, skills and attitudes (the uses of ability of communication, analysis, problem solving and social interaction); Meaningfulness, typicality and relevance in students' eyes (meaningfulness of the task in learning Biology subject and outside the Biology subject); Degree of ownership of problem and solution space (students' freedom in completing and presenting their finding) and Degree of

complexity (structure of the task). In this research, implemented assessment form will be identified based on those characteristics above.

Social context is divided into group work/ decision making and individual work/ decision making. This element is about the social aspect of student in completing the task. It could be either one of group or individual decision making or the combination of them.

Form/result is related to the kind of output of assessment task. In this framework, the form/result of assessment task is should be in the form of observable product or performance. The kind of form/result also has to be judged by multiple indicator of learning.

Criteria is any reference used by teachers to assess students. This framework mentions the aspects of criteria in authentic assessment are: related to realistic product/process, transparent and explicit and should be the basis of judgement.

In this research, 5DF of authentic assessment will be used as a tool to identify the implementation of authentic assessment. Further explanation from certain sources will be added to each element to produce a more obvious conception.

1.4.3 Rattaphumwittaya School Thailand

Rattaphumwittaya School is located at South region of Thailand, exactly on 587 Moo 11 Phetkasem Road, Tambon Kamphaeng Phet, Rattaphum, Songkhla 90180 Thailand. This school is using moving class learning system in which students should move to different room for different subject. According to the Thai formal academic system, this school is a secondary school consisting of grade 1-3 (lower secondary) which is similar to grade 7-9 of junior high school and grade 4-6 (upper secondary) which is similar to grade 10-12 of senior high school. All grades in secondary school are called Matayom.

Classes used in this research are Matayom 4/1, Matayom 4/2, Matayom 5/1, Matayom 5/2, Matayom 6/1 and Matayom 6/2. It is because only students of Matayom with “/1” and “/2” that study Natural Science including Biology while students of Matayom with “/3” and “/4” study Social Science.

CHAPTER 2

REVIEW OF RELATED LITERATURE

This chapter contains the further explanation of education in Thailand and authentic assessment as the highlights of this research. An understanding about them is required to build comprehension frame of thinking of this research.

2.1 Education in Thailand

In this chapter, matters related to education in Thailand that will be explained including: education system, curriculum, the reform of Thailand education and current assessment system.

2.1.1 Thailand Education System

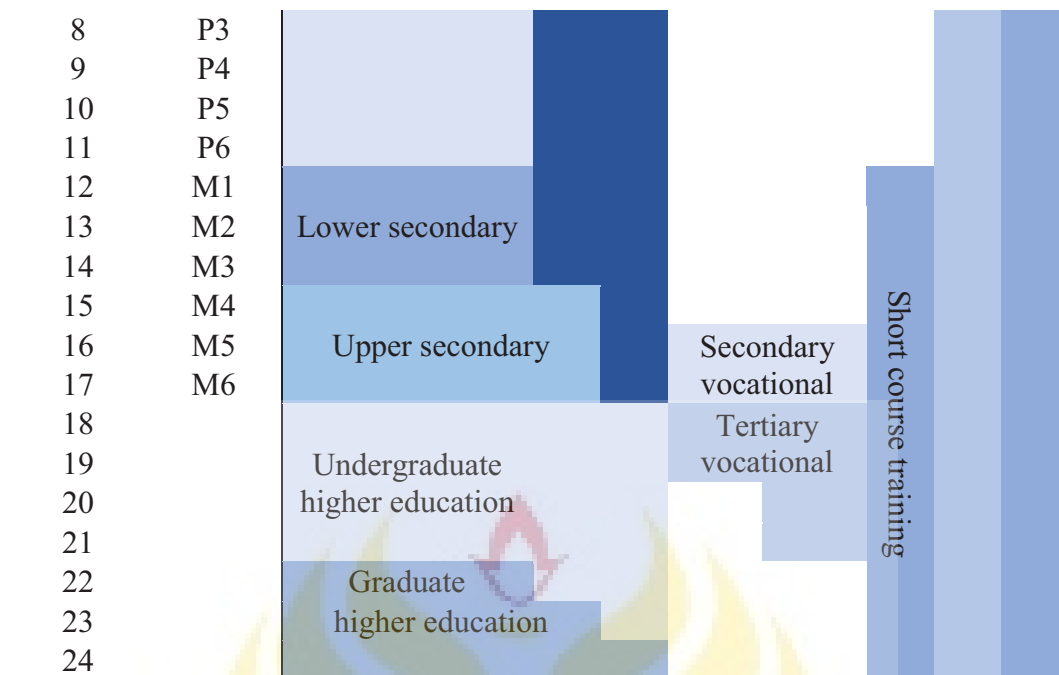
The present education system in Thailand is in accordance with Chapter 3 of The National Education Act (1999). It is consisting of three types of education: 1) formal education; 2) non-formal education; and 3) informal education. Formal education has the specific aims, methods, curricula, duration, assessment, and evaluation to its completion, while non-formal education has a flexibility about them in order to meet the needs of learners. Informal education enables learners to learn by themselves according to their interests, potentialities, readiness and opportunities. Explained by ONEC (2003) that formal education services are provided by both public and private bodies to those inside the school system in form of schools and childhood development institutions. Non-formal education services are also provided by both public and private bodies, but outside the school system. Non-formal education services can be divided into several types including *Non-Formal Education for Pre-School Children* and *Quality of Life Improvement Activities*. Informal education programmes are provided by libraries, museums, newspaper, *community learning*, *village reading* and many others.

Formal education is divided into Early Year Education, Basic Education, Vocational and Technical Education and Higher Education. Children start their education by entering Early Year Education which is similar to pre-primary school. Then, followed by Basic Education consisting of 6 years of primary schooling (Prathom 1 to 6), 3 years of lower secondary (Mattayom 1 to 3) and 3 years of upper secondary schooling (Mattayom 4 to 6). Vocational and Technical

Education is available at three levels: upper secondary, post secondary and university level. Higher Education is university level which is predominantly provided at universities and colleges. (MOE, 2008). The overview of formal

Typical Grade	Thai Grade	Level and form of education		
		General education	Vocational education	Other education forms
1	P1 P2	Pre-primary Primary	Free basic education	Non-formal education Special education
2				
3				
4				
5				
6				
7				

education system



in Thailand can be seen in Figure 2.1.

Figure 2.1 The Thailand Formal Education System (OECD, 2016)

2.1.2 Thailand Curriculum

Recent curriculum used in Thailand for basic level is *The Basic Education Core Curriculum B.E. 2551-A.D. 2008*. According to the Ministry of Education (2008), it is known that the curriculum is made by considering the National Education Act 1999 and amendments made in 2002 (Second National Education Act). The Basic Education Core Curriculum 2008 (2008 Curriculum) was made based on the studies and monitoring as well as evaluation on the Basic Education Curriculum 2001 (2001 Curriculum). With the strength and weak of the 2001 Curriculum, the government concluded that it needed to be revised. Consequently, the 2008 Curriculum was made with some improvements including, presentation of objectives, learners' capacities, desirable characteristics, and learning standards and indicators. Furthermore, the new curriculum also provides the guidance for teaching-learning activities. Improvement has been made also in the part of measurement and evaluation of learners' performance as well as criteria for graduation at each educational level.

Goals of the 2008 Curriculum is development of learners in several aspects including morality, ethics, knowledge, skills for communication, good physical and mental health, patriotism, awareness of the need to preserve all

aspects of Thai culture and so on. The curriculum inculcating 5 key competencies among learners: communication capacity; thinking capacity; problem solving capacity; capacity for applying life skills and capacity for technological application. The 2008 Curriculum concern more on the student self-development to be a successful human being which live in harmony and also to produce the high quality of generation that will enhance the national progress (MOE, 2008).

Ministry of Education (2008) also mentioned the learning area in the curriculum consist of 8 subjects: Thai Language, Mathematics, Science, Social Studies, Religion and Culture, Health and Physical Education, Arts, Occupations and Technology and Foreign Languages. Content material for science including the application of knowledge and scientific process for study and search for knowledge and systematic problem-solving; logical, analytical and constructive thinking; and scientific mindedness.

2.1.3 The Reform of Education in Thailand

According to Office of the National Education Commission (ONEC) (2003), the reform of education in Thailand had begun since the change of Thailand constitution in 1932. Education system has moved from the education offered in the temple, the palace, and the family to the foundation of formal education. It is related to the government concern to the national reconstruction and modernization in the post-war period with education development as a part of it. The First National Economic and Social Development Plan (1961-1966) becomes an early stage of education to be assumed as an important functional part of country development. In 1997, Thai education started to move forward to keep up the changes in era of globalization. This reform in education also associated with restructuring of Thai economy and society after the economic crisis. Concern in education the followed by the provision of *National Education Act (1999)* consisting of several fundamental laws about education and training. Following the *1997 Constitution* and the *1999 National Education Act*, the *National Education Plan* was promulgated with aims to increase the quality life of Thai people.

A further education development as showed in *Education for All National Review*, a report by Ministry of Education to the UNESCO, state that in 2012,

education improvement has been a “national priority” with the important goals of developing the ability to think, analyze, learn independently, exhibit the desired qualities, and necessary skills required for the 21st century. Those are renewed in 2014, in which Thailand had a more specific goal related to the founded issues: implementing teacher reform; increasing and expanding access, equity, and opportunity to education; reforming school administration: strengthening competitiveness through improved skill development; improving the teaching-learning processes; setting a strong information and communication technology system for education. An effective education system is needed to prepare Thai people pursuing their career and make rational judgement and choice in order to live in harmony. In the end, an education development is important to build the country’s competitiveness and people’s competency to adapt to the era of globalization (ONEC, 2003).

The 1997 Constitution of the Kingdom of Thailand

The *1997 Constitution* has become a first step of great education development in Thailand. As stated by Office of the Education Council (OEC) (2004), the constitution contains several provisions relating to education, religion, and culture in order to embodies Thailand become a country with knowledge-based economy. Government realizes that it is important to initiate the reform of education to keep up with the global changes. With this constitution, for the first time all Thai people will have an equal right to receive basic education for at least 12 years with a free of charge. People will have both the right and duty to receive education as well as education freedom. It is including the right to receive care and education for children, youth, women, the elderly, the underprivileged and the handicapped.

In providing education, the government does not run itself. It also considers and emphasize the role of private sector. Local communities are also involved with the intention of providing education that both relevant to the needs of people and responsive to changing environments, demands and opportunities at a local level (OEC, 2004)

The National Education Act 1999 and amendments made in 2002 (Second National Education Act)

It is served as a fundamental law for the administration and provision of education and training. It includes 9 Chapters and 78 sections prescribing the objectives and principles; educational rights and duties; educational system; national education guidelines; educational administration and management; educational standards and quality assurance; teachers, faculty staff and educational personnel; resources and investment for education and technologies for education. The regulation in *The National Education Act 1999 and amendments made in 2002 (Second National Education Act)* emphasize on a full development of the Thai people in all aspects: physical and mental health; intellect; knowledge; morality; integrity; and desirable way of life so as to be able to live in harmony with other people. It also mentions that educational provision shall be based on the some principles: (1) Lifelong education for all; (2) All segments of society participating in the provision of education; (3) Continuous development of the bodies of knowledge and learning processes (ONEC, 2003).

The National Education Plan (2002-2016)

OEC (2004) explain that the *National Education Plan (2002-2016)* is an embodiment of government commitment to have a 15-year education plan. It focuses on the integration of all aspects that influence the quality of life. At this point government started to concern more about a human-centered development in the form of an integrated and holistic scheme of education, religion, art and culture. With the full development in physical and spiritual health, Thai people are expected to live in harmony. The *National Education Plan (2002-2016)* is covering the development plans for basic education, vocational education, higher education, and religion, art and culture. This represent a major reform of Thai education system and human development at once. The elements of this *National Plan* are in accordance with the aim of *Constitution* about longlife learning for all people.

The *National Education Plan* stipulates 3 objectives and 11 policy guidelines for implementation can be seen in Figure 2.2.

**All-round and
balanced human
development**

1. Developing all people

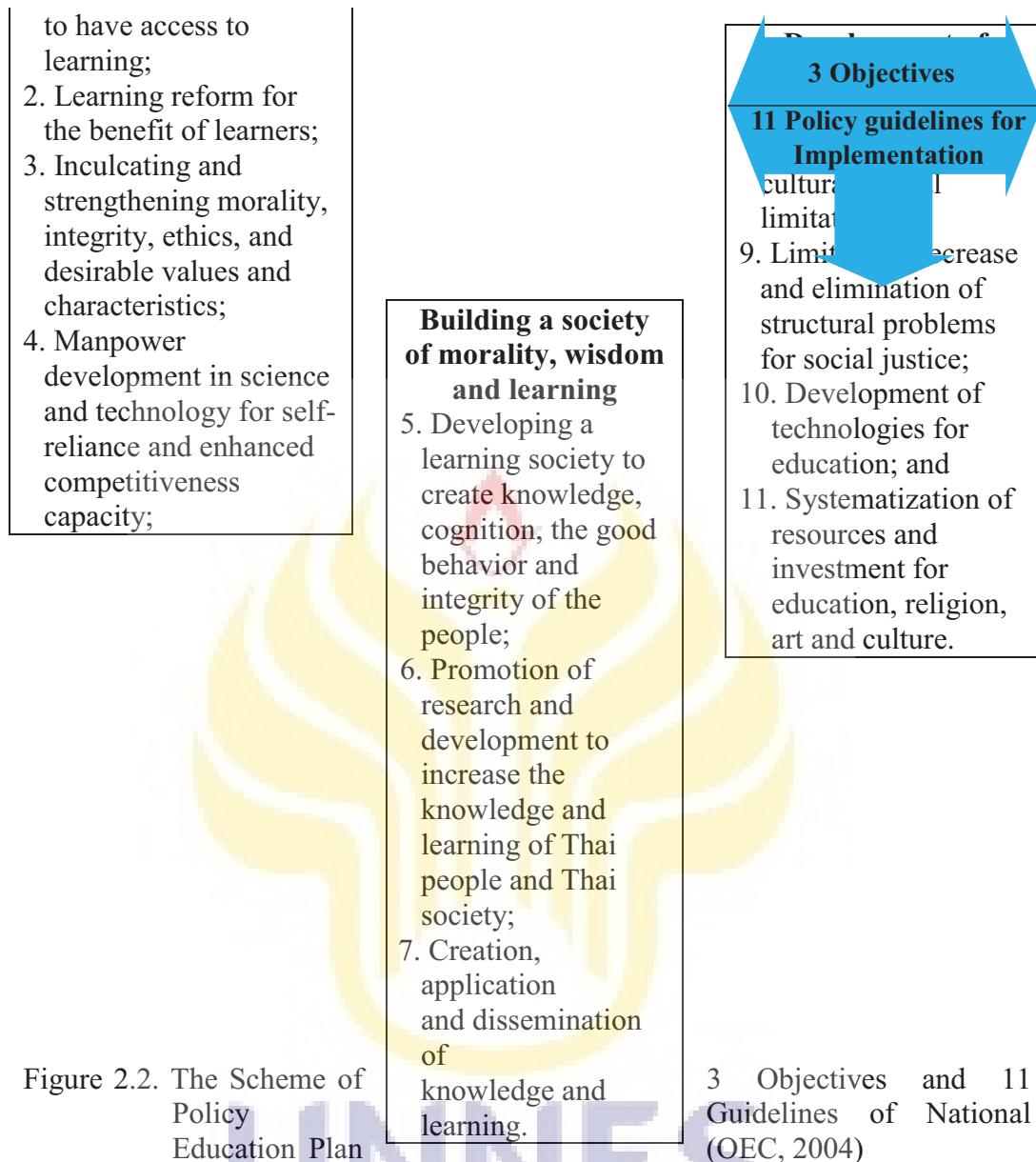


Figure 2.2. The Scheme of Policy Education Plan

3 Objectives and 11 Guidelines of National (OEC, 2004)

Moreover, OEC (2004) state that educational reform is a form of struggle for educational quality and standards which will be very important in the era of knowledge-based economy and society. It is hoped that the National Education Plan will some improvements in Thailand Education, as follows:

...1) lead to a knowledge-based society; 2) promote continuous learning; 3) involve all segments of society in designing and decision-making concerning public activities. It is also expected that the National Education Plan will empower Thai people so that they will be able to adjust to world trends and events while maintaining their Thai identity as

well as to develop desirable characteristics including virtue, competency, happiness and self-reliance.

2.1.4 The Current Assessment in Thailand

Through The 2008 Basic Education Core Curriculum, government outlines the framework principles behind the current student assessment system in Thailand. Helping learners develop their capacity and measuring their achievements were identified as objectives of student assessment. It refers to four main levels of student assessment: 1) classrooms, where teachers are to regularly and continuously measure and evaluate learners' performance, 2) schools, where annual - or semester-based assessment seeks to determine whether the education programme has enabled learners to reach learning goals, and to identify any gaps that need to be addressed 3) the educational service area (ESA) or local level, where the student learning will be examined through instruments including standard examination papers and data obtained from schools 4) the national level, assessment for students in Grades 3, 6, 9 and 12 (P3, P6, M3 and M6). The results of national tests are used to support the next planning efforts in order to raise the education quality (OECD, 2016).

Assessment at the classroom, school and local level

According to the *1999 National Education Act*, assessment have to gauge students' progress and achievement in variety ways. Thailand's current curriculum, The 2008 Basic Education Core Curriculum requires schools to determine their own criteria for student learning assessment. Teachers are responsible for identifying, designing and employing assessment techniques in their classrooms. They have to conduct an assessment for both formative and summative purposes. They are making the criteria with assistance from their schools, their local ESA, the central commissions and other agencies such as the Institute for the Promotion of Teaching Science and Technology (IPST). However, The 2008 Basic Education Core Curriculum gives teachers only scant concrete guidance on how to assess students in ways that contribute to them achieving the curriculum's goals. Principals and teachers may not receive the training and support that they need to use classroom assessment to be applicable

in student learning. The results of classroom and school-based assessment are reported up to the ESA and central levels (OECD, 2016).

Uses of student assessment in Thailand

Based on international comparative data by OECD (The Organization for Economic Co-operation and Development) and UNESCO (2016), Thailand is known as a country that makes a great use of its assessment result's data. The data are used to 1) inform decisions about student retention and promotion, and grouping of students for instructional purposes; 2) to compare individual schools against district or national performance, or against the performance of other schools; 3) to monitor schools' progress from year to year; 4) to make judgements about teachers' effectiveness; 5) and to identify aspect of the curriculum that could be improved. (OECD, 2013b; in OECD 2016). The average in OECD countries is not consistent: for some purposes (e.g. grouping students, making judgments about teachers' effectiveness or comparing a given school with other schools). There are only about 50% of students in OECD countries that have the principals who report that using assessment data for these purposes. In addition, nearly all Thai students are in schools whose principals report that student achievement data are tracked over time by an administrative authority, compared to an OECD average that is roughly 30 percentage points lower.

2.2 Assessment

Assessment is defined as "any method used to better understand the current knowledge that a student possesses." It means that assessment can be in form of a teacher's subjective judgment based on a single observation of student performance, or as complex as a five-hour standardized test. Assessment is needed in order to measure the students' knowledge that always changing. So, that the assessment have to conducted in some period of time to compare the students' increasing knowledge achievement. Assessment may affect decisions about grades, advancement, placement, instructional needs, and curriculum (Dietel et al, 1991). Assessment includes of several procedures that are used to gain information about student learning (observations, ratings of performances or projects, paper-and-pencil tests) and the formation of value judgments concerning

learning progress (Miller et al, 2009). With the assessment, teacher can know whether the students have earned things from the teaching and learning process.

Much information about students' accomplishment and where the students are in learning continuum is needed to assess students accurately and equitably. It needs to be realized in order to make a fair judgement about the students. The data gathered from the student have to be arranged in a proper way. They have to be accessible and presented in useable ways. The data should represent the recent condition of the students and also the needs of student to improve or develop because the ultimate use of assessment and evaluation is to help students' learning improvements (Law, 2007). Information gained from assessments should be used wisely and in optimum way by teachers in order to make improvements in either students or learning process itself.

2.2.1 Classroom Assessment

Classroom assessment is the process of collecting, synthesizing and interpreting information in order to make a classroom-based decision, support student learning (formative assessment) and judge student performance at a specific point in time (summative assessment). It is carried out by teachers and the students in their classrooms. Classroom assessment can be in a formal form like grading the students' work as well as more informal form like observations of students (Sui-Chu, 2012). Classroom assessment is a kind of assessment in which variety of assessment can be implemented in order to gain information about the student related to needs of learning purpose.

Anderman et al (2009) mentions four interrelated steps to the classroom assessment process. The first step is to define the purposes for the information. During this period, the teacher have to consider how the information will be used and how the assessment fits in the students' educational program. The purpose of assessment can be divided into diagnostic, formative and summative purpose. Diagnostic purpose is when the teacher gathers the information to detect student learning impediments, difficulties, or prerequisite skills. Formative assessment is when the information obtained is used to provide student's feedback and guide either student's learning or instruction while the summative assessment is process of collecting information in order to make student judgement which usually

conducted at some point in time, such as at the end of the school year or grading period. The next step in the assessment process is to measure student learning or attainment. Measurement involves using tests, surveys, observation, or interviews to produce either numeric or verbal descriptions of the degree to which a student has achieved academic goals. The third step is to evaluate the measurement data, which entails making judgments about the information. The teacher interprets the measurement data to determine if students have certain strengths or limitations or whether the student has sufficiently attained the learning goals. In the last stage, the teacher applies the interpretations to fulfill the aims of assessment that were defined in first stage. In the end, the teacher uses the data to guide instruction, render grades, or help students with any particular learning deficiencies or barriers.

2.2.2 Formative and Summative Assessment

Summative Assessment is an assessment conducted in a particular point of time to give a clear picture about what students know and do not know. In school level, summative assessment is an accountability measure that is used to student grading process, while in higher level it is used as district and classroom programs. There are some examples of summative assessments: 1) State assessments, 2) District benchmark or interim assessments, 3) End-of-unit or chapter tests, 4) End-of-term or semester exams, 5) Scores that are used for accountability of schools, 6) students (report card grades). The information obtained in this assessment can only help in evaluating certain aspects of the learning process because this assessment is conducted at some point of times far from the leaning/instructional process. Summative assessments are tools to help evaluate the effectiveness of programs, school improvement goals, alignment of curriculum, or student placement in specific programs. It cannot be used to provide the exact information about the students in order to make instructional adjustments and interventions during the learning process (Garrison et al., 2017). Summative assessment mostly used to measure the factual knowledge rather than contextual knowledge that refers to the application of knowledge in daily basis problem. However, with the increasingly widespread of authentic assessment, summative assessment also can be induced by the character of authentic

assessment in which it can be a form of measuring contextual knowledge of student.

Formative Assessment is part of the instructional process that will provide the information needed to adjust teaching and learning while they are happening. Formative assessment informs both teachers and students about student understanding at a point when timely adjustments can be made. These adjustments help to ensure students achieve targeted standards-based learning goals within a set time frame. The main thing that distinguish formative assessment from summative assessment is the existence of student practice. In formative way, the students will be assessed by their own practice in using their understanding skills and concept that they have just learned. Formative assessment helps teachers determine next steps during the learning process as the instruction approaches the summative assessment of student learning. Another distinction that underpins formative assessment is student involvement. If students are not involved in the assessment process, formative assessment is not practiced or implemented to its full effectiveness. Students need to be involved both as assessors of their own learning and as resources to other students. There are numerous strategies teachers can implement to engage students. In fact, research shows that the involvement in and ownership of their work increases students' motivation to learn. This does not mean the absence of teacher involvement. In formative assessment, teachers are critical in identifying learning goals, setting clear criteria for success, and designing assessment tasks that provide evidence of student learning. There are many classroom instructional strategies that are part of the repertoire of good teaching. When teachers use sound instructional practice for the purpose of gathering information on student learning, they are applying this information in a formative way. In this sense, formative assessment is pedagogy and clearly cannot be separated from instruction. It is what good teachers do. The distinction lies in what teachers actually do with the information they gather. How is it being used to inform instruction? How is it being shared with and engaging students? It's not teachers just collecting information/data on student learning; it's what they do with the information they collect (Garrison et al., 2017).

2.2.3 Authentic vs Traditional Assessment

Authentic and traditional assessment are distinguished by Wiggins (1990) as follow.

Assessment is authentic when the students directly assessed based on their performance on worthy intellectual tasks. They require students to be effective performers with acquired knowledge. Authentic assessments present the student with the full array of tasks that mirror the priorities and challenges found in the best instructional activities: conducting research; writing, revising and discussing papers; providing an engaging oral analysis of a recent political event; collaborating with others on a debate, etc. Those activities attend to whether the student can craft polished, thorough and justifiable answers, performances or products. To achieve the validity and reliability, authentic assessment emphasizing and standardizing the appropriate criteria for scoring such (varied) products. The structure of problem in authentic assessments are "ill-structured" challenges and roles that help students rehearse for the complex ambiguities of the "game" of adult and professional life.

Traditional assessment, by contrast, relies on indirect 'items' that is assumed will reveal the result of students learning. In fact, traditional tests tend to reveal only whether the student can recognize, recall or "plug in" what was learned out of context. This may be as problematic as inferring driving or teaching ability from written tests alone. The form of traditional tests is usually limited to paper-and-pencil, one-answer questions. The tests typically only ask the student to select or write correct responses--irrespective of reasons. Traditional testing standardizes objective "items" and, hence, the (one) right answer for each so they are more like drills, assessing static and too-often arbitrarily discrete or simplistic elements of those activities.

So that, the different between authentic and traditional assessment is highlighted on the students' performance and the application of knowledge in term of real-life or professional problems.

2.2.4 A Five-Dimensional Framework for Authentic Assessment

Gullikers (2006) explain 5DF for authentic assessment as a structural determination of authenticity of an assessment. The purpose of this framework is to give a clear picture of the concept of assessment authenticity and to provide

guidelines for implementing authenticity elements into competency-based assessment. This framework brings some clarity over many differences opinion about what authenticity really is and which assessment elements are important for authenticity. Categories in 5DF for authentic assessment are the task, the physical context, the social context, the assessment result or form, and the criteria. These five facets could be subdivided into several characterizing elements.

The scheme of 5 elements of 5DF for authentic assessment can be seen in Figure 2.3.

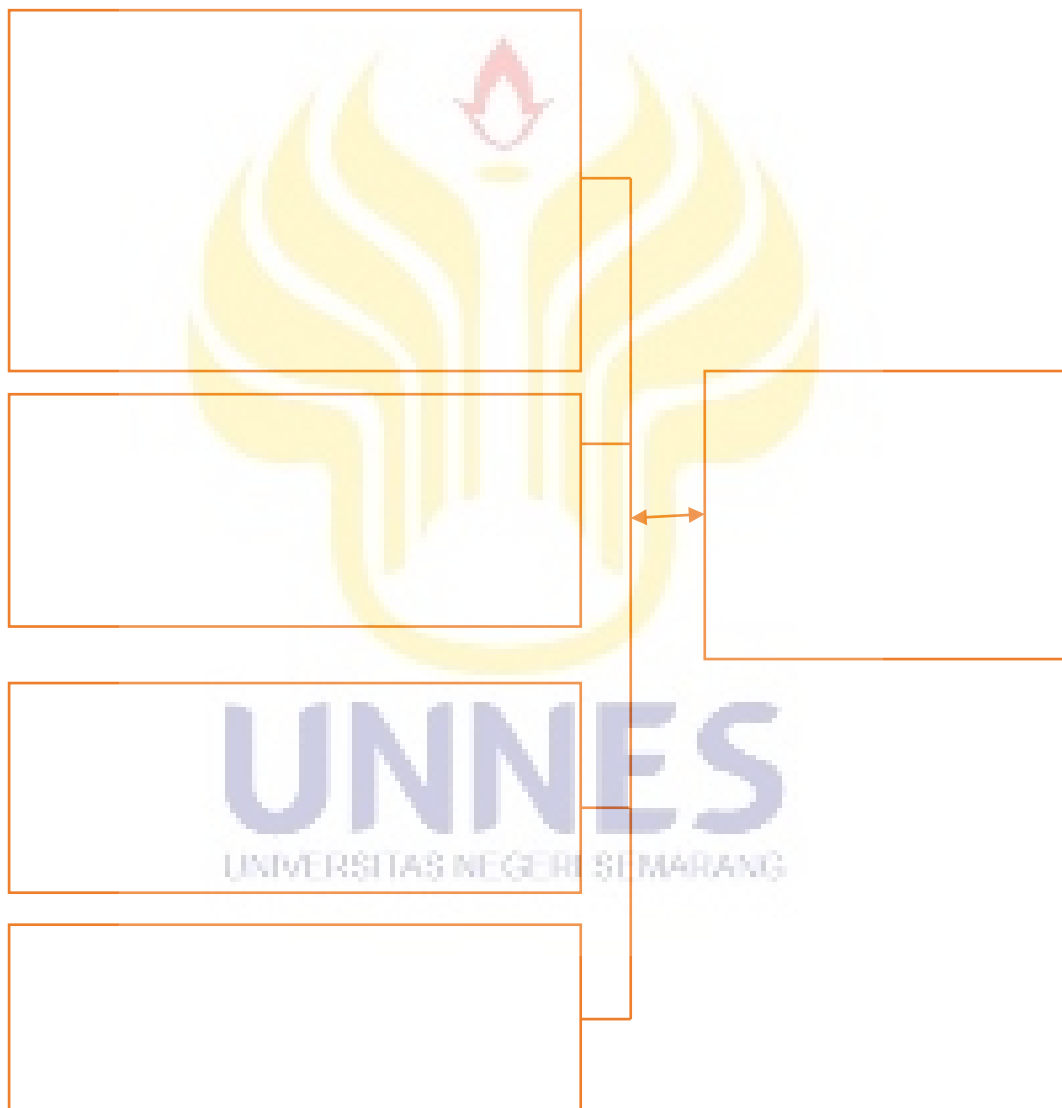


Figure 2.3 Scheme of A Five-Dimensional Framework for Assessment Elements by Gullikers (2006)

Task

Authentic task is a task that resembles the criterion task related to the integration and use of knowledge, skills and attitudes, its complexity and its ownership. Furthermore, the users of the assessment task should perceive the task, as a relevant and meaningful task (Gullikers, 2006). Learning then have to become an active process rather of the transmission of knowledge from program to student (Herrington and Standen, 2000; in Rowe and Hugh, 2009). In authentic task, students use their capability in knowledge, skills and attitudes at once at the same time while completing the meaningful task.

Integration of knowledge, skills and attitudes are parts of general education abilities include: *communication*; *analysis*; *problem solving*; *valuing in decision making* (the ability to understand the moral dimensions of decisions and to accept responsibility for the consequences of actions taken); *social interaction* (the ability to get things done in groups); *global perspectives* (the ability to understand diverse opinions, ideas, and beliefs about global issues); *effective citizenship* (the ability to engage collaboratively in community issues); and *aesthetic responsiveness* (the ability to make meaning out of artistic experiences and to explain choices of aesthetic expressions) (Darling-Hammond and Snyder, 1999). Authentic assessment therefore, should focus not on whether or not students can acquire knowledge, but whether or not they can acquire the way to use the skills and apply them appropriately (Burke, 1997; in Rowe and Hugh, 2009). As Wiggins (1993) states: 'We cannot be said to 'understand' something... unless we can employ it wisely, fluently, and aptly'. Assessment activity as authentic, can be said as an authentic if an assessment provides a realistic, as well as valid, demonstrated the application of learnt skills and knowledge through the completion of a set activity (Rowe and Hugh, 2009).

Meaningfulness of the task can be said as a soul of the task which is very important to get the students mind and soul blend into the task. As Gullikers (2006) stated that one of the crucial parts of authentic assessment is the meaningfulness in students' eyes. Student perception of *meaningfulness* of the assessment is at the heart of authenticity. A task as *relevant and representative* of their future professional roles, meaning that (a) they see the link to a situation in the real world or working situation; or (b) they regard it as a valuable transferable

skill. Clearly, perceived relevance or meaningfulness will differ from student to student and will possibly even change as students gain experience in professional practice.

The same need for resemblance holds for *ownership* of the task and of the process of developing a solution (Honebein et al., 1993). Ownership for students in the assessment task should resemble the ownership for professionals in the criterionsituation. Savery and Duffy (1994) argue that giving students ownership of the task and the process to develop a solution is crucial for engaging students in authentic learning and problem solving. On the other hand, in real-life, assignments are often imposed by employers and professionals often use standard tools and procedures to solve a problem, both decreasing the amount of ownership for the employer. Therefore, the theoretical framework argues that in order to make students competent in dealing with professional problems, the assessment task should resemble the complexity and ownership levels of the criterion situation.

Ill-structured problems have the features of problems that encountered in professional lives pose uncertainties in various ways (Chen and Li, 2016). Ill-structured problems are defined as having vague goals that permit multiple solutions or solution paths. By contrast, well-structured problems have single solutions, optimal solution paths, and structured goals. Solving well-structured problems normally involves representing the problems, searching for solutions, and implementing solutions. However, because of the nature of an ill-structured problem, its solution process is different from that of a well-structured problem (Chin and Chia, 2005). In well-structured problems, there are some rules to the goals and violates the rules means not playing the game. For example, if we are playing chess, and I move my rook diagonally across the board, I am simply not playing chess. However in ill-structured problems, there are no specific rules. For example, if you go to an architect and ask him to build you a new house, and he convinces you to renovate your existing house instead, or to live in a tree in the local park, it seems odd to say that he is not playing the game of design (Goel, 1992). Furthermore, Goel (1992) stated that well-structured problems usually take on the order for minutes to hours to complete and they have a right and wrong

answer, while the ill-structured problems take on the order for days to months to complete and have better and worse instead of right and wrong answer. There are also differences with respect to the lines of decomposition of parts. In both cases, the problems decompose into smaller problems. However, in well-structured , the lines of decomposition are determined by the logical structure of the problem. So, for example, each row is treated as a component or module. In ill-structured, on the other hand, lines of decomposition are determined by the physical structure of the world, practice within the community, and personal preference.

Physical Context

The physical context of an authentic assessment should reflect the way knowledge, skills and attitudes will be used in professional practice (Herrington and Oliver, 2000). Authentic assessment often deals with high- fidelity contexts. The presentation of material and the amount of detail presented in the context are important aspects of the degree of fidelity. Likewise, an important element of the authenticity of the physical context is that the *number and kinds of resources available*, which mostly contain *relevant as well as irrelevant information* (Herrington & Oliver, 2000), should resemble the resources available in the criterion situation (Arter and Spandel, 1992; Segers, Dochy, and De Corte, 1999; in Gullikers, 2006). School tests involve memory work, while out- of- school activities are often intimately engaged with tools and resources (calculators, tables, standards), making these school tests less authentic. It would be inauthentic to deprive students from resources as professionals also rely on resources. Another important characteristic crucial for providing an authentic physical context is the *time* students are given to perform the assessment task. Tests are normally administered in a restricted period of time, for example two hours, which is completely devoted to the test. In real life, professional activities often involve more time scattered over days or on the contrary, require fast and immediate reaction in a split second (Gullikers, 2006). Physical context has become an important part of authentic assessment considering that learning in the classroom with only books as the source is mostly not appropriate with what students have to face in the real professional field.

Social Context

Learning and performing out- of- school mostly takes place in a social system. Therefore, a model for authenticity should consider social processes that are present in real- life contexts. What is really important in an authentic assessment is that the social processes of the assessment resemble the social processes in an equivalent

situation in reality (Gullikers, 2006). A lot of job require to work in group or have a contact with other people. Here is why the social context of authentic assessment is prefer to get students into group work so that they can learn more about sharing and communicating.

Assessment Result/Form

The assessment result/form is related to the kind and amount of output of the assessment task, independent of the content of the assessment. In the framework, an authentic result/form is characterised by three elements. It should require students to *demonstrate* their learning or competencies by creating a quality product or performance that they can be asked to produce in real life. In addition, this should be *observable* for others. Students have to be able to present to others that their results reflect genuine mastery of the required competencies. The rationale behind requiring students to demonstrate their learning through an observable performance in a real- life situation is that this permits making inferences, as validly as possible, about underlying competencies and predicting future functioning in comparable work situations. Since the demonstration of relevant competencies is often not possible in one single test, an authentic assessment should involve a *full array of tasks and multiple indicators of learning* in order to come to fair conclusions about (professional) competence (Gullikers, 2006). Assessment result/form in the way students' work can be observed so that, students themselves can be assessed by the teacher according to the purpose of learning.

Criteria

Criteria are those characteristics of the assessment result that are valued; standards are the level of performance expected from various grades and ages of students. Criteria and standards should “*concern the development of relevant professional competencies and should be based upon criteria used in the real- life*

(i.e., *criterion*) *situation*..” Moreover, some criteria should be *related to a realistic outcome*, explicating characteristics or requirements of the product, process, performance or solutions that students need to create. Setting criteria and making them *explicit and transparent to learners* beforehand is important in authentic assessment, because this guides learning and after all, in real life, employees usually know on what criteria their performances will be judged. Moreover, this implies that authentic assessment requires *criterion-referenced judgment* (Gullikers, 2006). Criteria are those that should be reflected in a rubric in order to get a precise score for every competency of every student.



CHAPTER 5

CONCLUSION AND SUGGESTION

5.1 Conclusion

Based on the research finding and discussion about the classroom assessment in Biology class of Rattaphumwittaya school, it can be concluded that classroom assessment in Biology class of Rattaphumwittaya School contained the characteristic of authentic assessment. It was determined by the emerging of 4 from 5 aspects of 5DF for authentic assessment with the variant of implementation levels.

The elements of 5DF for authentic assessment that have been good implemented are *social context* and *form/result*. Students were working in group in order to make a product and performances during presenting the product. *Task* element only have been mediocre implemented because the content of the tasks was not concerned in real-world problem but only in factual knowledge related to the topics. The element that have a bad of implementation is *criteria*. It was happened because the teachers did not have any rubric as an important tool in assessing the students. Teachers might use multiple criteria to assess but because of the unavailability of rubric, it is difficult to proof that the teacher's grading was clearly objective. 2 of 3 teachers also did not tell the students about the criteria of judgment which is very important for students to maximize their efforts in doing the tasks.

The element that have not been implemented is *physical context*. The task did not require students to be in professionally practical place or use the computer simulation that can make students feel the environment of professionals. Resources used by student to finish the task also as simple as general tools and method to make a presentation.

5.2 Suggestion

- a. Teacher should improve the assessment form by connecting the topics with the *real-world* problem or phenomenon that makes student need to be in some place that bring them to the community or professional field. Teacher

could ask students to conduct some observations or experiment in order to find the explanation of topics.

- b. Teacher should make a rubric for each assessment that following the valid and reliable criteria related to the purpose of assessment.
- c. The teachers in Rattaphumwittaya School and other secondary school should conduct the assessment regarding the principle of authentic assessment.



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