



**DEVELOPING PROBLEM-SOLVING BASED
ASSESSMENT MODULE TO STIMULATE THE
CRITICAL THINKING AND CREATIVITY OF THE
STUDENTS' WRITING SKILL**

**The Case of Tenth Graders of SMA Sultan Agung 1 Semarang in the
Academic Years of 2017/2018**

A Thesis

**Submitted in Partial Fulfillment of the Requirements for the Master Degree
in English Education**

by

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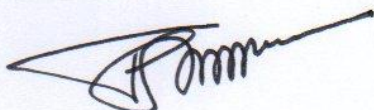
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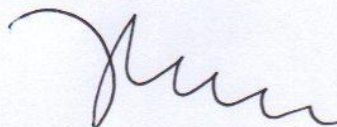
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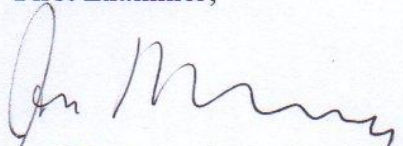
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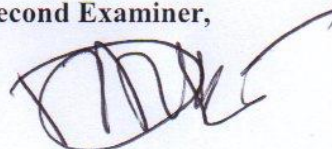
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menyatakan bahwa yang tertulis dalam tesis yang berjudul “Developing Problem-Solving Based Assessment Module to Stimulate the Critical Thinking and Creativity of the Students’ Writing Skill” ini benar-benar karya saya sendiri, bukan jiplakan dari karya orang lain atau pengutipan dengan cara-cara yang tidak sesuai dengan etika keilmuan yang berlaku, baik sebagian atau seluruhnya. Pendapat atau temuan orang lain yang terdapat dalam tesis ini dikutip atau dirujuk berdasarkan kode etik ilmiah. Atas pernyataan ini saya **secara pribadi** siap menanggung resiko/sanksi hukum yang dijatuhkan apabila ditemukan adanya pelanggaran terhadap etika keilmuan dalam karya ini..

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MOTTO AND DEDICATION

“A good teacher provides solutions to students’ problems. The best teacher provides the problems so students can find the best solutions”

This thesis is dedicated with affection, love, and gratitude to:

-  *My beloved mother and father*
-  *My beloved brothers*
-  *My teachers, my lecturers, and all people who have given me support in my life.*

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I do realize that there are still many shortcomings in this thesis. Therefore, I would be grateful for any criticisms and suggestions for its betterment.

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ABSTRACT

Hidayat, Nurlaili Rifki. 2019. Developing Problem-Solving Based Assessment Module to Stimulate the Critical Thinking and Creativity of the Students' Writing Skill (The Case of SMA Sultan Agung 1 Semarang in Academic Year of 2017/2018). A Thesis. English Language Education, Graduate Program, State University of Semarang. Prof. Dr. Dwi Rukmini, M.Pd., Second Advisor: Dr. Dwi Anggani Linggar Bharati, M.Pd.

Keywords: Problem-Based, writing, assessment, critical thinking, creativity

Assessment is an important component in the implementation of the 2013 Curriculum. assessment and learning cannot be separated due to the assessment result is also used to enhance the learning. Based on the result of monitoring and evaluation the implementation of 2013 Curriculum high school level in 2014 showed that there are some difficulties faced by the teachers in implementing the 2013 Curriculum. The main difficulties faced by the educators are in formulating indicators, compiling instrument items, and carrying out assessments with a variety of techniques. Therefore, in relation to the problems described, this research was focused on the issues related to the development of problem-solving based assessment model especially in term of writing assessment to stimulate the critical thinking and creativity of the students.

This study used Research and Development (R&D) which was done through seven steps. The subjects of this study were the students of X MIPA 6 of SMA Sultan Agung 1 Semarang in the academic year of 2017/2018. Questionnaire, interview, observation checklist, and test were used as the instrument in collecting the data. The teacher collaborated with the researcher in developing the problem-based writing assessment module. After the module was revised based on the experts' suggestions, main field testing was conducted. The module was utilized during the treatments.

The result of this study revealed that there was a significant improvement of the students' writing skill, critical thinking skill, and creativity skill. These skills improved after they were given treatments. It is proven by the mean score results of the pre-test and post-test. The students' score improvement of the writing skill was 47.83 to 70.83, and critical thinking and creativity skill was 42.67 to 60.13. Moreover, the paired sample test results show that there is significant different between the result of pre-test and post-test. In other words, there is a significant improvement on the students' writing skill, critical thinking and creativity skill after they did problem-based writing assessment module during the teaching and learning process.

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CHAPTER I

INTRODUCTION

In this following chapter, the writer would like to discuss the background of the study, the reason for choosing the topic, research problems, objectives of the study, significances of the study, scope of the study, and definition of key terminologies.

1.1 Background of the Study

Many efforts have been made by the Government to improve the quality of education in Indonesia, one of them is the implementation of the 2013 Curriculum. Basically, the 2013 Curriculum is a refinement of the School-Based Curriculum (KTSP), especially in the implementation level. Therefore, for the purpose of the 2013 Curriculum can be achieved then the implementation should also be good. As stated in the document, the 2013 Curriculum aims to prepare Indonesian people to have the ability to live as individuals and citizens who are faithful, productive, creative, innovative, effective and able to contribute to the life of society, nation, state and civilization world. This goal will be realized when the Government and all citizens, especially teachers trying to implement the 2013 Curriculum as good as possible.

In addition to the learning process, assessment is an important component in the implementation of the 2013 Curriculum. assessment and learning cannot be separated due to the assessment result are also used to enhance the learning. As Stiggins (2001) explained that assessment is the process of gathering information

about student learning for improvement of learning. Thus, the assessment that is applied by the educators (teachers), educational units (schools), and the government should be well implemented based on or referring to the 2013 Curriculum.

Based on the *Permendikbud* Number 66 Year 2013 regarding the standard of educational assessment and *Permendikbud* Number 104 Year 2014 on the assessment of learning outcomes by educators in the primary and secondary education, explained that assessment is the process of collecting and processing information to measure the achievement of learners' learning outcomes, including: authentic assessment (through assessment based on the observation, field assignments, portfolios, projects, products, journals, laboratory work, performance and self-assessment) and non-authentic assessments (through test and examination in the form of daily test, mid-semester examination, final-semester examination, competency level examination, competency quality examination, national examination and school examination).

The assessment in the 2013 Curriculum is closely related to critical thinking skills. According to the Fisher (2001), critical thinking is that mode of thinking about any subject, content or problem in which thinkers improve the quality of their thinking by skillfully taking over structures inherent in thinking and imposing intellectual standards on them. One way to develop critical thinking of the students is with applying problem-based learning and problem-based assessment. As has been stated by Shakirova (2007) that with the existence of critical thinking skills on students, it may enable students to deal effectively with social, scientific, and practical problems. It means students who are able to think critically are able to

solve problems effectively. Therefore, merely having knowledge or information is not enough. In order for students to be able to solve problems and be able to make effective decisions in their personal lives, they must be able to think critically and creatively.

The terms of assessment can be applied to various aspects of language skills, i.e. listening, speaking, reading, and writing. One of the four language skills that have a level of difficulty in learning that is writing skill. This skill involves high-level thinking skills because it requires students to come up with ideas and creativity in the form of works. Brown (2001) claimed that writing is a thinking process. Further, he states that writing can be planned and given with an unlimited number of revisions before its release. Thus, to enhance the learning, teachers should be able to integrate learning and assessment effectively in order to stimulate critical thinking and creativity of the students.

But in fact, based on the result of monitoring and evaluation the implementation of 2013 Curriculum high school level in 2014 showed that there are some difficulties faced by the teachers in implementing the 2013 Curriculum, especially in carrying out the assessment of learning outcomes. The main difficulties faced by the educators are in formulating indicators, compiling instrument items, and carrying out assessments with a variety of techniques. They do not understand how to formulate the indicators and compile the items of assessment combined with high-level thinking skills and students' creativity, which such assessments are the requirement of the 2013 Curriculum.

Therefore, in relation to the problems described above, this research is focused on the issues related to the development of problem-solving based assessment module especially in term of writing assessment to stimulate the critical thinking and creativity of the students.

1.2 Reasons for Choosing the Topic

Based on the explanation above, this study would be conducted under the title of “Developing Problem Solving Based Assessment Module to Stimulate the Critical Thinking and Creativity of the Students’ Writing Skill at Tenth Grades of SMA Islam Sultan Agung 1 Semarang” with some reasons as follows:

- 1) Such assessments have been mentioned above are the requirement of the 2013 Curriculum.
- 2) The English teachers still encounter some difficulties in formulating indicators, compiling instrument items, and carrying out assessments with a variety of techniques, especially in formulating the indicators and compiling the items of problem-solving assessment to stimulate the critical thinking and creativity of the students’ writing skill.
- 3) 2013 Curriculum requires the students to have high order thinking skill so that the goal of the 2013 Curriculum can be achieved.
- 4) A problem solving is one way or technique to develop critical thinking and creativity of the students.

1.3 Research Problems

The following questions are as a guide to solve the above problems:

- 1) How is the factual condition of the assessment that has been used by the English teacher to assess the students' writing skill?
- 2) How is the development of problem-solving based assessment module to stimulate the students' critical thinking?
- 3) How is the development of problem-solving based assessment module to stimulate the students' creativity?
- 4) How effective is the problem-solving based assessment module can stimulate the students' critical thinking and creativity?

1.4 Objectives of the Study

Based on the formulation of the issues raised in this study, the research objectives obtained as follows:

- 1) To analyze the factual condition of the assessment that has been used by the English teacher to assess the students' writing skill?
- 2) To develop the problem-solving based assessment module that will be used to stimulate the students' critical thinking.
- 3) To develop the problem-solving based assessment module that will be used to stimulate the students' creativity?
- 4) To evaluate the effectiveness of problem-solving based assessment module that has been developed to stimulate the students' critical thinking and creativity.

1.5 Significance of the Study

Based on the research problems and the objectives of the study above, this research would give some significances as follows:

- 1) The findings in analyzing the factual condition of assessment that has been used by the English teacher to assess the students' writing skill would contribute to the theoretical aspect towards the implementation of 2013 curriculum in English learning. And pedagogically the benefit of this study was to provide the teacher with an understanding of appropriate assessments according to the 2013 curriculum, especially on the problem-solving based assessment of the students' writing skill.
- 2) The result of developing the problem-solving based assessment module was useful for the teachers or readers as it can provide the insight to them towards the theories used in this research. While pedagogically, it would encourage the English teachers, lecturers, and assessment developers in designing or developing a problem-based-writing assessment based on 2013 Curriculum to stimulate the students' critical thinking and creativity.
- 3) The result of evaluating the effectiveness of problem-solving based assessment module that has been developed was useful as it can give the insight for the readers whether the problem-solving based assessment module effective to stimulate the students' critical thinking and creativity or not. On the other hand, pedagogically, the result of this study can be used as a guide by the English teachers in designing good and correct assessment according to the requirement of 2013 curriculum, especially in designing problem-solving based assessment

module to stimulate the critical thinking and creativity of the students' writing skill.

1.6 Scope of the Study

This study will focus on the issues related to developing problem-solving based assessments module to stimulate critical thinking and creativity of the students' writing skill. The object of the study is tenth grades of SMA Islam Sultan Agung 1, Semarang.

1.7 Definitions of Key Terminologies

The definitions of key terms are important to recognize the key points of the study so that the same comprehension of the writer and the readers can be attained. It will make the readers get easier to trace the availability of the thesis. In this study, the definitions of key terminologies were made based on the books and journals, then the researcher made the conclusions as follows:

1) Problem-solving

Problem-solving is the working process through details of a problem to reach or get a solution. Problem-solving may include systematic operations and can be a gauge of an individual's critical thinking skills.

2) Assessment

Assessment refers to the wide variety of methods or tools that educators use to evaluate, measure, and document academic readiness, learning progress, skill acquisition, or educational needs of students.

3) Critical thinking

Critical thinking is an investigation that aims to explore situations, phenomena, questions, or problems in order to get a hypothesis or conclusion that integrates all available information and that therefore can be convincingly justified.

4) Creativity

Creativity is the mental ability and distinctive types of human skills that have unique, different, original, completely new, beautiful, efficient, targeted, and effective disclosures.

5) Writing

Writing is a physical and mental activity. It is about discovering ideas, thinking about how to communicate and develop them into statements and paragraphs that will be comprehensible to a reader.

1.8 Outline of the Research Report

The writing of this thesis begins with the introduction in Chapter I. The first chapter presented several basic subchapters such as background of the study which acted as the underlying theories and ideas that encouraged the research to conduct the research, reasons for choosing the topic as convincing reasons on why this research worth to conduct, research problems, objectives of the study, significances of the study and scope of the study. The background of the study begins with the introduction of assessment which is one of the important components in the 2013 curriculum. With the focused of this research to develop the assessment, the researcher tried to develop the problem-solving based assessment module in order to stimulate the critical thinking and creativity of the students' writing skill. The

following questions are analyzed and explained in this research. By accomplishing the objectives, hopefully, this research could contribute in terms of theoretical, practical and pedagogical matters.

The second chapter explains about three subchapters. The first one was the review of previous studies as the underlying studies to support this research. The previous studies were categorized into several parts such as the assessment especially about the authentic assessment, high order thinking and problem-solving, critical thinking and creativity, and the other one is writing skill. Each of them was reviewed so the researcher would know the differences between the previous studies and this research. The next subchapter was review of theoretical studies which explained the problem based learning, problem-solving based assessment, critical thinking and creativity, and the last one was writing skill. The third subchapter was the theoretical framework of the present study that would help the researcher to describe certain phenomena using some evidence and facts based on the theory that the researcher used in this research.

The third chapter, research methodology consists of six subchapters, such as research design, procedures of the study, subject of the study, Instrument and technique of collecting the data, technique of analyzing the data, and triangulation. The research design of this study was Research and Development (R & D) and the subjects in this study were the English teacher and the tenth-grade students at SMA Islam Sultan Agung 1 Semarang. Furthermore, the researcher used observation, interview, questionnaire, and test as the instrument for collecting the data. Lastly, the data are validated with methodological triangulation by combining the

qualitative data from in-depth interview and a bit of quantitative data from the questionnaires and also from tests.

The fourth chapter is finding and discussions. The research findings in this study was follow the Research and Development (R & D) context. Based on the findings, the researcher found the fact that even though the teacher had implemented the 2013 curriculum as a reference but in its application in teaching and learning activities the teacher still had not implemented it optimally, because in the teaching and learning activities the teacher often asked the students to work on the questions in the LKS book, whereas the learning activities using LKS had not fully developed the skills and the ability to think critically and creatively.

The last chapter is the conclusion and suggestions related to the findings of the study. Based on the conclusion, it could be concluded that the teacher never did any development of problem-solving writing assessment which can stimulate the students' critical thinking and creativity. Therefore, the skill of students' critical thinking and creativity had not been optimal. This was because the teaching and learning process lacked emphasis on the activities that stimulate the students to think critically and creatively. Thus, the researcher tried to meet the needs of the teacher and students by developing the problem-solving based assessment module to stimulate the students' critical thinking and creativity especially in writing skill. Furthermore, from this research, it is suggested that the teacher was expected to be able to explore critical thinking skill, creative skill, and other skills in students through appropriate learning methods, so that it can produce great quality students.

CHAPTER II

REVIEWS OF RELATED LITERATURE

In this chapter, the writer explained the review of related literature which consists of reviews of previous studies, theoretical review, and theoretical framework.

2.1 Reviews of Previous Studies

This part would discuss some of the previous studies that concern on the development of problem-solving assessment module to stimulate the critical thinking and creativity of the students' writing skill.

The first previous studies were about assessment especially about authentic assessment that was conducted by Aliningsih and Sofwan (2015), Marhaeni and Artini (2015), Nurgiyantoro and Suyata (2009), Wahyuni (2010) and Merta et al (2015). In their research, they generally stated that authentic assessment is an assessment requiring students to use the same competencies, or combinations of knowledge, skills, and attitudes, that they need to apply in their criterion situation in professional life. The result of the study indicates that the teachers need assistance in providing various types of authentic assessment instruments that can be used in learning. While another researcher explained in their journal that authentic assessment also can be used to measure the critical thinking of the students (Damayanti et al, 2017). The result shows the authentic assessment to measure and cultivate critical thinking skills consisting of written tests, performance, portfolios, projects, and attitudes. This is in accordance with the

requirement of the 2013 curriculum that must be implemented by every teacher in order to achieve the objectives of the curriculum.

On the other hand, Sarwanti (2015), Mahendara (2016) and Widayati (2001) described in their journal that authentic assessment in assessing writing skill also plays a very important role in teaching because the impact will be very huge to the students. The process of this assessment really shows the students' performance. While, Javed et al (2013) added, in its implementation, there are some major content areas in assessing writing skill that can be adjusted into 5 components: ideas & development, organization, sentences & paragraph, word choice, grammar usage & mechanics.

Their studies can be used as practical guidance for my study, because it was relevant to my present study especially in term of assessment related to the 2013 curriculum. However, my research was not the same as those above who only described the authentic assessment in general as well as the problems faced by the teacher, but my research focused more on how to develop that assessment especially problem-solving based assessment model to stimulate critical thinking and creativity on a certain skill in English language teaching.

The next studies were about high order thinking and problem solving based assessment that was conducted by Pratiwi et al (2015), Samritin and Suryanto (2016), Hairida (2016), Arifin and Retnawati (2017), Kusuma et al (2017), Widana (2017), Suyono et al (2017), Pratiwi et al (2017), Wachyudi et al (2015), and Aji (2015). Their studies had similarity with each other especially in terms of developing the high order thinking and problem-solving based assessment. In

general, the aims of their studies were to provide knowledge and understanding to the teachers about the concept and characteristics of assessment related to the HOTS and problem solving and to improve the skills of the teachers to develop the assessment. In relation to my research, my research also deals with the high order thinking and problem-solving based assessment. However, my research was not only focused on the high order thinking or problem-solving assessment but also on the creativity assessment which must be made by the teacher. And I would use this assessment to stimulate the critical thinking and creativity of the students' writing skill.

The next previous studies were about critical thinking and creativity itself. Hanurawan and Waterwoth (2007), Muhfahroyin (2009), Khoiri et al (2017), Areni and Syafri (2015), Zaida and Sofwan (2015), Kristanto and Susilo (2015), Sulaiman et al (2017), Barnet and Francis (2013) had conducted a study on critical thinking and creativity in different ways but with the same goal, that was to analyze and to enhance the critical thinking and creativity of the students. Generally, the results of their research showed that the ability to think critically and creatively was needed by the students to face the real-world problems today. Therefore, it was very important to be owned by every student.

On the other hand, problem-based learning is closely related to the development of critical thinking and creativity. As had been revealed by Susilo (2012, also see Solang, 2008; Redhana, 2012; Widodo and Kadarwati, 2013; Suarsana and Mahayukti, 2013; Fakhriyah, 2014; Fachrurazi, 2011; Astika et al, 2013; Haryadi et al, 2015; Susanto and Retnawati, 2016; Qomariyah, 2016;

Palennari, 2010; Anazifa and Djukri, 2017; Marzuki and Basariah, 2017; Nugraha et al, 2017; Lutfianasari et al, 2018; Salim et al, 2015; Toharudin and Kurniawan, 2017; Hambali and Muchlis, 2016; Triyono et al, 2017; Nuswowati et al, 2017; Dwijananti and Yulianti, 2010; and Istikomah, 2017) that PBL was a model to stimulate the students' critical thinking skills. Teachers need to engage students actively in the learning process to improve students' critical thinking skills. based on the results of their research, the application of PBL in the learning process was effective to develop students' critical thinking and creativity, since in PBL students were not asked to create new knowledge in the field but creating something new for students. So that it would stimulate their way of thinking to be critical and creative.

In addition, according to Huda et al (2017, also see Dharma et al, 2014; Widiawati et al, 2015; and Khotimah, 2014), problem-based learning could also be used to improve student learning motivation and could be applied in various subjects such as language, physics, science or mathematics. In relation to my study, my study also deals with the use of problem-solving to stimulate the critical thinking and creativity of the students. However, in my study, I more focused on the development of problem-solving based assessment model to stimulate the critical thinking and creativity of the students' writing skill.

The other previous studies were about writing skill that was conducted by Sharadgah (2014), Dalle (2008), Emilia (2010), Alidmat and Ayassrah (2017), and Bouanani (2015). In general, the purpose of their studies was to investigate the effectiveness of writing to improve the students' critical thinking and creativity. They used different writing techniques in order to improve students' critical

thinking and creativity. Based on the findings of the study, Sharadgah (2014) stated that the students' critical thinking can be developed through writing in an internet-based environment. The findings from Dalle (2008) indicated that the brainstorming technique was good to promote the students' creativity and productivity in writing compositions. While Bouanani (2015) stated that critical thinking skills can be enhanced through reflective writing intervention, and the other one (Alidmat and Ayassrah, 2017) explained that writing task can be used to develop the students' critical thinking. By reviewing their studies, I conclude that this study was appropriate with my study because it can give me more information about the way to enhance the students critical thinking in writing skill.

In conclusion, from the discussion of previous studies above, it can be seen that the assessment model that should be implemented by the teacher in the teaching and learning process can influence the students' learning outcomes. Therefore, the study on the development of the assessment model was very important to be implemented. Thus, in this study, the researcher tried to conduct the research about the assessment model that used by the teacher and tried to develop it especially in the development of problem-solving based assessment module to stimulate the critical thinking and creativity of the students' writing skill.

2.2 Reviews of Theoretical Studies

In this part, the researcher would present some reviews of theoretical studies related to problem-solving, writing skill, critical thinking, and creativity.

2.2.1 Problem Based Learning

Problem is the gap between hope and reality. In the context of the 2013 Curriculum problem-based learning is seen as a deliberately created condition for students to be required to solve problems that have not been worked before and students have not yet understood the way to solve them. This means that the problem is still new to students even though the process or knowledge it already has can be used as an experience to solve it.

To improve the process of quality and learning outcomes, the learning experts have suggested the use of learning constructivist paradigms for teaching and learning activities in the classroom. With the changing of learning paradigm, there is a central change (focus) of learning from teacher-centered learning to student-centered learning. In other words, when teaching in the classroom, the teacher should try to create the condition of the learning environment that can encourage students to learn, or give students the opportunity to actively construct the concepts that they learn. Problem-based learning is one of the learning models used to stimulate the high order thinking of the student in the situation oriented to real-world problems. According to Nurhadi (2003), problem-based learning is:

“A teaching model that uses real-world problems as a context for students to learn about critical thinking and problem-solving skills, and to acquire essential knowledge and concepts from subject matter”.

On the other hand, Pannen (2001) stated that problem-based learning or PBL has 5 main assumptions are:

- 1) Problems as a guide. The problem is being the reference that should be the student's attention and the frame of mind for the students in doing the task;

- 2) Problems as a unity and evaluation tool. Problems are presented to the students after the explanation is given;
- 3) Problems as an example. Issues are used to describe theories, concepts, principles and are discussed in group discussions;
- 4) Problems as a means to train students to think critically;
- 5) Problems as a stimulus in learning activities.

Based on the two opinions above it can be concluded that in the problem-based learning the students are basically involved in a problem in the learning materials and they are expected to be actively involved in the learning process that requires them to solve the problem. Besides problem-based learning is used to stimulate high-order thinking of the students in problem-oriented situations, including learning how to learn.

Further, Boud and Felleli (1997), Fogarty (1997) stated that PBL is a learning approach by confronting students with practical problems, ill-structured, or open-ended through stimulus in learning. PBL has the following characteristics: (1) learning begins with a problem, (2) ensuring that the problems are related to the real world of the students, (3) organizing the lessons around issues, not around disciplines, (4) giving the students great responsibility in shaping and running directly their own learning process, (5) using small groups, (6) demanding students to demonstrate what they have learned in the form of a product or presentation.

From the description above it can be said that the task of the teacher in PBL is as an instructor (tutor) that facilitates students, encourages, guides, and monitors the learning process, presents problems, ask questions, and facilitates inquiry and

dialogue. Teachers should build students' confidence in solving problems, and provide direction for students to gain an understanding of learning.

In relation to this research and considering how important problem-based learning was to stimulate higher-order thinking of the students, the researcher also would try to further investigate the process of problem-based learning that was conducted by the teachers and institution in a school, both in the learning process and its assessment. In which the PBL is also the requirement of 2013 curriculum in Indonesia.

2.2.2 Problem-solving Based Assessment

According to Reynolds (1997):

“Assessment needs to be in accordance with the philosophy of active learning rather than passive reproduction learning. . . It may be preferable, and more rigorous, for assessments to follow the PBL philosophy and to require the individual to analyze a problem, search for and then apply relevant information”.

Based on Reynolds's quote above, one of the active learning that can be used in the teaching and learning process is problem-based learning. In PBL, the assessment should be done by authentic assessment. As stated by Gallagher (1997), PBL assessments should be authentic, it means it should be structured so that students can display their understanding of problems and their solutions in contextually-meaningful ways. Furthermore, O'Malley and Pierce (1996) define authentic assessment as a form of class assessment that reflects learning, learning outcomes, motivation, and attitudes toward relevant learning activities. Assessment can be done with a portfolio that is a systematic collection of student works analyzed to see the progress of learning within a certain time and within the

framework of achieving learning objectives. Griffin, Patrick & Nix, Peter (1991) suggested that assessments in the problem-based learning approach are conducted in two ways:

- a) *Self-assessment*: it is an assessment that should be done by the students themselves to their efforts and the results of their work by referring to the objectives to be achieved (standard) by the students themselves in learning.
- b) *Peer-assessment*: it is an assessment in which students discuss to provide an assessment of the efforts and outcomes of completion of tasks that have been done alone or by friends in the group.

In addition, based on the Permendikbud Number 66 the Year 2013 regarding the standard of educational assessment, Assessment should be done by combining three aspects of knowledge, skill, and attitude. Assessment of the mastery of knowledge that covered all of the learning activities is conducted with the final examination, midterm examination, quiz, assignment, documents, and reports. Assessment of skills can be measured from the mastery of learning aids, both software, hardware, or testing capabilities. While the assessment of the attitude focused on the mastery of soft skills, such as the activeness and participation in discussion, the ability to work in teams, and attendance in learning. The weight of the assessment for all three aspects is determined by the students to own subject teacher.

In relation with this study, the design of problem-solving based assessment needs to be developed because based on the result of monitoring and evaluation the implementation of 2013 Curriculum high school level in 2014 showed that there

were some difficulties faced by the teachers in implementing the 2013 Curriculum, especially in carrying out the assessment of learning outcomes. Thus, this design would be developed with the aim of helping the teachers to overcome the difficulties or problems in the assessment that must be in accordance with the 2013 curriculum.

2.2.3 Critical Thinking and Creativity

High order thinking skills become one of the most important skills that students must have nowadays. Critical thinking and creative thinking are the embodiments of higher order thinking. As has been described by King, Goodson, & Rohani (2005) that high order thinking skill involves various applications of thinking processes in complex situations and consists of several variables including critical thinking and creative thinking. They are activated when individuals encounter unusual problems, uncertainties, questions or dilemmas. Similarly, Ormrod (2003) stated that metacognition, problem-solving and critical thinking are part of high order thinking.

In the field of education, critical thinking is defined as the formation of the ability of logical aspects such as the ability to give arguments, and proportional statements. Critical thinking has been classified differently by different learning theorists. One of the most influential of the critical thinking models is Blooms' Taxonomy. One of the renowned theories that has been viewed as representative of the educational perspective of critical thinking theory is Blooms' Taxonomy. According to Krathwohl & Anderson (2001), the dimensions of this cognitive

process include six levels of revised Bloom' Taxonomy theory, which are: remembering, understanding, applying, analyzing, evaluating, creating.

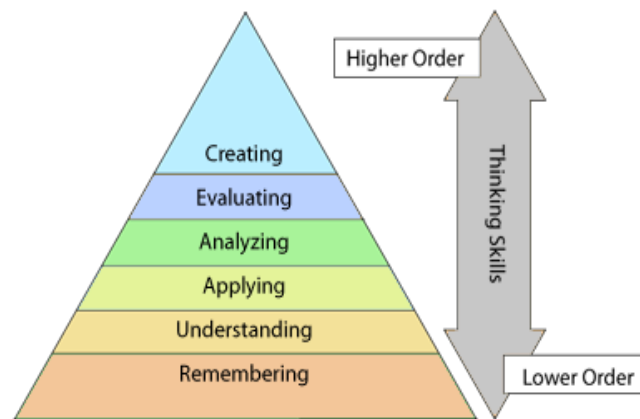


Figure 2.1 *revised blooms' taxonomy theory* (Krathwohl & Anderson, 2001)

On the other hand, critical thinking is often associated with creative thinking. Weisberg (2006) defines creative thinking as a process of thinking that refers to the processes to produce a new creative product, derived from an activity that is directed to the goal. Thus, it can be said that creative thinking can be defined as a mental activity that a person uses to build a new idea. This something new is one indication of creative thinking.

Based on the above explanation can be concluded that the meaning of high-order thinking here are skills that include problem-solving, critical thinking and creative thinking. Thus, in order to develop the students' critical thinking and creativity, they must be able to solve the problems in the real-world situation. Therefore, the relevance of critical thinking and creativity in learning is the need to prepare the students to be powerful problem solvers, mature decision makers, and

people who never stop learning. It is important for the student to become an independent thinker in line with the rising types of work in the future that require skilled workers who have critical and creative thinking skills.

Besides, based on Krathwohl & Anderson (2001) about revised Bloom's Taxonomy theory, here the writer adjusted some indicators of critical thinking and creativity in accordance with the problem-based learning. Those indicators can be seen in the table below:

Table 2.1 *the indicators of critical thinking and creativity.*

Dimension Assessed	Accomplished 4	Proficient 3	Developing 2	Beginning 1
(Inquire) Identify and define key issue/s and/or problem/s	Clearly, accurately, and appropriately identifies key issue/s and/or problem/s	Identifies most or all key issue/s and/or problem/s. Some minor inaccuracies or omissions may be present, but do not interfere with meaning.	Identifies some key issue/s and/or problem/s. May have some inaccuracies, omissions or errors present that interfere with meaning	Most or all of the key issues/ and/or problem/s are not identified or defined or are identified or defined inaccurately. Meaning is unclear.
(Analyze) Present and Analyze Data/ Information	Presents appropriate, sufficient and credible data/information. Clearly analyzes information for accuracy, relevance, and validity. Information clearly relates to the meaning	Presents sufficient and appropriate data/information. Generally, analyzes data/information for accuracy, relevance, and validity. Minor inaccuracies or omissions do not interfere with analysis or meaning.	Presents some appropriate data/information. May miss or ignore relevant data/information. The analysis is limited or somewhat inappropriate. May contain inaccuracies or omissions that interfere with analysis and/or meaning.	Does not present relevant and appropriate data/information. Fails to analyze, or uses inaccurate or inappropriate analysis of data/information. Copies information without analysis.
(Evaluate) Apply a Multi-Dimensional approach/ Consider context	Clearly applies a multidimensional approach. Synthesizes various perspectives. Acknowledges	Acknowledges multiple approaches. Some synthesis of perspectives. May not fully acknowledge limits of position	Somewhat simplified position with some sense of multiple approaches. Minor or vague synthesis of	Student's position is grounded in a singular, often personal perspective. Position may be

	limits of position or context.	or context, but is aware of limits or context	perspectives. Some acknowledgment position may have limits. May not acknowledge context.	simplistic and obvious. Little or no awareness that position may have limits or context.
(Solve) Demonstrate Sound Reasoning and Conclusions	The reasoning is logical and creative, consistent, complete and often unique. The conclusion is complex and/or detailed, well supported, creative, complete, and relevant	The reasoning is mostly logical, complete, and consistent. Demonstrates some unique or creative insight. The conclusion is generally complete, supported, and most consistent and relevant	The reasoning contains elements of logic and/or creative insight, but not fully resolved. May have minor inconsistencies or omissions. The conclusion is relevant but abbreviated or simplified, not fully supported, and/or contains minor inconsistencies	The reasoning is illogical, simplistic, inconsistent or absent. The conclusion is simplistic and stated as an absolute, or inconsistent with evidence or reasoning. Lack of coherent or clear conclusion.

2.2.4 Writing Skill

Writing is one of the language skills that should be mastered by the students in addition to the other three language skills; listening, speaking and reading. Meanwhile, writing is also one of the most difficult language skills because this skill involves high-level thinking skills and requires the students to come up with ideas and creativity in the form of works. According to Harmer (2001), writing is a form of communication to deliver thought or to express feeling through written form. Thus, it can be concluded that writing is a communication activity in the form of delivering message or information through the written form to other parties by using written language as a tool or media.

The relationship between writing and critical thinking is based on the fundamental assumption that writing is closely related to thinking. Writing enhances thinking because it requires someone to make their ideas explicit and to

evaluate and choose among the tools needed for effective discourse. It should provide an opportunity to think through arguments and that, if used in such a way, could serve as a “cultivator and an enabler of higher order thinking” Resnick (in Quitadamo & Kurtz, 2007). Therefore, in this context, writing may provide an opportunity for students to think through arguments and use higher-order thinking skills to respond to complex problems. Thus, if we present our students with important problems about which to write and create for them an environment that demands their best writing efforts, we are helping develop their intellectual and cognitive abilities. In other words, when we make students struggle with their writing, we are making them struggle with thought itself.

On the other hand, in assessing the writing skill, a standard technique should be used to show the result of the research is reliable. In scoring writing test, there are five major items or categories that should be applied by the teacher, they are content, organization, vocabulary, language use and mechanics (Weigle, 2002). Therefore, to analyze the students’ test in writing skill, the teacher should focus on the items in the elements of writing. The analytical scoring rubric of writing according to Weigle (2002) can be seen in the table below.

Table 2.2 *The Analytical Scoring Rubric of Writing*

Item Analysis	Score	Criterion of Scoring
Content	5	Relevant to the topic and easy to understand.
	4	Rather relevant to the topic and easy to understand.
	3	Relevant to the topic but is not quite easy to understand.
	2	Quite relevant to the topic but is not quite easy to understand.
	1	Does not relevant to the topic and does not easy to understand.

Organization	5	The arrangement of generic structure is appropriate.
	4	A few errors in the arrangement of generic structure.
	3	Some error in the arrangement of generic structure.
	2	Occasional error in the arrangement of generic structure.
	1	Frequent error in the arrangement of generic structure.
Vocabulary & Mechanics	5	Effective in choice of words, spelling and punctuation.
	4	A few errors in choice of words, spelling and punctuation.
	3	Some errors in choice of words, spelling and punctuation.
	2	Occasional errors in choice of words, spelling and punctuation.
	1	Frequent errors in choice of words, spelling and punctuation.
Grammar	5	Effective and accurate in using grammatical.
	4	A few grammatical inaccuracies.
	3	Some grammatical inaccuracies.
	2	Numerous grammatical inaccuracies.
	1	Frequent grammatical inaccuracies

2.3 Theoretical Framework

One of the fundamental changes in the 2013 curriculum is the change of assessment standards. This change of judgment allows teachers who are accustomed to using a traditional assessment system such as multiple-choice tests, true/false tests, short answers, and essays, should change the scoring system into an authentic assessment based on the demands of the curriculum. Besides, according to Kemendikbud (2013), assessment in the 2013 curriculum emphasizes on students' thinking levels from low to high. One of the authentic assessments that can develop students' high-order thinking skills is through problem-solving based assessment. Because this assessment students are required to solve problems in the real-world context that gives the possibility that one problem can have more than

one kind of solution. This process of assessment will indirectly stimulate students' thinking to become more critical and creative.

Although authentic assessment is appropriate for assessing students' skills, in reality, there are still many teachers who do not understand how to implement authentic assessments properly. They do not understand how to formulate the indicators and compile the items that are combined with the students' high-level thinking skills and creativity. In accordance with the concept of 2013 curriculum which requires students to think actively and based on the problems about the lack of mastery of assessments that must be appropriate with the standards of the 2013 curriculum, this study will focus on the issues related to the development of problem-solving based assessments to stimulate the students' critical thinking and creativity. In this case, the researcher also will focus on the students' writing skill since this skill also involves high-level thinking skills and requires the students to come up with ideas and creativity in the form of works.

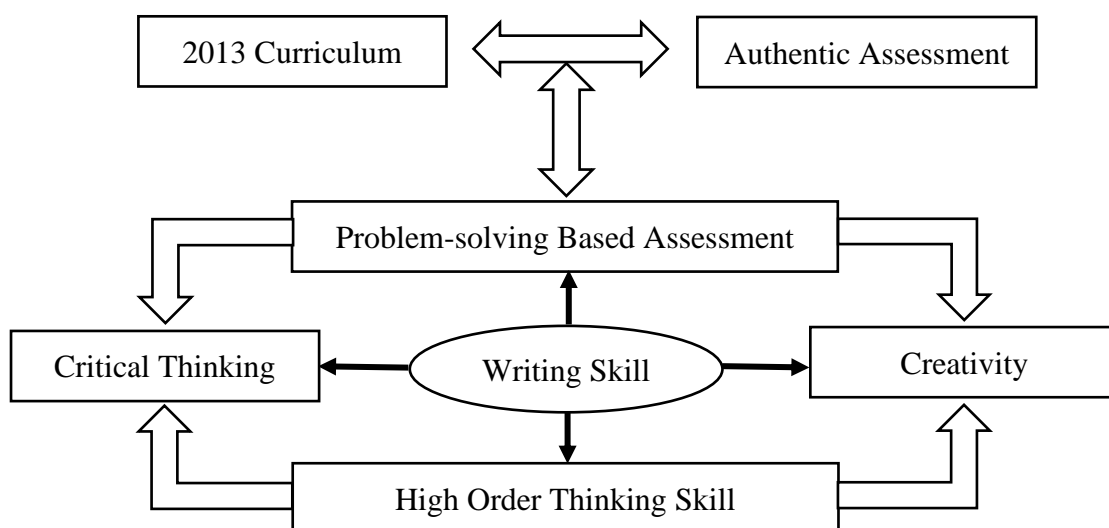


Figure 2.2 Theoretical Framework

CHAPTER V

CONCLUSION AND SUGGESTION

This chapter discussed the conclusion for this present study and suggestion for the future research and for educational practitioners.

5.1 Conclusion

The purpose of this study was to develop the problem-solving based assessment module to stimulate the students' critical thinking and creativity in writing skill. After conducting the research and getting the result, here the researcher summarized some of the following conclusions.

The first, problem-solving based assessment module to stimulate the students' critical thinking and creativity was developed based on the results of the preliminary research. The results of the preliminary research concluded that the teacher had implemented the 2013 curriculum as a reference but in its application, in teaching and learning activities the teacher still had not implemented it optimally. The teacher never did any development of problem-solving writing assessment which can stimulate the students' critical thinking and creativity. Therefore, the skill of students' critical thinking and creativity had not been optimal. This was because the teaching and learning process lacked emphasis on the activities that stimulate the students to think critically and creatively.

The second, based on the results of the preliminary research above, the researcher tried to meet the needs of the teacher and students by developing the problem-solving based assessment module to stimulate the students' critical

thinking and creativity especially in writing skill. In this case, the researcher helped the teacher in developing the problem-solving writing assessment.

The third, after problem-solving writing assessment was developed, it would be validated by the expert judgment. The validation sheet divided into 2 parts; the validation of the lesson plan and the validation of the assessment product. The validation results were calculated using an Excel formula. Based on the results of the validation showed that the problem-solving writing assessment that has been developed was worthy to be used to stimulate the students' critical thinking and creativity.

The fourth, after the developed product was validated, then it was tested to determine its effectiveness. The results of the test showed that the problem-solving writing assessment had a positive effect on the students' critical thinking and creativity. It can be proven from the students' mean score in pre-test and post-test. The results of the statistical tests showed a significance value lower than the significance level $\alpha = 0.05$, so it could be concluded that the developing problem-solving based assessment module was effective to stimulate the students' critical thinking and creativity especially in writing skill.

5.2 Suggestion

From the result of the study that the researcher has done, there are some suggestions that the researcher wants to offer especially to the English teachers and the next researchers. They are as follows:

1. For the English teachers

The assessment development model produced in this study was expected to provide a reference for English teachers in developing assessment in the classroom by utilizing the steps presented in this study. In addition, the teacher was also expected to be able to explore critical thinking skill, creative skill, and other skills in students through appropriate learning methods, so that it can produce great quality students.

2. For the next researcher

The results of this study are expected to be used as a reference for developing similar research, especially the research on the development of assessment modules in learning English. The other researchers can develop assessment modules with different learning model characteristics and material.

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