



## Developing Discovery-Based Writing Assessments to Stimulate Students' Critical Thinking and Creativity

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### Abstract

The implementation of 2013 curriculum demanded English teacher to be able to use and develop assessments that is able to make students critical and creative. However, most of them did not develop the assessments that were able to stimulate students' critical thinking and creativity. This study aimed to explain the development of discovery-based writing assessments to stimulate students' critical thinking and creativity. It was conducted at the tenth graders of MA Manbaul Quran. The method used in this research was research and development (R&D). To get the data, researcher used observation, questionnaire, interview and test. The results of the study showed that developing discovery based writing assessments were effective to make students critical and creative in writing English text. It also showed that the students' score of post-test was higher than pre-test. The mean score of pre test was 56,85 and the mean score of post test was 74,05. The critical thinking of the students was seen through their ability to synthesize ideas, evaluate ideas, and draw the conclusion. The creativity of the students was seen through their ability to synthesize ideas, use different point of views, generate and select alternative. The result also showed that students were interested in doing the activities during the treatment. The activities could help the students to be creative and critical in writing English text. In conclusion, developing discovery-based writing assessments was effective to stimulate students' creativity and critical thinking.

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## INTRODUCTION

Nowadays, the Ministry of Education in Indonesia proposes new curriculum, it is called 2013 curriculum. It is used to change and complete the previous curriculum; *Kurikulum Tingkat Satuan Pendidikan*. 2013 curriculum is different from the previous curriculums in Indonesia. Students have the opportunity to develop their critical and logical thinking. It supports the activity that helps the learners to create their own product. In English lesson, learners have a lot of opportunity to make their own product such as letter, announcement etc. Besides creating their own product, learners also have chance to practice their English in their daily life.

To measure the success of the lessons that are based on the curriculum, the government asks teachers to make assessments that rely on the standard that are made by the Ministry of Education. In every education level, assessments are significant to know the progress of the students during and after the lesson. According to Spiller (2009), assessment is used by the teacher to evaluate and measure students' performance and may be influenced by beliefs about power, authority and relationships in the classroom. Assessment can be formal and informal, summative and formative. Those kinds of assessments are important to measure the success of teaching and learning. Composing good assessment is difficult; it requires a lot of consideration. Assessments should reflect the teaching and learning. Assessments are not only tools to help teachers measure students' progress but also avail the students to know their level of competencies. Students also can measure their own progress of learning English. They can understand their own work quality so they can get motivation to learn more in English.

Assessments are used to test or measure some skills or sub skills in English such as reading, writing, listening and speaking skill. One of the skills that must be assessed is writing skill. Writing is necessary for learning English. Writing is as the reflection of ideas of the students that are in the form of written material.

According to Broughton et.al (2003), if the goal of the English teacher is to enable students to produce fluent, accurate and appropriate written English, there are a number of aspects which need to be considered. These are: mechanical problems with the script of English; problems of accuracy of English grammar and lexis; problems of relating the style of writing to the demands of a particular situation; problems of developing ease and comfort in expressing what needs to be said.

To make students ready in writing English text, teachers need to prepare good activities. One of the technique to make students creative and critical is discovery learning activities. Discovery learning refers to a form of curriculum in which students are exposed to particular questions and experiences in such a way that they discover for themselves the intended concepts (Hammer, 1997).

Before asking students to do the writing task, it is important to the teachers to make sure that their assessments are composed to make their students critical and creative in writing a text. To write English text, some of the students apparently got some difficulties. The difficulties of writing English text had been mentioned in some previous studies.

Several previous studies have become the background on this study. According to Anggrayani, Sofwan & Saleh (2015, also see Wuzaro: 2012, Mubarok: 2012, Suraya & Sofwan 2013, Detapратиwi: 2013, Aininna: 2014, Noor, Saleh, & Rukmini: 2014, Anggraeni, Hartono, & Warsono: 2015, Arifiana: 2015, Hermasari & Mujiyanto: 2015, Kurniyasari: 2016, Amilia & Sisbiyanto: 2016, Shweeba & Mujiyanto: 2017, Ernidawati & Sutopo: 2017, Wulandari: 2017, Wachyu & Rukmini; 2015, Ardianti & Bharati; 2016), writing included the ability to express the students' opinions or taught clearly and effectively in written form. To write a text, some students got difficulties in finding ideas, providing second ideas, finding a topic idea, and low of knowledge in grammar and vocabulary. The students' problem in writing was also caused by the difficulty of expressing ideas in writing. It was caused by

their insufficient knowledge of language components such as vocabulary and grammar. Writing was a complicated skill since the students needed to share their ideas into the words in which they had to write a certain topic by considering context of situation in the students' writing.

Another previous studies related to discovery learning. In'am and Hajar (2017) stated that discovery learning in scientific approach was good to improve the ability of the students in learning geometry. They said that teachers should create lesson that is appropriate to the situation, condition and delivered material. To reach the objectives of learning, teacher needed to prepare his learning activity carefully and appropriately. Furthermore, discovery learning is more effective than conventional learning and it improves the ability of students (Bajah & Asim, 2002; Afendi: 2012).

The last previous study related to critical thinking and creativity. Kargar, Ajilchi, Goreyshi, & Noohi (2013) observed that learning thinking skills could significantly improve creative and critical thinking skills. They also found that creativity and critical thinking are possible to be improved.

Most of the previous studies that related to writing focused on improving students ability to write English text, and others focused on the students' errors in writing English text. For the previous studies that discussed discovery learning, those studies focused on the implementation of discovery learning to explain the effectiveness of this method for teaching students in the class. From those previous studies, the researcher did not find that the studies told about the development of discovery-based writing assessments to stimulate students' critical thinking and creativity.

Taking into consideration the research gap discussed earlier, the writer did research that focused on the development of the assessments. This research is to develop discovery based writing assessment to stimulate students' critical thinking and creativity. The writer developed assessments that were able to stimulate students' creativity and critical thinking. The assessments

are the form of discovery-based writing assessment.

## **METHODS**

This study used research and development (R & D). Based on Borg and Gall (1983: 775) design, the researcher adopted and adjusted the steps of Research and Development based on the research's need. Actually, there are 10 steps to conduct Rand D, but the researcher adjusted the steps into 8 stages: collecting information, need analysis, developing preliminary form of writing assessment, expert validation, main product revision, try out (field testing), doing second revision, producing final product.

To get the data, researcher used questionnaires, interview, observation, and tests. The data were divide into two data, qualitative and quantitative data. The qualitative data was gathered through observation, interview, and questionnaire. Meanwhile, for the quantitative data was gathered through tests.

## **RESULTS AND DISCUSSIONS**

In this part, researcher presented the result of the implementation of developing discovery-based writing assessments to stimulate students' critical thinking and creativity.

### **Collecting Information**

The first way to get the data of need analysis was by observing some elements that related to English teaching in MA Manbaul Quran. The observation showed the common activity in the class, the method used in the class, the existing writing assessment, and all of the teacher's preparation before coming to the class. Firstly, before researcher came into the class to watch classroom activities, researcher observed the existing documents that were made by the teacher. When the researcher asked the documents from the teacher, she just gave the researcher a compact disc that covered the core competencies and basic competencies, lesson plan, syllabus, and media for teaching and learning. Honestly, the teacher said that she

copied the documents from an instructor of 2013 curriculum after she joined curriculum training. The documents showed that the teacher had planned to use discovery learning activities in her most activities in the class. There were six stages of discovery learning that were written in the compact disc. Those stages were stimulation, problem statement, data collection, processing the data, verification and generalisation. Beside of making lesson plan the teacher also had developed the syllabus using her own observation, experience and knowledge. To support the process of teaching and learning, she also used some media such as pictures and video.

After observing the documents, researcher observed classroom activities. From his observation, researcher found some useful information. It showed that the English teacher had used discovery learning to teach the students. The teacher apparently had implemented discovery learning but she got difficulty to help the students infer the knowledge from the activity during the class. The teacher used discovery learning but she did not help students to do the steps of discovery learning. The researcher saw that the teacher also gave writing assessment for the students. It was separated from the activity in the class, it was given after discovery learning activity. She gave writing assessments conventionally by ordering the students to make text or short essay, she did not use any treatment to help the students write their text or essay.

To support the data from the observation, researcher held interview and gave questionnaire toward English teacher and students of MA Manbaul Quran. The result of the interview and giving questionnaire showed that the teacher had known higher order thinking skills. The teacher had implemented the concept of HOTS in the writing assessments. She said that using HOTS in writing assessments helped students to be critical and creative in devoting their ideas. However, when I asked her to give me examples of HOTS questions, she just gave me the examples of Low Order Thinking Questions. She also said that she had

implemented discovery learning activities during the class. From her implementation of discovery learning activities, she found that it had some strengths and weaknesses. The strength of discovery learning was able to make students critical and creative in writing a text whereas the weakness of discovery learning was the difficulty to infer the conclusion. Although she knew the strength and weakness of discovery learning, she did not implement discovery learning appropriately. When she wanted to give writing assessments, she just gave the instruction to make an essay or a text without any previous activities that would help students to devote their ideas. After having interview and sharing the questionnaire, the researcher knew that the students got difficulties to devote their ideas in English. It was in accordance with the previous study that was conducted by Anggrayani, Sofwan, & Saleh (2015), they also found that students got difficulties in organizing ideas in writing English text. Further, students seemed to be confused to translate the text into English. As a result, they were just busy with translating and scary to devote their ideas into a good writing. Beside of getting difficulties to translate the text, students also got difficulty to arrange, elaborate, and make a story. Finally, their result of writing assessments did not reflect creativity and critical thinking.

### **Need Analysis**

In this stage, researcher analyzed the need of the students after researcher collected the information from the first stage. The information gathered by the researcher was important to support him in making and developing the product. After having interview and sharing the questionnaire, the researcher knew that the students got difficulties to devote their ideas in English. They seemed to be confused to translate the text into English. As a result, they were just busy with translating and scary to devote their ideas into a good writing. Beside of getting difficulties to translate the text, students also got difficulty to arrange, elaborate, and make a story. Finally, their result of writing

assessments did not reflect creativity and critical thinking.

Based on the analysis, researcher assumed that to make students critical and creative in writing, they needed some activities that would help them ready to write English text. Below was the list of the activities that were needed by the students to prepare them in writing:

- 1) Students needed to learn how to identify and understand the purpose, generic structures and the linguistic features of a text.
- 2) Students needed to learn, understand and explain English tenses such as simple past tense.
- 3) Students needed to understand, identify and elaborate main ideas into a good text.
- 4) Students needed to differentiate and use the purpose, generic structures and the linguistic features of English text.
- 5) Students needed to have exercise in writing simple past tense.
- 6) Students needed to have practice in writing paragraph.
- 7) Students needed to have practice in arranging English text.
- 8) Students needed to have practice in revising English text.
- 9) Students needed to learn the mechanic of writing in English text.
- 10) Students needed to have practice in writing simple English text.

The result of need analysis was in accordance to Shweba and Mujiyanto (2017), sometimes students made errors in spelling, punctuation marks, and capitalization in writing English text. It meant that teacher had to teach writing mechanic for the students during the process of teaching and learning. Furthermore, the need analysis also showed that teachers had to teach the content and organization of English text. Suraya and Sofwan (2013) also stated the importance of teaching content and organization of English text. It was important because through learning content and organization, students had opportunity to prepare the draft for writing English text.

### **Developing Preliminary Form of Writing Assessment**

After conducting need analysis, the researcher continued to the next step, developing preliminary form of writing assessments. In this stage, researcher helped the English teacher of MA Manbaul Quran to develop discovery-based writing assessments. Developing discovery-based writing assessment was hoped to stimulate students' critical thinking and creativity. The use of discovery learning was in line with In'am and Hajar' study (2017), they stated that discovery learning in scientific approach was good to improve the ability of the students in learning.. To reach the objectives of learning, teacher needed to prepare his learning activity carefully and appropriately. As mentioned in the need analysis that students got some difficulties such as difficult to translate Indonesia into English, difficult to write simple past tense and as a result they were not able to be critical and creative. Then, the researcher developed writing assessments. The assessments included pre-test, post-test and treatment. In the treatment, researcher divided the meetings into five. The first meeting was for teaching the purpose, generic structures, and linguistic features of narrative text. The second meeting was for teaching differentiate some of the linguistic features of narrative text. The third meeting was for teaching simple past tense, the fourth meeting was for teaching mechanic of writing, and the last was for teaching writing narrative text. All of the writing assessments and the supported documents for treatment were arranged by the researcher in the form of English discovery-based writing assessments module.

### **Expert Judgment**

The goals of expert judgments were to determine the relevance of the assessments toward the material, exercise, curriculum, and the need of the students and teacher. In'am and Hajar (2017) stated that to reach the objectives of learning, teacher needed to prepare their learning activity carefully and appropriately.

They said that teachers had to create lesson that was appropriate to the situation, condition and delivered material. There were two experts that validated the data. The validators came from different level of education, one was a lecturer and another was a teacher. Firstly, The first Expert told me to make more questions that required implicit answers. It was to measure and train students' critical thinking and creativity. The answer had not to be found easily in the text. Secondly, she also explained that researcher had to teach how to develop main idea into a good paragraph and text. Teaching main idea helped students to be ready in doing post-test. Thirdly, it was better for the students to have a writing activity that demanded students to collect information around their environments. It meant that the assessments were more authentic. Fourthly, she told the researcher that the text type for both pre-test and post-test had to be same. They saw that the text type for both pre-test and post-test that were arranged by researcher and teacher were different. The last it was better for the researcher to add some indicators to achieve the goal of writing assessments.

The second expert said that researcher had to be able to show which part of pre-test and post-test indicated critical thinking and creativity. It was important because the topic related to both critical thinking and creativity. Secondly, he said that the sequences of activities in the process of teaching and learning had to be clear. He added that the sequences of activities during the treatment had to show discovery learning. Thirdly, he commented on the scoring rubric for writing assessments. He said that researcher had to make sure that the scoring rubric that was arranged by the researcher had been modified suitably to the students and school condition. Through suitable writing assessments, it could help students to maximize their writing product.

### **Main Product Revision**

After the assessments were checked and validated by the experts, researcher and the teacher adjusted some of the elements related to

the writing assessments. Firstly, researcher and teacher added some questions that asked answers out of the text, so the students had chance to build and practice their critical thinking and creativity. Secondly, in the learning activities during the treatment, researcher helped teacher to arrange activity for teaching main idea in order to make students ready when they had writing assessments. The second activity was in line with Anggrayani, Sofwan, & Saleh (2015). They also found that teacher had to teach main idea in order to help students organize ideas in writing English text. Thirdly, researcher and teacher arranged activity that was suitable for searching information from surrounding environments. Fourthly, researcher helped teacher to add more indicators from the basic competence in order to achieve the goal of writing assessments. The last revision was related to the genre of pre-test and post-test. Before pre-test and post-test were validated by the experts, the teacher and researcher planned to use narrative as pre-test and recount as post-test. However, after the teacher and researcher got feedback from the experts they agreed to use narrative as pre-test and post-test.

The experts explained that the text type for both pre-test and post-test should be the same. The experts also said that the level of difficulties should be considered to be the same. One thing that could be different was only on the content during the treatment.

### **The Try Out**

After the developed discovery based writing assessments had revision, the researcher was ready to help teacher of MA Manbaul Quran applying the developed materials; pre-test, post-test and treatment (activity during the class). The researcher tried out the assessments in MA Manbaul Quran Pringapus. The school was chosen because it has been implementing 2013 curriculum for some years. It meant that the school has adequate capacity to implement 2013 curriculum and the researcher believed that the teacher understood the way to achieve the goals of 2013 curriculum. The try out was done in the tenth grade class, the subject of the class

was religion. The class consisted of 20 students. The try out process was divided into three parts, one part for pre-test, teaching in the class using developed discovery based writing assessments, and post-test. Firstly, researcher asked teacher of MA Manbaul Quran to give pre-test in order to measure students initial score before the developed assessments implemented. Then, she implemented discovery based writing assessments in five meetings. And the last, the teacher gave post-test.

**Table 1.** Students' Mean score of Pre-test

Mean Pre-Test	Mean Post Test
56.85	74.05

The result of pre-test showed that the mean score of 20 students was 56,85 and. On the other hand, the result of post-test showed that the mean score was 74,05 and the standard. To know the significance, researcher used *t*-test. When *t*-test is bigger than (>) the *t* value, it means that it is significant. After researcher analyzed *t*-test, it could be concluded that there was a significance difference between pre-test and post-test so the developed discovery based writing assessment was effective and it could be used as writing assessment in the process of teaching and learning in the class.

The critical thinking of the students was seen through their ability to synthesize ideas, evaluate ideas, and draw the conclusion. The creativity of the students was seen through their ability to synthesize ideas, use different point of views, generate and select alternative. The result also showed that students were interested in doing the activities during the treatment. The activities could help the students to be creative and critical in writing English text. The results of critical thinking and creativity of the students were line with Goreyshi, & Noohi (2013), they found that creativity and critical thinking could be improved. Related to discovery learning, Bajah, & Asim (2002) also found that discovery learning was more effective than conventional learning and it improved the ability of student. In conclusion, developing discovery based

writing assessments was effective to stimulate students' creativity and critical thinking.

### The Last Revision

After the tried out was done, the researcher revised some parts of the developed discovery based writing assessments. The researcher changed the conditional sentence type I into type II for question number 8 in pre-test. In the try out, researcher revised the group distribution to make all students interact to the process of teaching and learning.

### Producing Final Product

The last stage in the research and development was producing final product. This stage was done after researcher tried out all of the instruments. After researcher tried out the instruments, he revised some important part in the instrument that required revision. The final product of discovery based writing assessments consisted of pre-test, post-test, and the treatment. The treatment consisted of sequenced activities and exercise that guided the students to be ready to have post-test.

### CONCLUSION AND SUGGESTION

This study focuses on developing discovery based writing assessments to stimulate students' critical thinking and creativity. The result indicated that the English teacher of MA Manbaul Quran used discovery learning activity to teach the students. Although the teacher used discovery learning, she was not able to stimulate students critical thinking and creativity because she was not able to guide the students inferring the conclusion from the activities in the class. The result also showed the fulfillment of the students' need to stimulate their critical thinking and creativity. Based on the results of observation and need analysis, the needs of the assessments had been fulfilled. The researcher helped teacher to develop discovery based writing assessments. To be critical and creative, students were given discovery based writing assessments. It indicated that students needed

more activities to stimulate their critical thinking. The activities were doing discovery learning, elaborating main idea and paragraph, arranging and revising English text and making English texts.

To develop the assessments, researcher and teacher used 2013 curriculum. Firstly, the researcher and teacher looked at the main competence and basic competence. Then, they developed the indicators for the achievements of the competencies. After that, they made lesson plans, exercises and assessments.

The last result showed the effectiveness of discovery based writing assessments to stimulate students' critical thinking and creativity. The critical thinking of the students was seen through their ability to analyze and synthesize the information. Students also showed that they were able to collect the data and evaluate the data. Beside of evaluating, students also demonstrated that they were able to draw conclusion from the sequenced activities of discovery based writing assessments. The creativity of the students was seen through their ability to synthesize some ideas into a good written material. Furthermore, They could think in various ways, it was known when they were asked to elaborate English texts. They also could use different points of view that support their written product. Beside of using different points of view, they were also able to generate alternative to elaborate the text. Finally, from the whole results and discussion, this present study had proven that developing discovery based writing assessments successfully stimulated the students' critical thinking and creativity in English learning.

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