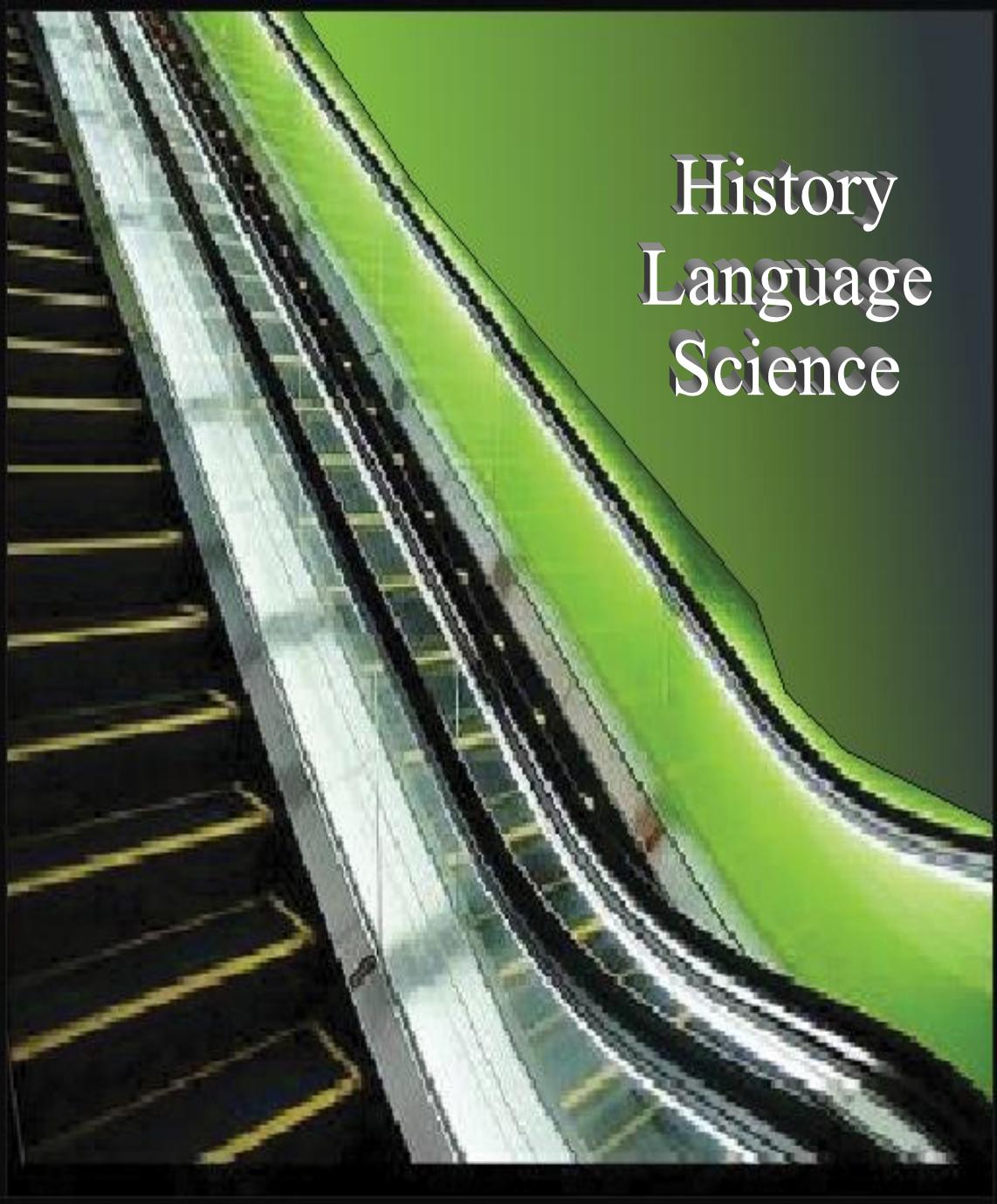


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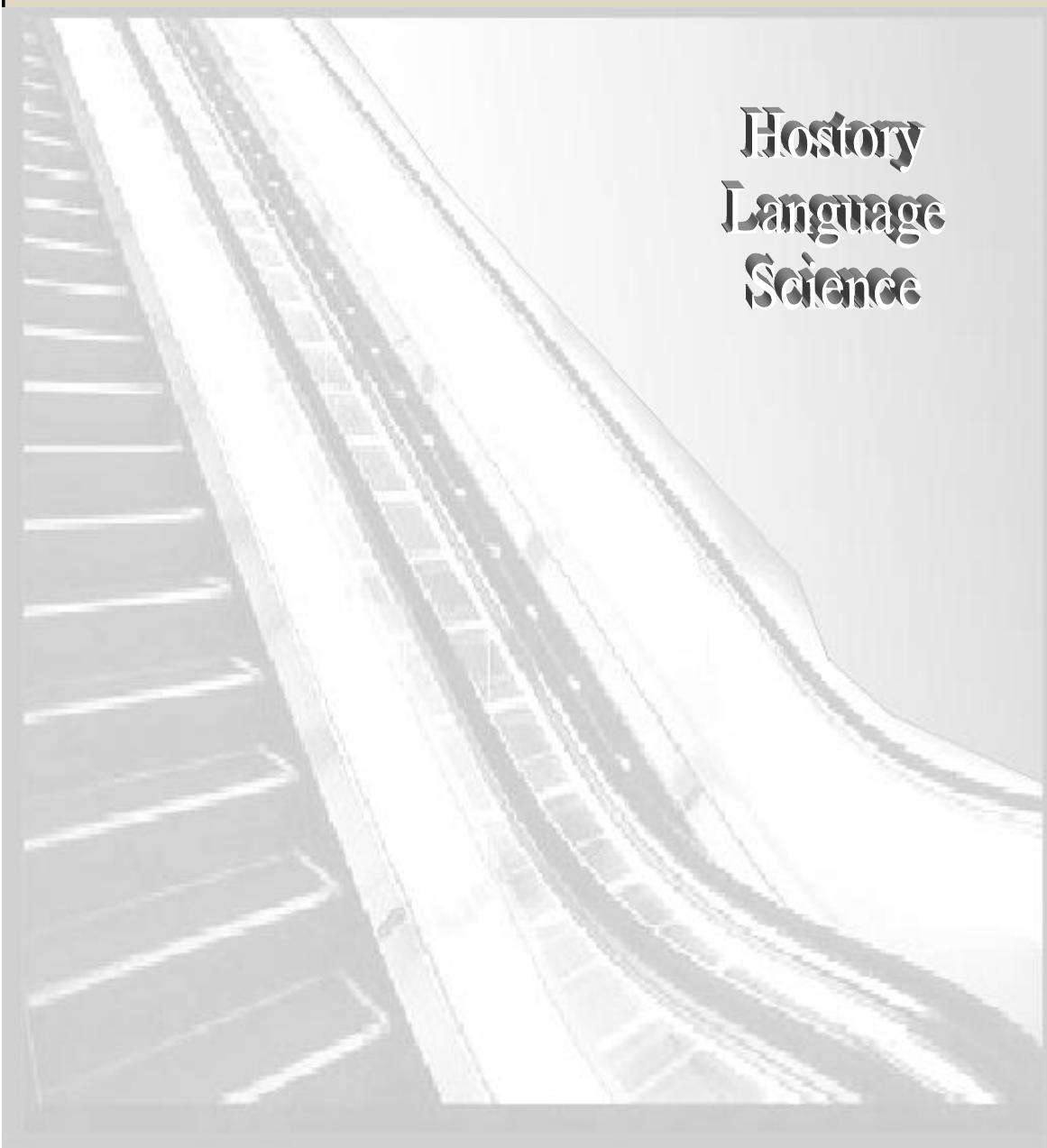
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KATA PENGANTAR

Tim redaksi mengucapkan puji serta syukur kepada Tuhan Yang Maha Esa karena telah terbitnya kembali Jurnal “Perspektif Pendidikan” STKIP-PGRI Lubuklinggau Volume ke-9 No. 2 Desember 2015. Jurnal ini merupakan kumpulan artikel hasil penelitian dosen STKIP-PGRI Lubuklinggau.

Beberapa tujuan jurnal “Perpektif Pendidikan” adalah sebagai ajang untuk meningkatkan profesionalisme dosen atau tenaga pendidik lainnya dalam menulis karya tulis ilmiah, memberikan solusi terbaik dalam mengatasi permasalahan pendidikan bahasa Inggris, bahasa Indonesia, Sejarah, Fisika, Matematika, dan Biologi, serta mempublikasikan hasil penelitian kepada masyarakat ilmuan pada umumnya dan pemerhati pendidikan pada khususnya.

Jurnal “Perspektif Pendidikan” mempublikasikan hasil penelitian dengan tema seputar: “Pendidikan Bahasa Indonesia, Bahasa Inggris, Sejarah, Fisika, Matematika, dan Biologi”. Publikasi jurnal “Perspektif Pendidikan” diupayakan secara rutin dilakukan dua kali dalam setahun.

Berkenaan dengan editing yang dilakukan, tim editor hanya merevisi seputar bahasa dan format penulisan. Sementara, isi artikel tanggung jawab peneliti/penulis. Hal ini dikarenakan peneliti/penulis yang memiliki data penunjang tentang tingkat keilmiahan karyanya tersebut.

Semoga jurnal “Perspektif Pendidikan” memberikan inspirasi baru dalam dunia pendidikan. Untuk selanjutnya, tim redaksi menerima kritik dan saran dari penulis atau pembaca, guna perbaikan hasil publikasi hasil penelitian dan makalah ini pada edisi berikutnya.

Lubuklinggau, Desember 2015

Tim Redaksi

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TEACHING READING BY USING INDEX CARD MATCH STRATEGY

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The problem of in this study was formulated as follow: "Is it significantly effective to teach reading by using Index Card Match strategy to the eighth grade students of SMP Negeri 3 Lubuklinggau?" The objective of this study was to find out whether or not it is significantly effective to teach reading by using Index Card Match strategy to the eighth grade students of SMP Negeri 3 Lubuklinggau. Method applied in this study was Pre-experimental method with one group pre-test post-test design. The population for this study was all of the eighth grade students of SMP Negeri 3 Lubuklinggau in the academic year of 2015/2016 which consisted of 306 students. The number of sample was 34 students Based on the result of data analysis, there were three major findings, 1) The mean score in the pre-test, it was 61.76, 2) The mean score in the post-test it was 76.18, and the result of matched t-test calculation showed that $t_{obtained}$ was 7.17, which was higher than 1.697 as the critical value of the t_{table} for degree of freedom 33(34-1) with 95% significant level for one-tailed test. It means that it was significantly effective to teach reading by using index card match strategy to the eighth grade students of SMP N 3 Lubuklinggau in the academic year of 2015/2016.

Key Word: teaching, reading, Index Card Match Strategy

A. INTRODUCTION

Teaching reading is a very important part of English learning. The ability to read the materials effectively, contributes to the success of the learner in school and success later in every phase of life. However, teaching English is not an easy task. According to Nurhadi (1987:13), reading is a complex and difficult process. Reading English is difficult because English is not a main language for Indonesian students and the students get difficulties in reading

because of lack of vocabularies and low of grammar ability.

Based on the interview result with the English teacher of SMP Negeri 3 Lubuklinggau especially to the eighth grade students, the writer got some information that reading belongs to one of English skills learned by students in the classroom. In reading class, students are asked to read an English text. Then, students answer many questions about the text and try to find the right answer for the questions given based on the reading

text. The eighth grade students' problems in learning reading at SMP Negeri 3 Lubuklinggau are; firstly, students have limited vocabularies, therefore students were difficult to understand the meaning of words in reading text. Secondly, students still did not master the English grammar. Then, students were not interested in reading.

Based on the Reading score given by the teacher of English at SMP N 3 Lubuklinggau, There were many students who got lower score than MMC. The average score of the students was 68.76 but MMC of Reading is 75. From 34 students, there were 15 students or 44% got the score higher than 75, and there were 19 students or 56% still got the score lower than 75. It means most of the students were difficult to comprehend the text.

Therefore, to make the students be motivated in the class, the writer had to use an effective and interesting strategy which could make the students involved in the teaching and learning process. One of the strategies is Index Card Match strategy. According to Silberman (2011:250), Index Card Match strategy is a

strategy of learning that involves students actively and fun reviewing the subject matter in a way in pairs and gave the quiz questions to friends.

B. METHOD OF THE STUDY

The method in this study was pre-experimental method. According to Isaac and Michael (1985:54), pre-experimental is research typically involves applied setting where it is not possible to control all relevant variables but only some of them.

The pre-experimental method was administered to one group of students. It means that this study was used one group pre-test post-test design

There were two variables in this study; they were independent variable and dependent variable. Fraenkel and Wallen (1990:39) state that independent variable is a variable premised to affect or influence other variables.. In this study, the independent variable was Index Card Match strategy and the dependent variable was the students' reading comprehension.

The population for this study was all of the eighth grade students of SMP Negeri 3 Lubuklinggau in the academic year of 2015/2016 which consist of 306 students. Sample was

taken by using Cluster random sampling which consisted of 34 students from class VIII₁. The data were collected by using the written test.

In order to have meaningful data the writer used three techniques, they were: (1) individual score, (2) conversion of score range, (3) the matched t-test.

To calculate of validity the writer used *Product Moment Pearson*:

$$r_{xy} = \frac{N(\sum xy) - (\sum x)(\sum y)}{\sqrt{[N(\sum x^2) - (\sum x)^2][N(\sum y^2) - (\sum y)^2]}}$$

Reliability is the accuracy consistency and stability of measurement by a test (Isaac and Michael 1985:125). Investigation of internal consistency reliability was estimated by using Kuder Richardson formula. It is a statistical formula

$$KR - 21 = \frac{K}{K-1} \left[1 - \frac{M(K-M)}{K(SD^2)} \right]$$

The result of calculation above was compared to 0.70, if the result of calculation was higher than 0.70, the test is reliable. According to

C. FINDINGS AND DISCUSSIONS

a. The students' Score in the Pre-Test

According to Richards, et. al. (1985:61), content validity is a form of validity which is based on the degree to which a test adequately and sufficiently measures to the students. To make the test material has high degree of content validity, the writer fixes them to the syllabus of KTSP curriculums.

which is used on the number of items in the test, the means score and its standard deviation. The following is Kuder Richardson 21 (KR21) formula (Isaac and Michael, 1985:124), to measure the reliability of the test.

(Fraenkel and Wallen, 1993:99) that the test is not reliable if the result of calculation is lower than 0.70.

After the scores were tabulated, the writer found out that the highest score was 85 and the lowest was 35 and the average in the pre-test was 61.76

b. The students' Score in the Post-Test

The writer found out that the students' highest score was 95 and the lowest was 50 and the average in the post-test was 76.18.

c. Normality Testing

Having obtained the mean score of pre-test and post-test, the writer also calculated the normality result by tabulating the scores based on the students' scores in the pre-test and students' scores in the post-test.

1. In the Pre-test

The writer found out that $X^2_{\text{obtained}} = 6.5448$ with degree of freedom (df)=7 (8-1). Since level is 95% (0.05), and the $X^2_{\text{table}} = 14.07$. The data was normality, because $X^2_{\text{obtained}} < X^2_{\text{table}}$.

2. In the post-test

The writer found out that $X^2_{\text{obtained}} = 10.9541$ with degree of freedom

$$SD = \sqrt{\frac{\sum D^2 - \left(\frac{1}{n}\right)(\sum D)^2}{n-1}}$$

From the calculation above, it showed that t_{obt} was 7.17 it was much higher than 1.697 as critical value of t-table.

Based on the finding, the writer interpreted that the students'

(df)=7 (8-1). Since level is 95% (0.05), and the $X^2_{\text{table}} = 14.07$. The data was normality, because $X^2_{\text{obtained}} < X^2_{\text{table}}$.

d. The Result of Matched T-test

Calculation

Based on the students' scores obtained both in the pre-test and post-test, the writer calculated the match t-test to find out whether or not effective to teach reading comprehension by using Index Card Match strategy to the eight grade students of SMP N 3 Lubuklinggau.

Based on the students' score of the pre-test and post-test in the table 4.3 of the result of matched t-test calculation in the appendix C, it was found that $N=34$, $D= 490$, and $D^2=9350$. Before calculating the matched t-test, the writer calculated the SD (Standard Deviation).

achievement in reading comprehension increased. It could be seen from the difference between students' average score obtained in the pre-test and post-test. In the pre-

test, the students average was 61.76 before being taught, failed 74% and mastered 26% and the post-test, the students average was 76.18, after taught, failed 29% and mastered 71% based on the minimum mastery criteria.

Anderson (In Susanti, 1975) state mastery learning is building on a set idea or an action individual of learning that can help the students to learn consistently. An idea or an action are the result of learning process that systematic, because Index Card Match Strategy (ICM) can helped the students have difficulty study, especially in learning English process of reading comprehension.

On the other hand, the students' average score in the pre-test was 61.76. And the post-test, the students' average score in the post-test was 76.18, the highest score in the pre-test was 85 and lowest was 35. Meanwhile, the highest score in the post test was 95 and the lowest was 50. So, it was obvious that in post-test most of the students' could make better achievement than in pre-test. Beside that, the students' criteria in mastering the material from 9 students (26%) mastered in the pre-

test become 24 students (71%) and 25 students (74%) failed become 10 students (29%). It means that the students' average score increased, where the students' average score in the post-test was higher than in the pre-test. It could be interpreted that the treatment by using Index Card Match can help the students increase their ability in comprehending reading text.

The effectiveness of Index Card Match in teaching reading comprehension could be proved from the result of match t-test calculation. According to Hatch and Farhady (In Danisa, 1982:114), t-obtained is one of the most frequently used statistical procedure in our field. It is most often used to compare two group . The result of matched t-test calculation shows that the t-obtained was 7.17. while critical value in the t-table was 1.697. it means that the t-obtained was much higher than t-table. Consequently the null hypotheses (H_0) was rejected and the alternative hypotheses (H_a) was accepted. This indicated that it was significantly effective to used in teaching reading comprehension to the eight grade

students of SMP N 3 Lubuklinggau in the academic year 2015/2016.

D. CONCLUSION AND SUGGESTIONI

It can be concluded that it was significantly effective to teach reading comprehension by using index card match strategy to the eight grade students of SMP N 3 Lubuklinggau in the academic year of 2015/2016. It was found that the average score in the pre-test was 61.76 and post-test was 76.18 it was also found that in the matched t-test calculation, the result was 7.17 and exceeded 1.697 as coefficient of t-table with 95% significance level of one tailed test. On the other word, it was effective to teach reading by using Index Card Match strategy to the eight grade students of SMP N 3 Lubuklinggau in the academic year 2015/2016.

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**TEACHING READING COMPREHENSION THROUGH SUMMARIZING
TRAINING CAMP TECHNIQUE TO THE TENTH GRADE STUDENTS
OF SMA NEGERI 5 LUBUKLINGGAU IN THE ACADEMIC YEAR OF
2015/2016**

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Abstract

The problem of the study was "Is it significantly effective after the application of Summarizing Training Camp Technique on teaching reading comprehension to the tenth grade students of SMA Negeri 5 Lubuklinggau in the academic year of 2015/2016?". The objective of this study was to find out whether or not there is significantly effective on reading comprehension after the application of Summarizing Training Camp Technique to the tenth grade students at SMA Negeri 5 Lubuklinggau. In this study, the writer proposed two hypotheses. They were null hypothesis (H_0) and alternative hypothesis (H_a). The method applied was pre-experimental with one group pre-test posttest design. The population of this study was all of the tenth grade students of SMA Negeri 5 Lubuklinggau which consisted of 245 students. The sample was taken through convenience random sampling which consisted of 40 students. The data were collected by means of test consisting 25 items of multiple choices. The data obtained were analyzed through three techniques: 1) Individual Score, 2) Conversion of Individual Score Based on Minimum Mastery Criteria, and 3) Matched t-test. The results of this study shows that the students' mean score in the pre-test was 66.9 and those in the post-test was 76. The result of matched t-test was 6.89, which was higher than t-table value (1.684) of 39 with 95% significant level for one tailed-test. Therefore, the null hypothesis (H_0) was rejected and the alternative hypothesis (H_a) was accepted. It means that it was significantly effective to use Summarizing Training Camp Technique in teaching reading comprehension to the tenth grade students of SMA Negeri 5 Lubuklinggau in the academic year of 2015/2016.

Keyword: *Teaching, Reading Comprehension, Summarizing Training Camp Technique*

A. INTRODUCTION

In human life, language is used as a media of communication. By using language, people can share the information, knowledge, and experience. Besides, the most essential role of language as a tool for students' social and emotional

development. As Valenzuela (2002:1) stated that communication is any act by which one person gives to or receives from another person the information about that person's needs, desires, perceptions, knowledge, or effective state. From the theory, it can be concluded that language is a

communication media that used by the teacher to transfer their knowledge to the students.

In the communication, English is a language that used in technology, science, economics, politics, culture, and finally the most important aspect that English is used in education sector. In addition, Saleh (1997:1) asserts that there are many aspects that use English such as technology, science, trade, and education. Moreover, English is used as a subject in most of schools in Indonesia. As a result, English is the subject that students should learn in order to reach their goal in education aspect. In language teaching, there were four skills that students should master. They are listening, reading, writing, and speaking, (Brown, 2001:232). These four skills should be involved in English teaching and learning process in the classroom.

Dealing with four skills above, reading is included as an important component that affects students' English mastery, because reading was a process to acquire the information from the written text. According to Tarigan (2008:7), reading is a process that is carried and used by the reader to get a message that would be submitted by the author through words or written texts. It can be stated that students need reading skill to get the main idea from the text students read.

Finally, Addison (1996:23) explains that reading ability is a central role in teaching and learning process at all education. The students should be more active and comprehend what the texts talk about. Therefore, the writer could conclude that in mastering English, reading is a skill needed by students. Unfortunately, reading would make the students feel

bored whenever they had the difficulties to read. Therefore, the teacher should use the technique that could make students to be interested in learning reading skill.

Based on the result of the interview with the teacher at SMA Negeri 5 Lubuklinggau, it was found out there were some problems faced by the students in reading activity. First, students had less motivation to learn English; there was no motivation to master English. Therefore, students were lazy to reading. Second, students had difficulties in comprehend the text. Third, students did not have enough ability to get the main idea because they were too lazy to read the whole text. It means that most of the students still got lower score and do not fix the requirements of good reading comprehension indicators. Therefore, their scores are still lower. It could be seen from the students' reading activity, from 36 students there was only 39% (17 students) get the passed MMC. Where as there were 61% (19 students) who still got below MMC, (see the appendix A).

To anticipate the case above, it is very important to overcome the problems. It is thought that the important things are how to increase the students' interest in studying English and to avoid the students' boredom. In this case, the writer tries to give a solution for students to make them more interesting in learning reading comprehension. It is by using Summarizing Training Camp Technique. Summarizing Training Camp is the technique that found by Zwiers that would help the students to comprehend over all of the text by summary. The Summarizing Training Camp Technique made the students to be easy to see what is the important

and comprehend the words from the texts.

From the explanation above, the writer was interested in conducting a research entitled: Teaching Reading Comprehension through Summarizing Training Camp Technique to the tenth grade students of SMA Negeri 5 Lubuklinggau in the academic year of 2015/2016.

B. RESEARCH METHODS

In this study, the writer used pre-experimental method. According to Sugiyono (2011:109), the pre-experimental design is not yet a truly experimental. There are external

variables that also affected the formation of the dependent variables. Similarly Arikunto (2010:123) found that the pre-experimental method is often seen as an experiment that is not true. Fraenkel and Wallen (1990:235) also note that these method are referred to as "weak" because they do not have built-in controls for threats to internal validity.

The procedure for testing a hypothesis is used by setting up a situation which consists of pre and post test. The diagram of this design as following:

**Table 3.
One Group Pre-test and Post-test Design**

Pre – test	Treatment	Post – test
T_1	X	T_2

Where:

T_1 : Pre-test

X : Treatment (teaching reading comprehension through Summarizing Training Camp Technique)

T_2 : Post-test

In this study, the pre-experimental method in the one-group pretest-posttest design, because the writer wants to find out the effectiveness of summarizing training camp technique that used to teach reading comprehension. The writer did the study during three times. If the time in the teaching learning process is not enough to do the study, the writer asked the teacher to give the additional time. So, the writer can do the study well.

C. FINDINGS AND DISCUSSION

A. Findings

1. The Students' Score in The Pre-test

The pre-test was given to the students before treatment. The number of students who were given pre-test was 40 students, the mean score of the students was 66.9. This score was obtained by dividing the total number of the individual score number of the students (40) that is $2676:40=66.9$. It means that the average ability of the students in pre-test was "Failed". Since there were 22 students who still did not pass the test. The higher score that was 92 reached by four students and the lowest score was 36 reached by two students.

The details of the students' score and the students' qualification in the pre-test in mastering reading

comprehension before treatment can be seen on the table (see table 4.1) in the appendix C.1. Based on the table

(see table 4.1), and then the writer calculated the percentage of students, score categories as shown in chart:

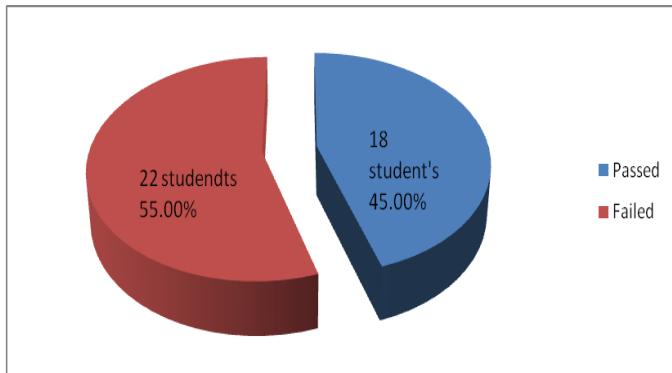


Figure 4.2 The Percentage of The Students' Conversion in the Pre-Test

Based on the figure above, it can be seen that there were 18 students or (45.00%) in the "passed" qualification, and 22 students (55.00%) in the "Failed" qualification. It means that more than a half of the students did not pass the test. Therefore, they need treatment to improve their achievement on the Reading comprehension.

2. The Students' Score in the Post-Test

The post-test was given to the students after the writer had done the experimental treatment. The test items in the post-test were same as the ones given in the pre-test. The

score was obtained by dividing the total number of individual score (3044) by the number students (40) that was $3044:40=76.1$. It means that the average ability in the post-test was higher than the average score in pre-test. In addition, it was found the highs score was 96 reached by five students, and lowest was 40 reached by only one student.

The result of the students' score in the post-test and the result of students' qualification in the post-test in the teaching reading comprehension after treatment can be seen on the table (see table 4.2) in the appendix C.2. Based on the table (see table 4.2), and then the writer calculated the percentage of students, score categories as shown in chart below:

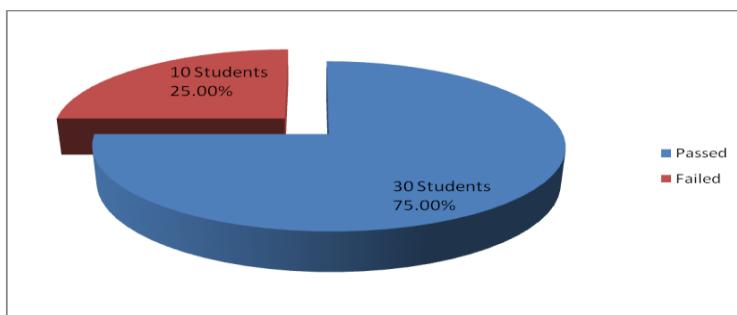


Figure 4.3 The Percentage of The Students' Conversion In The Post-Test

Based on the figure above, it can be seen that there was only 10 students or 25% who were categorized in "failed" criteria. In addition, there were 30 students or 75 % who passed the test. It means that there were significant differences or changes of the students' achievement on reading comprehension.

3. The Result of the Match t-Test Calculation.

The result of the test in this part includes the students' score in the pre-test, the students' score in post-test and the result matched t-test calculation. The chart shows the comparison between the students' score in the pre-test and those in post-test

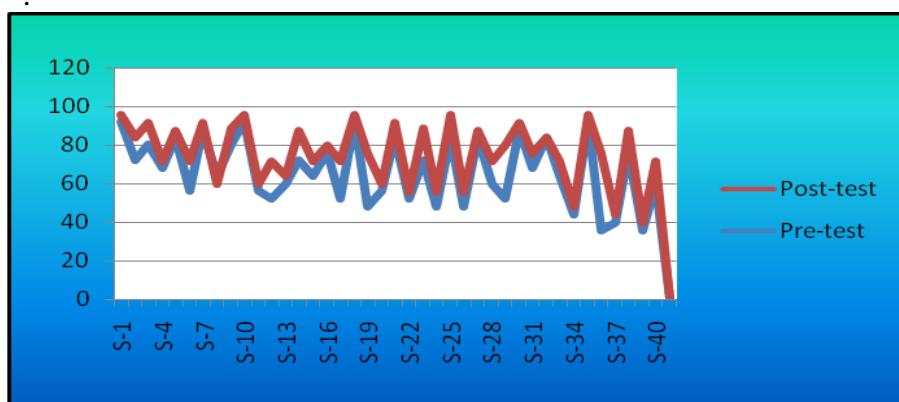


Figure 4.1. The Comparison Between Pre Test and Post Test

Based on the figure of comparison between pre-test and post-test above it was found that the students' mean score in the pre-test was 66.9(see appendix C.7), and the mean score in post-test was 76.1 (see appendix C.8). Referring to those mean scores both in pre-test and post-test, it was found that the students' mean score in the post-test was higher than the students' mean score in the pre-test.

The result of matched t-test calculation was 6.89. Meanwhile,

the critical value or t-table was 1.684. It means that the null hypothesis (H_0) was rejected and automatically the alternative hypothesis (H_a) was accepted. In other words, it was significantly effective to use Summarizing Training Camp Technique in teaching reading comprehension to the tenth grade students of SMA Negeri 5 Lubuklinggau in the academic year of 2015/2016.

4. Normality Testing

Furthermore, the writer determined the normality of the test. Those normality and were tabulated based on the students' scores in the pre-test and students' scores in the post-test.

a. Normality of the Pre-test Score.

The normality of the data was often tested in inferential statistics analysis for one until more than one sample group. It is assumed that the normality of the data become a requirement to determine what kinds of statistics would be used in analyzing the next data. And the

writer would like to show the students' data of the pre-test in reading comprehension achievement.

Before calculating the normality, the writer found that the highest score in the pre-test was 92 who were gotten by 4 students, and the lowest score was 36 who were gotten by 2 students. Then, the writer shows the steps in calculating the test normality of pre-test can be seen in the appendix:

- 1) calculated determined mean scores in the pre-test can be seen in the appendix it was known that $N= 40$, $\sum x = 1385$ and the result was 60.21.
- 2) In the pre-test, it was known that $N= 40$, $\sum x = 2676$ and $\sum x^2 = 190128$. Then, the written calculated the standard deviation (SD) can be seen in the appendix, and the result the standard deviation was 16.87.
- 3) Make list of the observation frequency and expectation frequency in the pre-test can be seen in the appendix. In dividing the Interval Class it know that $\log (40) = 1.60$ and the result was 6, the result of Distance was 56, and the result Long Interval Class (p) was 9. The list of observation Expectation frequency was presented on the table 4.5 in appendix. The explanations of the calculation of the table 4.6 in appendix.

Based on the data of the table of The List Frequency of Observation and Expectation of the Students' Scores in the Pre-Test (see table 4.6 in the appendix), the writer find out that $\chi^2_{\text{obtained}} = 9.838$ with degree of freedom (df) = 8 (9-1). Since level is 95 % (0.05), and the $\chi^2_{\text{table}} = 15.507$.

The data was normality, because $\chi^2_{\text{obtained}} < \chi^2_{\text{table}}$.

b. Normality of the Post-test Score.

The normality of the data was often tested in inferential statistics analysis for one until more than one sample group. It is assumed that the normality of the data become a requisite to determine what kinds of statistics that was used in analyzing the next data. And the writer shows the students' data of the post-test in writing achievement.

Before calculating the normality, the writer found that the highest score in the post-test was 96, it was research by 5 students and the lowest score was 40, it was reached by 1 student. Next the writer shows the steps in calculating the test normality of post-test can be seen in the appendix C:

In the post-test, it was known that $N = 40$, $\sum x = 3044$ and $\sum x^2 = 240880$.

- 1) Calculated determined mean scores in the post-test can be seen in the appendix 7. it was known that $N= 40$, $\sum x = 3044$ and the result was 76.
- 2) In the post-test, it was known that $N = 40$, $\sum x = 3044$ and $\sum x^2 = 240880$ Then, the written calculated the standard deviation (SD) can be seen in the appendix, and the result the standard deviation was 15.38.
- 3) Make list of the observation frequency and expectation frequency in the pre-test can be seen in the appendix. In the dividing the Interval Class it know that $\log (40) = 1.60$ and the result was 6, the result of Distance was 56, and the result Long Interval Class (p) was 9. The list of observation Expectation

frequency was presented on the table 4.5 in the appendix. The explanations of the calculation of the table 4.6 in the appendix.

Based on the data of the table of The List Frequency of Observation and Expectation of the Students' Scores in the Pre-Test (see table 4.6 in the appendix), the writer find out that $\chi^2_{\text{obtained}} = 5.0711$ with degree of freedom (df) = 8 (9-1). Since level is 95 % (0.05), and the $\chi^2_{\text{table}} = 15.507$. The data was normality, because $\chi^2_{\text{obtained}} < \chi^2_{\text{table}}$.

4. Matched t-test

The writer calculated the matched t-test. It was done to see whether or not teaching reading comprehension Summarizing Training Camp Technique was significantly effective. Then, the result of match t-test calculation can be seen in the table 4.7 in appendix.

From the table the result of matched t-test calculation in appendix, it was found that the number of the subject (N) is 40 students, the sum of the difference is 380, and the squared sum the difference is 6176, and the result of Standard Deviation (SD) was 9.18,

After the writer found the result of the standard of deviation, then the writer found that the result of standard error differences was 1.45. Standard error of differences had been found; next the writer calculated the matched t-test. The matched t-test of pre-test and post-test that found by the writer was 6.89.

Standard Error of Differences between Two Means (\overline{SD}) was 1.45, and the t-test was 6.89. The critical value at margin of error 0.05 with degree of freedom (df) 39 (40-1) is 1.684. The null hypothesis (H_0) is

rejected and the alternative hypothesis (H_a) is accepted. The writer found out that it was significantly effective to use Summarizing Training Camp Technique in teaching reading comprehension to the tenth grade students of SMA Negeri 5 Lubuklinggau in the academic year of 2015/2016.

B. Discussions

In the result of the study, the writer would like to discuss the findings after the writer did the experiment in teaching reading comprehension through Summarizing Training Camp Technique. It was found that the students' achievement in reading comprehension increased. It could be seen from the difference between students' average score obtained in the pre-test and the post-test. In the pre-test, the students' average was 66, before being taught, their average score of reading comprehension was "failed" criteria based on the students' score range. On the other hand, in the post-test, their average score increased to be 76, it was in "passed" criteria, it means that after the students were taught through Summarizing Training Camp Technique the students' reading comprehension achievement got improvement.

Based on the calculation in appendix C.1, the highest score in the pre-test was 92, it was achieved by four students and the lowest score was 36, it was gotten by two students. Then, there were 22 students (55%) who were still in "failed" criteria. It means that the students' achievement in the pre-test was below than Mastery Minimum Criteria that was expected. Therefore, it was necessary for the writer to presents the causes why the students could not pass the

MMC (72) the following reasons show those factors.

First, the students were not able to find the exact definition of words. It means that the students did not know well the meaning of words that they learn. Therefore, they did not answer correctly to the questions of reading comprehension in the pre-test. This opinion was also supported by Burns and Page (1985:46), "a definition of comprehension stresses the importance of vocabulary knowledge". In other words, the students were difficult to find out the basis words meaning of a sentence. In addition, without knowing the definition of words that they encounter in the text books the students were hard to explore the words to the sentences that have to answer

Second, the students were lack of input, lack of comprehension, and lack of output in learning reading text. It means that the students did not listen effectively the words of the text that have been taught by the teacher. Therefore, the input of comprehension of the text that they have on their mind was very less. In other sides, they were not interested to comprehend the content of the text that they got instead just ignoring the words or phrases. Furthermore, the output of the comprehension of the text that they have were not exposed well to others. It means that the students did not get the main idea in a text.

Third, the problem was the students did not know well about spelling and the pronunciation. It means that most of the students ever heard about the words but they were not sure about the spelling and its handwritten then, they were confused when they were asked to answer the

questions. In line on this problem Scot and Yterberg cited in Yuliawati (2008:10) states that the common problems happened when a learner studies reading comprehension is the spelling and handwriting, the learners usually have to write the words that they learned. In addition, some of the students cannot determine the meaning of a simple word, although the words that they have to answer have been learned and known by them. It means that they had no idea how to find the meaning of the words that was stated in the questions. As Phillip (1996:197) states that students who are asked to determine the meanings of a simple questions usually tend to have problems since they are not taught yet the strategy to solve the problems.

Finally, the teacher did not provide much opportunities for the students to read, comprehend and find out main idea. In other words that was stated that students were not exposed too much on the comprehension that they learned. They were not trained extensively to use the words in a sentence. In line on this problem,

In contrast, the highest score in the post-test was 96, it was achieved by four students and the lowest score was 40, it was gotten by one student. So, it was obvious that in the post-test most of the students could make better achievement than in the pre-test. In addition, in the post-test, there were only 10 students or 25% who were included in "failed" criterion. Yet, there were 30 students or 75% who were categorized in "Passed" criterion the better achievement of this post-test were also caused by some factors:

First, Summarizing Training Camp Technique was proven to bring the students not only read the text but

also enjoy the comprehend the text. It means that by participating in Summarizing Training Camp Technique the students can create their minds in an enjoyable situations then it made them easy to comprehend any text taught by the teacher. Besides, there was any links or communication among the students who were taken part on the comprehend the text. In line the teaching through this technique can be enjoyable and valuable activities. This statement is also strengthen by Jeef (2004:50), Summarizing Training Camp is the technique that help the students to quickly see what's important, reduced it to a memorable chunk, and related it to main idea.

Second, the students were easy to comprehend the text with the difficult word. It means that by joining the Summarizing Training Camp Technique, the students are exposed to get in touch closely to comprehend the meaning the difficult words that the students could not get directly from the dictionary. This opinion was in line with what Harcleroad in Indasiswini(1977:269) said that there are many advantages in using Summarizing Training Camp Technique, not only the least of which is that students become familiar with objects studied and become aware of these object are part of their environments and related to their problems and activities but also to make students themselves involved in using them to learn. Learning is successful when learners can make the change from not knowing something it well and are able to make that change permanent. The reason why the writer purposes guessing this technique because this technique can be a very useful

teaching method for the effective and joyful learning.

Third, Summarizing Training Camp Technique made the students felt more interested in learning English reading comprehension. During the treatment was being held, the student got more interesting in comprehend the text that were presented with six magic box. This magic box made the activities in Main Idea Memory Storage are easy to be introduced and to be practiced and finally it achieved the students' target in comprehend the text. This statement was also stated by Paul (2003:109), the magic box which are included in Summarizing Training Camp Technique are useful for introducing and practicing specific the target language.

Finally, by using Summarizing Training Camp Technique, the students were more creative in learning reading comprehension. This idea is in line with the theory from Moon (2000:11), having students involved in creating the visuals that are related to the lessons help engage students in learning process by introducing them to the context as well as relevant reading text. It means that the students are more likely to feel interested and invested in the lesson and will probably take a better care of the materials.

Based on the findings that the students' average score in the pre-test was 66, the highest score was 92 which were achieved by three students and the lowest score was 36 achieved by two students. Based on the average ability it can be interpreted that their vocabulary mastery was in the "Failed" before being taught by using Summarizing Training Camp Technique. It means

that more than a half of the students were failed, especially in answering the main idea of the text. After the students were guided through Summarizing Training Camp Technique, their reading comprehension increased became better. It was found that the mean score of post-test was 76, and there were four students who achieved the highest score (96) and there was only one student who got the lowest score(40). It means that almost all the students got improvement on their reading comprehension.

Finally, the result of matched t-test calculation shows that the t_{obtained} was much higher than t_{table} . The t_{obtained} was 6.89 while the t_{table} was 1.684. It means that the null hypothesis (H_0) was rejected and automatically the alternative hypothesis (H_a) was accepted. In other words, it was significantly effective to use Main Idea Memory Storage in teaching reading comprehension to the tenth year students of SMA Negeri 5 Lubuklinggau in the academic year of 2015/2016.

D. CONCLUSIONS

1. Conclusion

Based on the findings and discussion in the previous chapter, some conclusions could drawn as follows Summarizing Training Camp Technique; it was significantly effective to use summary in teaching reading comprehension to the tenth grade students of SMA Negeri 5 Lubuklinggau in the academic year of 2015/2016. It was statistically proven from the students average score in the pretest was 66. And the students' average score in the post-test was 76. The student average score in the post

test was higher than the students average score in the pre-test

From the data conducted during experiment, it was revealed that the students could get better improvement on their reading comprehension mastery. Obviously, it proved that Summarizing Training Camp Technique made them interested to understand the text. Then, by using Summarizing Training Camp Technique made students enthusiastic to increase their reading comprehension achievement. It seems that the improvement was relied on the process of the treatment and the strategy done by the writer. In addition, the technique used by the writer was really effective to motivate the students to know more about reading comprehension.

In conclusion, it was statistically proven from the t_{obtained} value. It was 6.89 it was higher than 1.684 as its critical value of one tailed test. Therefore the null hypothesis (H_0) was rejected and the alternative hypothesis (H_a) was accepted. It means that it was significantly effective to use Summarizing Training Camp Technique in teaching reading comprehension to the tenth grade students of SMA Negeri 5 Lubuklinggau in the academic year of 2015/2016.

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**STRATEGIES TO CREATE A POSITIVE CLASSROOM
ENVIRONMENT IN TEACHING ENGLISH AS FOREIGN LANGUAGE
(TEFL)**

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Abstract

This article discusses about teacher's strategies to create a positive classroom environment in Teaching English as Foreign Language. One of the first tasks of teaching is to develop a learning environment so that students can engage in meaningful activities that support their learning. Teachers who are able to engage students in a teaching and learning process should be ready to have a plan to create a positive classroom environment for students. Creating a positive classroom environment is an important aspect of effective teaching. It is for keeping the interaction between teacher and students in teaching and learning process at classroom so that it increases students' motivation to learn. Then, students are productive in and out of the classroom. By creating positive classroom environments, teachers have the opportunity in developing their ideas for better classroom environment. Furthermore, it also help to enhance and encourage students in learning English as Foreign Language. In addition, this article also describes the effects of a positive classroom environment on students' learning English as Foreign Language.

Key words: *strategies, positive classroom environment, TEFL.*

A. INTRODUCTION

Teaching English as foreign language needs creative efforts such as technique, preparation, or strategy to be more interesting. One of the efforts of making interesting teaching learning process is creating a positive classroom environment. As Allred (2008) stated, every day as millions of students go to school, their parents hope these young people will be

treated with care, valued, inspired, and educated. Students hope they will get along with their peers and teachers, have their work measure up, and enjoy the process of learning. These hopes define positive classrooms for students, parents and also for teachers. Moreover, the teacher has an important role in creating classrooms that are comfortable, pleasant and conducive to students during the teaching and

learning takes place. In order, it is expected that students can optimally follow the learning process so that the learning outcomes for the better with a positive classroom environment.

Unfortunately, teachers face not only the challenge of managing their students' behavior while teaching the curriculum. They also face many conflicting theories about how to manage it: logical consequences, behavior management and assertive discipline, to name just a few (Edwards: 1997). Of course, there is no one correct way to encourage positive classroom behavior. But if you begin with a good preparation, it is possible to create a positive classroom environment in teaching and learning process.

Creating a positive classroom environment is an important aspect of effective teaching. It is for keeping the interaction between teacher and students in teaching and learning process at classroom so that it increases students' motivation to learn. People need to feel good about themselves. In the positive

classroom, teachers help students understand that people are likely to feel good about themselves when they engage in positive actions. The program explains a three-step process for choosing positive actions: First, we have a thought; second, we act consistently with the thought; third, we experience a feeling about ourselves based on the action (Allred: 2008). That feeling leads to another thought, and the cycle starts again. In practicing the process, students will learn that if they have a negative thought, they can change it to a positive one that will lead to a positive action and a positive feeling about themselves, it is as a powerful intrinsic motivator.

Furthermore, students are productive in and out of the classroom. By creating positive classroom environments, teachers have the opportunity in developing their ideas for better classroom environment. It also help to enhance and encourage students in learning English as Foreign Language. Classroom behavior is one of the hardest issues teachers face today (DiGuilo: 2000). Creating a classroom environment that is not

always conducive in learning. One key to prevent behavioral problems

in the bud is to promote positive behavior before problems arise.

B. DISCUSSION

Teaching English as Foreign Language (TEFL)

Teaching and learning process has aims to be achieved at listening, speaking, reading, and writing". It means that the aims of teaching English are to develop communication skill, to prepare the student to be able to listen, speak, read, and write. It needs to create the comfortable classroom activities for students in realizing the aims. The teachers are expected to design the classroom activities that can develop those four skills of students.

TEFL means Teaching English as a Foreign Language. It is a term used to describe the teaching of English to non-native speakers. In simple word, it is required when you teach English language in a country where English is not the students'

the end of class. In curriculum 2004, one of aims of English teaching is "develop communication skill by

native language. For example, when a teacher is from Indonesia teach English, where English is foreign to the teacher and students learning it. TEFL is commonly used in state school systems and private language institutes; however you will also find it being used by private tutors and volunteers. TEFL tutors do not need to be native English speakers and may come from anywhere in the world. In some countries TEFL teachers and tutors are required to have a degree (in any subject) such as in Indonesia.

Teacher's Strategies in Teaching English as Foreign Language

What is Strategic Teaching?

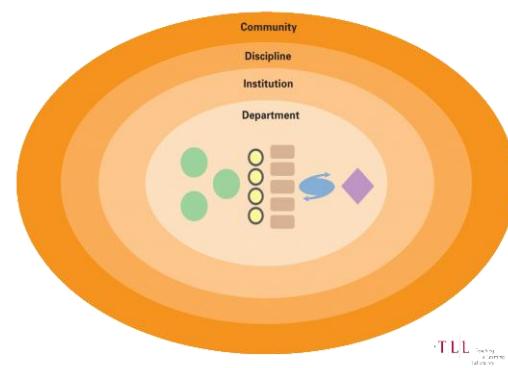
Strategic teaching is a way of making decisions about a course, an individual class, or even an entire curriculum, beginning with an analysis of key variables in the

teaching situation. These variables include the characteristics of the learners, the learning objectives, and the instructional preferences of the teacher. Once these variables have

been analyzed, informed decisions can be made about course content, structure, methods of assessment, and other key components (Teaching and Learning Laboratory: 2016). In order as a teacher, you need to make the preparation in deciding the strategy of teaching that will be

It is important to recognize that every components of strategy teaching relate between one to another: community, discipline, institution, or department. They also influence what is taught, when it is taught, and how it is taught. The way to create a positive classroom environment so that between teachers and students are able to give that positive influence in teaching and learning process.

Strategic teaching in context



Teacher's Strategies to Create a Positive Classroom Environment

Teacher as a facilitator is required to be a complete learning

applied in classroom. This is the fundamental thing in teaching. You have to arrange the strategy well to facilitate the students in learning of the course, and finally the purpose of the course can be achieved as expected.

Strategic Teaching in Context

resource for students. Where teachers are books / materials that can be read by the students, in addition a teacher who becomes a mirror reflection for students to act. Teacher have to prepare everything that relate to classroom components in teaching and learning process incuding the strategy used. Here are seven strategies that were given by Allred (2008): make leaning relevant, create a classroom code of conduct, teach positive action, instill intrinsic motivation, reinforce positive behaviors, engage positive role model, always be positive. By implementing the following seven strategies, it is expected to teacher can combine the need for positive classrooms that support the whole child with the need for accountability and improved academic performance.

1. Make Learning Relevant

Students are more engaged in learning and retain knowledge better when they see that it is relevant and vital to their own success and happiness. By discovering students' talents, learning styles, and interests, teachers can adjust teaching methods and strategies. By giving students a say in how the classroom operates,

2

. *Create a Classroom Code of Conduct*

A positive and productive classroom requires a common understanding of positive and negative behaviors. To establish this understanding, teachers ask students to identify the ways they like to be treated. This discussion elicits lists of behaviors that are respectful, fair, kind, and empathetic. Together, teacher and students conclude that treating others the way you want to be treated is the best code of conduct, and they agree that this code will dictate the behaviors that are appropriate for their classroom. This strategy also build the interaction between teacher and students in teaching learning process of classroom.

teachers increase students' sense of ownership in the education process. Teacher should identify the characteristics of students to make leaning relevant. What are students needed? Teacher must be creative to relate the topic (material) and students' interest.

3. Teach Positive Actions

A teacher needs to let students positive behaviors in a thorough, consistent, systematic way; teacher cannot assume that students just know them. The Positive Action curriculum covers the following concepts. This is very important for shaping students' mental character.

- The importance of doing positive actions to feel good about yourself.
- Positive actions for a healthy body (such as nutrition, exercise, and sleep).
- Positive actions for the intellect (such as thinking, decision-making, and problem-solving skills).
- Positive actions for self-management (such as managing

time, energy, emotions, and other personal resources).

- Positive actions for getting along with others (such as treating others fairly, kindly, and respectfully).
- Positive actions for being honest with yourself and others (such as taking responsibility, admitting mistakes, and not blaming others).
- Positive actions for improving yourself continually (such as setting and achieving goals).

leads to another thought, and the cycle starts again. With practice, students learn that if they have a negative thought, they can change it to a positive one that will lead to a positive action and a positive feeling about themselves as a powerful intrinsic motivator.

With repeated reinforcement by the teacher, this simple explanation helps students understand and improve their behavior in any situation.

5. Reinforce Positive Behaviors

Teachers can strengthen intrinsic motivation by recognizing and positively reinforcing positive actions when they see them. Recognition activities and items such

4. Instill Intrinsic Motivation

People need to feel good about themselves. In the Positive Action program, teachers help students understand that people are likely to feel good about themselves when they engage in positive actions. The program explains a three-step process for choosing positive actions: First, we have a thought; second, we act consistently with the thought; third, we experience a feeling about ourselves based on the action. That feeling

as tokens, stickers, and certificates; it can be effective. But when teachers use this strategy, it is important for them to recognize the positive behavior, ask how it made the student feel, and tell the student the extrinsic reward is a *reminder* of that good feeling. When students make the connection between their performance and feeling good about themselves, intrinsic motivation is enhanced and positive behaviors continue.

6. Engage Positive Role Models

Families and community members are concerned about their children's welfare, often want to be engaged in their children's education,

and have resources to offer. Educators can integrate them into many classroom and school activities, such as curriculum activities, assemblies, committees, after-school events, and homework.

7. Always Be Positive

Perhaps the most important strategy, yet often the most difficult to carry out, is to be positive. It is started from classrooms to playgrounds, during school and after. There is always a positive way to respond to a situation. A positive attitude is the change agent that will create positive classrooms and schools that produce happy and successful students.

physical elements such as wall art, arrangement of desks, or resources. Also, there are intangible elements such as the energy of the classroom, the rules, or the sounds within the room. Each of these can impact a student's focus and achievement in the class. They can also affect a teacher's attitude in the class. Included in each of these elements of the classroom is the emotional environment.

The way in which a teacher organizes a classroom, or how teacher

The Effects of a Positive Classroom Environment on Students' Learning English as Foreign Language

Class is one of the components that define comfort for the students to learn to influence the process and student learning outcomes. With the classroom being such an important place in the growth of a child it is important to understand the ways in which to affect this environment in order to receive maximum effectiveness in instruction (Hannah, 1997). There are many things that can affect this environment. There are

control it, develop the classroom environment, will effect positive or negative things for students. If a teacher is unmotivated or negative there will be a direct impact on the students within the classroom. Similarly, if a teacher is motivated and positive they will likely have a beneficial impact on their students as well. It is important for a teacher to understand this cause and effect in order to understand how to organize their classroom to create a better classroom environment.

C. CONCLUSION

This article has provided a brief overview of teacher's strategy by making some decisions before starting to teach. It has also outlined some strategies to create a positive classroom environment, they are: make leaning relevant, create a classroom code of conduct, teach positive action, instill intrinsic motivation, reinforce positive behaviors, engage positive role

model, and always be positive. In my experience, using these strategies in classroom are not only encourage students in their language learning but also helps teacher reflect on and improve her teaching. May readers also find this to be the case and this article can be useful for other teacher to create a positive classroom environment in Teaching English as Foreign Language.

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RELIGIOUS VALUES AND INDUSTRIAL DEVELOPMENT IN VICTORIAN AGE AS REFLECTED IN NOVEL BRAM STOKER'S DRACULA

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Abstract

The research aims to reveal the relationship between religious values and industrial development in Victorian age as reflected in novel Bram Stoker's Dracula. The sociological approach was used to analyze the social aspects as reflected in the novel. There are two major concerns in the research; they are religious values and industrial development. The findings show that there are two kinds of relationships between the two aspects, namely, positive relationship and negative relationship. In a positive way, people still were able to maintained the religious values inside their selves, for instance, as reflected by the main character Jonathan Harker. Therefore, their religious values were useful to be a shield in revolutionary revolution. On the contrary, in a negative way, the religious values of society were decreasing along with the development of industry which also influenced many aspects in their lives.

Keywords: *Bram Stoker's Dracula, Religious Values, Industrial Development, Victorian Age, Sociological Approach*

A. INTRODUCTION

A literary work is an interesting and unique creation of human being. It has a spread scope and meaning. There are a lot of letters who had written the meaning of literature. Literature is hard to define and the definition itself can not satisfying many sides. The definition of literature depends on the individual who feel it more deeply. As a part of art, literary work pulls every man to know and search it. Even the authors or the artists are different, the reader or devotee of art still need a sign to understand what literature is.

According to Subhan (2006:15) literature is a branch of art that use language as a media to express ideas, thoughts, feelings, and

experiences to educate and also to entertain the reader or the audience. A literary work is built by the element called "language", namely, (1) literary works built by oral language, which is called written literature, and (2) literary works built by written language which is called written literature. Through those kinds of elements, authors must show and express their ideas, thoughts, feelings, and experiences that have intentions toward the audiences. The intention can be; to educate, to entertain, and useful in giving and adding more information and experience.

Literature can be divided into three genres, namely (1) prose, (2) poetry, and (3) drama. Prose can be

divided into some literary works, namely, (1) romance, (2) novel, (3) short story, and (4) tales. In this writing, the writer only wants to explain about the meaning of a novel. Hornby in *Oxford Advanced Learner's Dictionary of Current English* (1985:792) defines, novel is an invented story in prose, long enough to fill a complete book. It presents more than an episode. The story in a novel is very long because it contains more than 100 pages.

A novel has two elements, namely, intrinsic elements and extrinsic elements. In this writing, the writer only wants to analyze about the extrinsic elements that contain in the novel. The extrinsic elements which the writer wants to explain is the relationship between two supporting aspects, those are the religious life and the industrial development in Victorian age.

Abraham Stoker known as Bram Stoker was born on November 8, 1847 Dublin, Ireland. He is one of greatest Irish novelist and short story writer. *Dracula* is his unique horror masterpiece and is the most famous of all vampire tales. Like Shelley's *Frankenstein*, this monstrous literary creation has thrown its creator into comparable obscurity. Stoker married Florence Balcombe in 1878 and has a child named Irving Noel Stoker.

Although Stoker wrote a number of short stories which appeared in magazines, his reputation as an author was not famous as when his novel *Dracula* first published in 1897. Stoker's other works are *The Snake's Pass* (1906), *Personal Reminiscence of Henry Irving* (1906), *The Jewel of Seven Stars* (1903), and *The Lair of*

White Worm (1911). Following the death of Henry Irving, his aspirator and fellow, Stoker suffered from a stroke which left him unconscious for twenty four hours. He recovered enough to carry on his writings and at the age of sixty his interview with Winston Churchill appeared in the *Daily Chronicle*.

As a great work, *Dracula* has many aspects which built it into a great unity, those are British industrial revolution, religion, philosophy, social institution, supernatural and fantastic literature, tragic love story and sexuality, and the history of crusade between Vlad Impaler and Turks. The writer was impress and interest of its religion and industrial development, how far industrial development can influenced the religious life of Christian in Victorian era as reflected in novel Bram Stoker's *Dracula*.

B. THEORETICAL FRAMEWORK

1. Author's Biography

Stoker was born on November 8, 1847 at Marino Crescent, now called The Crescent- in Clontarf, a coastal suburb of Dublin, Ireland, from Abraham Stoker (born in 1799; married Stoker's mother in 1844; died on October 10, 1876) and the feminist Charlotte Mathilda Blake Thornley (born in 1818; died in 1901) as third of seven children. Abraham and Charlotte were members of the church of Ireland and attended the Clontarf Parish church (St. John the Baptist) with their children. We can found that Stoker's Family background was also religious.

Stoker started to school at age of seven when he made a complete surprising recovery and he was invalid. After his recovery, he became a normal young man even excelling as an athlete at Trinity College, Dublin (1864-1870), from which he was graduated with a good score in mathematics. He was auditor of the College Historical Society and president of the University Philosophical Society where his paper was on “sensational in Fiction and Society”. In 1876, while employed as a civil servant in Dublin, he wrote theater reviews for *The Dublin Mail*, a newspaper partly owned by a horror writer J. Sheridan Le Fanu. His interest in theater led him into a lifelong friendship with an English actor Henry Irving.

In 1878, Stoker married Florence Balcombe, a twenty year-old young Irish playwright called Oscar Wilde. This couple moved to London, where Stoker became a business manager of Irving's Lyceum Theatre. The collaboration with Irving was very important for Stoker. Through him, he became involved in London's society, where they he met, among other notables, James McNeil Whistler and Sir Arthur Conan Doyle.

Before writing *Dracula*, Stoker spent eight years in researching the European folklore and vampire stories. Then he first published his sensational novel *Dracula* in 1897. Dracula become the most popular stories ever along the year, it has attracted many people to explore and criticize this novel.

2. Christian Religion

Christian religion brought by Jesus in Jerusalem through a torture of a cross written in Bible. Christian believes a Trinity principal of God. From the 9th – 15th centuries, a complicated, still quite obscure process of alienation between Byzantium Christianity and Roman Christianity resulted their separation each other since the failure of crusade. Each group rejected each other. There were nine crusades that happened in 1095 until 1271. Christian separated into a big power, namely Protestant and Roman Catholic. In 1851, Roman Catholic bishops are banned from using their titles in Britain and there was considerable prejudice against Jews.

Christian bibles, especially the Gospels were an instrument of salvation. Bibles presents a new image of God. In surrounding cultures, the image of God and the gods were presented unclear and contradictory. Some said there is only one God, the creator of heaven and earth. In the other hands, Jesus and Maria supposed to be God, too.

In bible, God reflected as a lover of mankind. God loves men, the one God whom Israel believes. God has power to protect his mankind and Jesus, the son of God. In the other hand, love is the service that the Church carries out in order to attend constantly to man's suffering and his needs, including material needs. Each individual member must have a faithful and a responsibility. As a

community, the church must practice love.

For Christian, Christian is the manifestation of the Divine Logos – the Divine Truth on earth and “the light of the world.” This luminous truth continued to shine through the writings of great Christian sages and sacred artistic creations, which for a central part of the Christian spiritual tradition (Microsoft, 2006).

3. Industrial Revolution

Industrial revolution is a change of technology, socioeconomic and culture at the end of 18th century and early which happened during the economic move out between the employee and using of machines. It began in England since the recovery of the steam machine (1760's) and powered by machine (especially in textile industry). The development of iron machine equipments in first-two decades produced the production machine used to the other industry

James watt supposed to be the most influenced person toward industrial revolution in Britain. But other discoveries were also had the important role of the industrial development, for instance mines world and various engines development.

Industrial development happened along with the American Revolution and French Revolution. There were no significance boundaries which limit the period of industrial revolution. And finally, we can conclude that James Watt is only one or a part of

influenced factors in industrial development.

4. Approaches of the Study

There are two kinds of data analyzing techniques, namely, qualitative and quantitative analysis. The one that can be measured by figure or statistic is called quantitative, and if it described the fact that can be measured by figures or statistic, it's called by qualitative (Koentjoroningrat, 1985:253).

The qualitative analysis is to give clearer information to describing the phenomenon of society and their problems reflected in the novel. The phenomenon of society itself caused by the various aspects such as, social, culture, politic, economy, industry, science and technology an religious aspects.

The approach that the writers use in her analysis is sociological approach. Sociological approach is one of literary approach which is view the work from the social phenomenon in certain time or place. This approach tries to reveal the phenomenon that happened because of certain reasons that formed certain aspects in groups of society.

In this research, the writer wants to reveal about London (Britain) society in Victorian era to help her in finding the relationship of religious life and industrial development.

The Victorian era of the United Kingdom marked the height of the British Industrial revolution. This region is ruled by Queen Victoria

between 1837 and 1901. Queen Victoria had the longest reign in British history, and the cultural, political, economic, industrial and scientific changes that occurred during her reign were remarkable. During her authority, the country was highly industrialized and connected by an expansive railway network.

During the following century, the population doubled from 400.000 to 800.000. The cultural and commercial life of Britain and its empire was centered on London. It was a city of business, trade, manufacturing and a lot of pleasant things. The first decades of Victoria's reign, there were some failure phenomenon like diseases (typhus and cholera), failure of crop, and economical problem.

Kinds of modernity and cultural evidence remarked by gothic architecture, was a leading to the battle of the styles between Gothic and Classical ideals. A new form of supernatural, mystery and fantastic literature during this period is remarked by the appearance of the famous character such as Sherlock Holmes famous detective all the times, Barry Lee big gang leader, Frankenstein, Dracula and Invisible Man fictional characters of the era.

Industrial revolution caused a social stratification of high, middle and the lower class. The higher class were born into nobility and owned the land. The middle class was the middle working class. They employed as the factory owners, bankers, shopkeepers, merchants, lawyers, engineers, businessmen, traders and other professionals. The

lower class was the working class and the poor, those who were not working, were receiving public charity.

C. RESEARCH FINDING

1. Forms of religious acts in Britain, Victorian age as reflected in *Dracula*

Christian religion dominated the western region. Christian has a tough principal in spread their religion. Christian duty expressed through the high moral of public life and the desire of better-of to do good things. The Christian center is Jesus, for the God worshiped in the Christian literature served in the Christian ministries and crucial for the Christian church is the father known through the revelations of Jesus (Carmody, 1984:303). Jesus supposed to be a great moral teacher, the great exemplar of love. Without Jesus resurrection, Christian faith would only be tragic nobilities.

Jesus shows a reflection of faith, love, hope and expectation in facing the suffering, injustice and misunderstanding, even a cruel death.

....and if it be anything in which my honour as a gentleman or my faith as a Christian is concerned.....
(p, 246).

Jesus believed as the greatest power and as the saviour of his mankind. The Christian believe that a help will come to them from their God through a great conscious and prayer.

He covered his face with his hands, and slid down on his knees by the sofa, where he remained, perhaps a minute, with his head buried, praying, whilst his shoulders shook with grief. (p, 193).

Christian often states prayers of adoration to bless the salvation.

I have made the effort, and, God helping me, have come safely back to this room. (p, 61).

The faith and great expectation of God drawn on things or religious goods symbolized by crucifix. It believed as a holy instrument which can protect them from evil, as written in the novel, crucifix is the instrument to kill vampires.

Then he took from his neck, inside his collar, a little golden crucifix, and placed it over the mouth. (p, 198).

They usually wear it as a pendulum or just keep it in their pocket for protector and instrument of salvation.

Bless that God, good woman who hung the crucifix around my neck. (p, 40).

The exemplar of religious characteristic of people in Victorian

era can be found in Jonathan Harker and the old lady when they met at the Golden Krane Hotel.

She then rose and dried her eyes, and taking a crucifix from her neck offered it to me. I did not know what to do, for, as an English churchman....(p, 13).

Crucifix and Jesus statue or picture often found as architecture in a building, especially in church itself.

Other religious life reflected in the city condition, the building has a shape like church. And there is a big church and beautiful cathedral which stand strong, also other church, as the Christian society's umbrella and as a beautiful view of the city.

“....your friend and mine, Mr. Peter Hawkins, from under the shadow of your beautiful cathedral at Exeter, which is far from London....” (p, 43).

For a moment or two I could see nothing, as the shadow of a cloud obscured St. Mary’s church and all around it. (p,112).

Between it and the town there is another church, the parish one, round which is a big graveyard, all full of tombstones. (p, 80).

Christians has their own rule in burial ceremony. Usually, a clergyman led the ceremony by

stating a prayer. And the relations or close friend of the late should be a chief of mourner.

'as there are no relations at all, Jonathan will have to be chief mourner.'(p, 191).

2. Industrial development in Britain, Victorian age as reflected in Dracula

During the rule of Queen Victoria between 1837 until 1901, Britain had growth into a part of industrial revolution. Industrial revolution led Britain into expanding many social parts, recovered cultural, literature, medical, science and technology. The country grew increasingly connected by an expansive network of railway lines around Britain.

Left Munich at 8.35 p.m. on 1st May, arriving from Vienna early morning; should have arrived at 6.46, but train was an hour late. (p, 9).

'Herewith please receive invoice of goods sent by Great Northern Railway. Same are to be delivered at Carfax, near Purfleet, immediately on receipt at goods station King's Cross.' (p, 119).

The development as the impact of industrial revolution since the discoveries appeared and found by a lot of experts. The modernity and cultural continuities also growth into a gothic architectures. It's

became a battle of style between Gothic and Classical styles. The innovation of modern architecture can found in a reflection of the novel.

Having some time at my disposal when in London, I had visited the British Museum, and made search among the books and maps in the library regarding Transylvania; it had struck me that some foreknowledge of the country could hardly fail to have some importance in dealing with a noble of that country. (p, 9).

In the library I found, to my great delight, a vast number of English books, whole shelves full of them, and bound volumes of magazines and newspapers. A table in the centre none of them were of recent date. The books were of the most varied kind – history, geography, politics, political economy, botany, geology, law – all relating to England and English life and customs and manners. (p, 30).

We can see that their knowledge was arranged in many kinds of books. The building architecture was completed by library contains of various kinds of books, magazines and newspaper. There was also a museum of London city as the result of their recovery for the last centuries.

Since the discovery of typewriter by Christopher Sholes and telegraph by Samuel F.B Morse, Britain communication has found its way. There were a lot of newspapers and magazines publishers in this country.

So I told him I would simply write an account of our visit, just as if I wee doing a descriptive special article for *The Daily Telegraph*. (p, 139).

I used to think I would like to practice interviewing; Jonathan's friend on the *Exeter News*.....(p, 218).

There were even such books reference as the London Directory, the; Red' and 'Blue' books, Whitaker's Almanack, the Army and Navy Lists, and – it somehow gladdened my heart to se it – the Law List. (p, 30).

...I shall be prepared. I shall get my typewriter this very hour and begin transcribing. (p, 215).

Discovery in science, technology and engineering world led a development of medical (medicine and the instruments) science, technology of transportation and communication like the rise of railways across the country by Isambard Kingdom Brunel, the sewage system and water pipes and the London

Underground designed by Joseph Bazalgette, photography and cameras were found by Louis Daguerre in France and William Fox Talbot in England.

He took with him a bag in which were many instruments and drugs. (See page 146).

.....and were about to perform what we call transfusion of blood – to transfer from full veins of one to the empty veins which pine for him. (See page 148).

".....I shall give hypodermic injection of morphia." (See page 156).

I got her luggage, which included a type writer, and we took the Underground to Fenchurch Street.....(see page 262).

Even the statement below just an expression, it proved that in this time people had known about the camera called *Kodak*.

I have taken with my Kodak views of it from various points. (p,35).

In the early years of the 19th century, gas lighting became widespread during the Victorian era in industry, homes, public buildings and the streets. Hundreds of gas works were constructed in cities and towns across the country.

They are both in the employment of Harris & Sons, moving and Shipment Company, Orange Master's Yard, Soho. (p, 190).

In 1882, the electric lights were introduced to London streets, although it took many long years before they were installed everywhere. Industrial activities led the businessman to have business relations till out of London even abroad, like Jonathan Harker did in the novel.

I found that my landlord had got a letter from the Count, directing him to secure the best place on the coach for me; but on making inquiries as to details he seemed somewhat reticent, and pretend that he could not understand my German. (p,12).

“...To-night I leave for Amsterdam, but shall return to-morrow night...” (p, 261).

...but that it would not be wise to have more than one solicitor engaged in one transaction, as only one could act at a time, and that to change would be certain to militate against his interest. He seemed thoroughly to understand, and went on to ask if there would be any practical difficulty in having one man to attend, say, to banking.(p, 43).

3. The relationship between religious life and industrial development in Victorian era

Based on the data analysis, it can be concluded that there was a positive relationship and a negative relationship between two aspects. The positive one revealed that the religious value of someone may still influence human's life in a positive way. On the contrary, a negative relationship revealed that since the revolutionary industry has grown quickly, it influence the religious values of most of society.

During the 19th century, the entities refer to as ‘science’ and ‘religion’ both went to dramatic changes. Science development, as a result of the industrial development of industrial revolution, had an opposite meaning and principal. In the scientific area, clergymen also involved in the sciences.

In this era, Britain formed into a social structure consisting of three distinct classes: the church and aristocracy, middle class and the working poorer class. The top class included the church and nobility had great power and wealth. The Nobel owned the majority of the land. It included the royal family, the clergy, great officers of state and baronet.

Count Dracula had directed me to go to the Golden Krone Hotel, which I found, to my great delight, to be thoroughly old-fashioned, for of course I wanted to see all I could of the ways of the country. (p, 12).

The characters in the novel were the middle class as we can see that they lived in a big building with modern facilities and had some business relationships.

I was afraid she might get a chill, so I ran upstairs, but as I came into the room she was moving back to her bed.....(p, 118).

'In order to obviate any delays possible through any routine requirements as to payment in our departments, we enclose cheque for ten pounds (£10), receipt of which please acknowledge.' (p,120).

'Ran upstairs' show that the building had more than one floor.

Beginning in the late 1840's, major news organizations, clergymen and single women became increasingly interested in prostitution, which came to be known as "The Great Social Evil." In this era morality and faith to God was tested. It showed the moral degradation in Victorian society.

The clergymen were tough in maintaining their reputation as scientific experts. It should be noted that plenty of individuals continued should have a Christian faith in their participating in the science and industrial development.

Even this era protested to be degradation of moral value to Christianity, for several people God still has an important role of their life. Through their belief and effort and

faith, God will give a great lightening for them. We can found it in some characters in *Dracula*.

....and what is to be the end God only knows." (p, 228).

I have made the effort, and, God helping me, have come safely back to this room. (p,61).

It still can be seen that there are some acts which was maintained by the characters in the novel. As discussed previously, the characters still remembered God in their movement. It means, religious value was still strong inside people's life.

D. CONCLUSION

The writer interested in *Dracula* since the novel also attracted many critic and artists. *Dracula* has its own aura to impulse the readers. It became the greatest gothic novel along the years. It has a lot of aspects which support the contents of the novel. The novel reflected the social, culture, religion, psychological depression, love story and sexuality, modernity, the development of science and technology in Victorian era. It shows how the condition of society in Stoker's time.

Through the analysis, the writer gets the facts of the relationship. For the majority of Britain in Victorian era, industrial development brought them into a great change of life. It also influenced their religious belief. The faith and belief of God had been tested. There view a lot of prostitution done by clergymen and a single women. It

showed a moral degradation of majority of Christian. In the other hand, people who still had a strong belief and faith in God, believed that God was a saviour for their life.

The analysis expected can be a good introduction in understanding and appreciating the novel. The writer also hopes that the readers can get several advantages and can criticize the writing.

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**KONTRIBUSI INTERAKSI DOSEN-MAHASISWA DALAM PROSES
PEMBELAJARAN DAN KETERAMPILAN BELAJAR MAHASISWA
TERHADAP HASIL BELAJAR MATAKULIAH PERSAMAAN
DIFFERENSIAL**

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ABSTRAK

Telah dilakukan penelitian yang bertujuan untuk menentukan kontribusi interaksi dosen-mahasiswa dalam proses pembelajaran terhadap hasil belajar matakuliah persamaan differensial mahasiswa program studi pendidikan matematika STKIP PGRI Lubuklinggau. Penelitian ini menggunakan metode kuantitatif dengan pendekatan hubungan/korelasi (*correlational research*). Populasi dalam penelitian ini adalah seluruh mahasiswa yang mengambil matakuliah persamaan diferensial sebanyak 100 mahasiswa dengan sampel 30 mahasiswa pada semester IV tahun akademik 2014/2015. Teknik pengambilan sampel menggunakan proporsional *random sampling* yang diundi secara acak. Teknik pengumpulan data menggunakan angket dan dokumentasi. Teknik analisis data menggunakan analisis korelasi dengan uji prasyarat hipotesis meliputi uji normalitas, uji linearitas, dan uji homogenitas. Berdasarkan analisis data dan pembahasan dapat disimpulkan bahwa (1) ada kontribusi interaksi dosen-mahasiswa dalam proses pembelajaran terhadap hasil belajar matakuliah persamaan differensial sebesar 7,4%, (2) ada kontribusi yang signifikan keterampilan belajar mahasiswa terhadap hasil belajar matakuliah persamaan differensial sebesar 23,91%, (3) ada kontribusi yang signifikan interaksi dosen-mahasiswa dalam proses pembelajaran dan keterampilan belajar mahasiswa secara bersama-sama terhadap hasil belajar matakuliah persamaan differensial sebesar 26,01%.

Kata kunci : kontribusi, interaksi, keterampilan belajar, persamaan differensial.

A. PENDAHULUAN

Pencapaian hasil belajar yang optimal salah satunya tergantung kepada kemampuan dosen, terutama dalam mengarahkan aktivitas belajar sesuai dengan rencana pembelajaran yang telah dirancang. Namun seringkali kemampuan tersebut belum dimiliki oleh dosen sehingga dapat menjadi penyebab

lambatnya pencapaian tujuan belajar mahasiswa. Selain itu, kurangnya tegasnya dosen dalam mengarahkan aktivitas belajar sesuai dengan rencana pembelajaran yang telah dirancang dan kurang lengkapnya peralatan belajar untuk dijadikan media dalam sebuah pembelajaran yang dilaksanakan dosen di kelas

juga mengendorkan semangat mahasiswa untuk giat belajar.

Faktor lain yang cukup penting dan berpengaruh terhadap pencapaian hasil belajar mahasiswa adalah keterampilan belajar yang dimiliki oleh mahasiswa. Seringkali ditemui mahasiswa yang sebenarnya mampunyai kemampuan dan kecerdasan yang cukup memadai tidak dapat mencapai hasil belajar yang optimal karena kurang dikuasainya berbagai keterampilan dalam belajar baik itu keterampilan pokok maupun keterampilan pendukung dalam belajar. Kurangnya keterampilan belajar mahasiswa tersebut seringkali juga menyebabkan mahasiswa mengalami banyak masalah terutama yang berkenaan dengan penguasaan materi kuliah yang berujung kepada rendahnya hasil belajar yang dicapai mahasiswa.

Selain faktor-faktor tersebut, masih banyak lagi faktor yang menyebabkan berhasilnya mahasiswa dalam mengikuti pembelajaran yang bila tidak diperhatikan secara optimal maka mahasiswa akan berhadapan dengan kegagalan yang pada akhirnya tercermin dari rendahnya nilai-nilai

mereka, termasuk lengkapnya sarana dan prasarana pendukung pembelajaran di perguruan tinggi. Di samping itu, bila dikaji lebih lanjut rendahnya hasil belajar mahasiswa bisa disebabkan karena rendahnya minat baca mahasiswa terhadap buku-buku referensi hingga mereka jarang menghabiskan waktu luangnya di dalam perpustakaan kampus.

Persamaan Diferensial (PD) merupakan satu diantara beberapa mata kuliah wajib di Program Studi Pendidikan Matematika STKIP PGRI Lubuklinggau. Hasil belajar seorang mahasiswa yang mengambil mata kuliah PD tergantung pada apa yang telah diketahuinya. Di samping itu, cerminan hasil belajar juga akan sangat berkaitan dengan konsep-konsep serta tujuan dan motivasi yang mempengaruhi interaksi mahasiswa dengan bahan yang dipelajarinya. Masalahnya dari sejumlah mahasiswa yang mengambil mata kuliah PD pada semester IV adalah hasil belajar yang mereka peroleh belum memperlihatkan hasil yang memuaskan. Hal ini dapat terlihat jelas dari jabaran nilai-nilai yang mereka peroleh pada tiga tahun

terakhir, sebagaimana yang tergambar pada Tabel 1 berikut:

Tabel 1. Rekapitulasi Nilai Mata Kuliah Persamaan Diferensial Tiga Tahun Terakhir

Tahun Akademik	Nilai Mahasiswa									
	A	%	B	%	C	%	D	%	E	%
2013/2014	20	20	24	24	36	36	16	16	4	4
2012/2013	50	35	31	21	28	19	24	17	11	8
2011/2012	47	25	50	26	55	29	31	16	8	4

Sumber: Staf Program Studi Pendidikan Matematika STKIP PGRI Lubuklinggau

Melihat hasil belajar mahasiswa pada matakuliah PD yang rendah tersebut, maka peneliti tertarik untuk mengetahui lebih lanjut apakah selama ini interaksi dosen-mahasiswa dalam proses pembelajaran dan keterampilan belajar mahasiswa benar-benar berkontribusi terhadap hasil belajar mahasiswa. Sejauh ini belum ada

kajian lebih lanjut mengenai masalah tersebut. Hal inilah yang mendorong peneliti untuk meneliti masalah yang berkaitan dengan interaksi dosen-mahasiswa dalam proses pembelajaran dan keterampilan belajar mahasiswa di Program Studi Pendidikan Matematika STKIP PGRI Lubuklinggau pada mata kuliah PD.

B. LANDASAN TEORI

Hasil belajar adalah perubahan perilaku secara keseluruhan bukan hanya sala satu aspek potensi kemanusiaan saja (Suprijono, 2013). Menurut Dimyati dan Mudjiono (2006), hasil belajar merupakan hasil dari suatu interaksi tindak belajar dan tindak mengajar. Sedangkan menurut Hamalik (2001), hasil belajar adalah terjadinya perubahan tingkah laku pada seseorang, misalnya dari tidak tahu

menjadi tahu, dan dari tidak mengerti menjadi mengerti.

Menurut Reigeluth (2009), ada tiga komponen utama yang harus diperhatikan dalam pembelajaran, yaitu: a) kondisi pembelajaran; b) metode pembelajaran; dan c) hasil pembelajaran. Kondisi pembelajaran mencakup karakteristik pembelajaran berupa tujuan/hambatan pembelajaran dan karakteristik siswa. Metode pembelajaran

meliputi bagaimana pengorganisasian bahan pelajaran, strategi penyampaian dan pengelolaan kegiatan. Hasil pembelajaran meliputi efektivitas, efisiensi dan daya tarik pelajaran bagi siswa.

Berdasarkan uraian mengenai hasil belajar dari beberapa pendapat yang telah dipaparkan, dapat disimpulkan bahwa hasil belajar adalah suatu perubahan tingkah laku seseorang setelah melakukan kegiatan pembelajaran. Hal ini ditunjukan dari seseorang yang tidak tahu menjadi tahu, dari yang tidak mengerti menjadi mengerti, sehingga dapat menambah pengetahuan, kecakapan, dan keterampilan orang tersebut.

Upaya untuk mencapai keberhasilan pembelajaran di perguruan tinggi ditunjang oleh banyak faktor. Salah satunya adalah hubungan yang baik antara dosen dan mahasiswa. Dalam mencapai tujuan belajar, dosen dan mahasiswa saling bekerjasama untuk melaksanakan tahap-tahap pembelajaran dari satu unit materi kepada pembahasan materi lainnya. Hubungan tersebut terfokus pada

interaksi pada ruang lingkup pembelajaran.

Berasal dari kata *inter* atau *antar*, interaksi adalah hubungan timbal balik atau dengan kata lain suatu hubungan yang saling mempengaruhi, saling menarik antar perorangan, saling meminta dan saling memberi. Dalam suatu interaksi sosial dikatakan bahwa interaksi merupakan suatu hubungan yang dinamis antara orang perorangan. Interaksi timbal balik tidak hanya terjadi di antara manusia dengan manusia atau antara manusia dan lingkungannya, tetapi juga di antara lapangan kegiatan manusia. Interaksi yang demikian terlihat jelas dalam hubungan komunikasi antara dosen dan mahasiswa dalam pendidikan dimana ia diterapkan saat dosen melaksanakan aktivitas pembelajaran diperguruan tinggi.

Sardiman (2000) menyatakan bahwa hubungan atau interaksi yang tercipta antara dosen-mahasiswa merupakan faktor yang sangat menentukan. Betapapun baiknya pembelajaran yang dilakukan, jika hubungan mereka tidak harmonis, tentu akan menciptakan hasil belajar yang kurang baik pula. Dengan

demikian diduga bahwa semakin baik hubungan yang tercipta antara dosen-mahasiswa, tentu akan berkontribusi secara signifikan terhadap hasil belajar mahasiswa. Untuk menumbuhkan dan mengukuhkan hubungan antara dosen-mahasiswa tersebut, menurut Rahmat (1996) dapat dilakukan berbagai hal, yaitu: dapat dilakukan dengan cara menumbuhkan sikap percaya, suportif, dan keterbukaan antar komponen yang ada. Sebuah hubungan dapat dikatakan berkualitas, jika memiliki beberapa karakteristik, antara lain yang dikemukakan oleh Devito yang dikutip oleh Thoha (1992) yang mengatakan bahwa di dalam sebuah hubungan harus ada sikap keterbukaan, empati, dukungan, dan sikap positif, serta kesamaan dari mereka yang terlibat.

Interaksi dosen dan mahasiswa artinya dosen menjalin suatu hubungan timbal balik saat berlangsungnya proses pembelajaran. Khusus untuk mahasiswa Program Studi Pendidikan Matematika STKIP PGRI Lubuklinggau, hingga saat ini belum diketahui berapa sesungguhnya kontribusi dari

interaksi semacam ini terhadap hasil belajarnya. Begitu pula dengan proses pembelajaran yang dilaksanakan oleh dosen itu sendiri. Begitu juga dengan peran keduanya terhadap hasil belajar. Gabungan dari banyak interaksi akan membawa kepada suatu hubungan dimana terjalinya komunikasi antara satu individu dengan individu lain. Interaksi yang terjadi sangat dipengaruhi oleh konteks dimana ia dilakukan, artinya interaksi di suatu tempat akan berbeda dengan interaksi di tempat lain. Misalnya saja bila terdapat suatu interaksi di sebuah pasar, di sekolah atau di swalayan. Ini akan sangat berbeda dengan interaksi yang dilaksanakan di perguruan tinggi.

Keterampilan belajar dapat diartikan sebagai seperangkat sistem, metode, dan teknik yang baik dalam usaha menguasai materi pengetahuan yang disampaikan dosen secara tangkas, efektif dan efisien (Gie, 1995). Prayitno dkk (1997) mengatakan bahwa yang menjadi dasar perlunya keterampilan belajar bagi mahasiswa dalam rangka memperoleh prestasi yang lebih baik adalah sebagai berikut: a)

keterampilan belajar merupakan suatu hal yang menjadi dasar bagi kesuksesan mahasiswa dalam kuliahnya atau kehidupan mereka selanjutnya, b) keterampilan belajar sangat mendorong mahasiswa apabila dilaksanakan lebih awal, c) dosen dapat memberikan materi

keterampilan belajar untuk semua mahasiswa sesuai dengan kebutuhannya, dan d) melalui program keterampilan belajar dosen dapat menggali permasalahan mahasiswa dan membina hubungan konseling yang lebih mendalam.

C. METODE PENELITIAN

Populasi pada penelitian ini adalah seluruh mahasiswa yang mengambil matakuliah Persamaan Diferensial pada semester IV tahun akademik 2014/2015, yang terdiri dari tiga kelas dan pengambilan sampel dengan menggunakan *cluster proportional random sampling*. Tujuan ditariknya sampel dengan strategi seperti ini adalah agar semua anggota yang telah dikelompokkan ke dalam beberapa bagian dan jenis kelamin memiliki kesempatan yang sama untuk dipilih sebagai sampel penelitian yang representatif. Syarat utama yang ingin dipenuhi dalam penarikan sampel dengan cara *cluster proportional random sampling* ini adalah (a) *Confidence interval* atau taraf kepercayaan terhadap sampel sebesar 95% untuk keterwakilan populasi, (b)

Sampling error atau tingkat kekeliruan penentuan sampel atas populasi yang ada sebesar 20%.

Variabel yang digunakan dalam penelitian ini terdiri dari dua variabel bebas berupa Interaksi Dosen-Mahasiswa dalam Proses Pembelajaran (X_1) dan Keterampilan Belajar Mahasiswa (X_2) serta variabel terikat berupa Hasil Belajar matakuliah Persamaan Diferensial di semester genap tahun akademik 2014/2015 (Y). Metode penelitian yang digunakan adalah kuantitatif. Hal ini dikarenakan dalam penelitian ini digunakan pendekatan hubungan/korelasi (*correlational reseacrh*). Penelitian ini bertujuan untuk melihat ada atau tidaknya hubungan antara variabel bebas yang ada dan mengetahui kontribusinya terhadap variabel

terikat. Berdasarkan nilai *koefisien determinasi* (R^2) diprediksi besar kontribusi variabel bebas tersebut terhadap variabel terikat. Sementara untuk menganalisis data digunakan teknik korelasi dan regresi.

Teknik pengumpulan data dilakukan dengan penyebaran angket kepada responden penelitian dan studi dokumentasi. Angket yang disebarluaskan berisi tentang butir-butir pernyataan untuk menggali informasi mengenai interaksi dosen-mahasiswa dalam proses pembelajaran dan keterampilan belajar mahasiswa. Angket tersebut tidak diperkenankan untuk dibawa

pulang. Tujuannya adalah agar data dapat diterima dari tangan pertama untuk menjaga keakuratan serta keabsahan data. Sedangkan studi dokumentasi menggunakan hasil belajar mahasiswa berupa nilai ujian akhir semester (UAS) matakuliah Persamaan Diferensial.

Teknik analisis data yang digunakan dalam penelitian ini adalah analisis korelasi. Untuk uji persyaratan dan uji hipotesis digunakan program Excel dan SPSS (*Statistical Package for Social Science*) Versi 16.00. Pengujian hipotesis ini menggunakan teknik korelasi.

D. HASIL PENELITIAN DAN PEMBAHASAN

1. Hasil Penelitian

Data deskriptif interaksi dosen-mahasiswa dalam proses pembelajaran dan keterampilan

belajar mahasiswa berdasarkan indikator-indikatornya disajikan pada tabel 3 dan 4.

Tabel 3.
Deskriptif Persentase Tiap Indikator Interaksi Dosen-Mahasiswa

No	Indikator	Percentase Kategori			
		Sangat Tinggi	Tinggi	Sedang	Rendah
1.	Terjadinya hubungan dinamis	20%	11,3%	1,2%	-
2.	Saling mempengaruhi	10%	8%	1,1%	-
3.	Saling menarik perhatian	13,3%	12%	1,1%	-
4.	Saling meminta dan memberi	10%	12%	1%	-
	Total	53,3%	43,3%	3,4%	-

Tabel 4.

Deskriptif Persentase Tiap Indikator Keterampilan Belajar Mahasiswa

No	Indikator	Percentase Kategori			
		Sangat Tinggi	Tinggi	Sedang	Rendah
1.	Kegiatan menyimak dan mengemukakan pendapat di dalam kelas	5,1%	16,3%	3,2%	-
2.	Pengaturan waktu perkuliahan	3,2%	10,5%	2,1%	-
3.	Perencanaan kegiatan perkuliahan	3,3%	12,5%	2,1%	-
4.	Kegiatan mendalami matakuliah	2,5%	6,5%	1,5%	-
5.	Mencari informasi dan sumber belajar yang relevan dengan matakuliah yang dibahas	5,0%	8,7%	1,7%	
6.	Motivasi untuk peningkatan keefektifan kegiatan perkuliahan baik di dalam maupun di luar kelas	4,3%	8,8%	2,7%	
Total		23,4%	63,3%	13,3%	-

Sedangkan data deskriptif hasil belajar mahasiswa yang mengikuti mata kuliah Persamaan Diferensial seperti pada tabel 5.

Tabel 5.
Hasil Belajar Mahasiswa Secara Deskriptif

Rata-rata nilai	Standar Deviasi	Kategori
75,35	13,87	Memuaskan

Berdasarkan tabel 5 terlihat bahwa sebaran nilai mata kuliah Persamaan Diferensial mahasiswa berada diantara 61,48 sampai dengan 89,22 atau berada diantara rentang nilai huruf C sampai dengan A.

Adapun rincian hasil belajar mahasiswa yang mengikuti mata kuliah Persamaan Diferensial diuraikan berdasarkan kategori seperti pada tabel 1.5.

Tabel 1.5
Rincian Kategori Hasil Belajar

No	Kategori Hasil Belajar	Percentase
1	Sangat Baik	36,7
2	Baik	43,3
3	Cukup	16,7
4	Kurang	3,3

2. Pembahasan

Berdasarkan hasil penelitian yang telah dijelaskan di atas, secara

deskriptif (tabel 3) selama proses pembelajaran mata kuliah Persamaan Diferensial telah terjadi

interaksi antara Dosen-Mahasiswa, hal ini terlihat dari hasil angket yang dijabarkan perindikator sebanyak empat indikator dengan persentase kategori sangat tinggi (53,3%), tinggi (43,3%), dan sedang (3,4%). Bila melihat data tersebut artinya dalam pandangan mahasiswa, bahwa dosen sudah berupaya melakukan interaksi dalam proses pembelajaran pada mata kuliah Persamaan Diferensial.

Hasil penelitian secara deskriptif (tabel 4) berkaitan dengan keterampilan belajar mahasiswa selama proses pembelajaran baik di kelas maupun di luar kelas, memperlihatkan kondisi bahwa mahasiswa sudah memiliki keterampilan belajar, hal ini terlihat berdasarkan indikator-indikator yang ada dalam keterampilan belajar yang bisa diamati dari hasil angket. Adapun persentase perindikator (6 indikator) keterampilan belajar mahasiswa yaitu sangat tinggi (23,4%), tinggi (63,3%), dan cukup (13,3%). Walaupun secara umum persentase indikator keterampilan berada pada kategori tinggi, tetapi persentase tertinggi berada pada

indikator menyimak dan mengemukakan pendapat di dalam kelas ($> 20\%$) sementara untuk indikator mendalami materi perkuliahan ($< 10\%$). Hal ini perlu menjadi perhatian bagi para dosen pengampu mata kuliah bahwa keterampilan belajar yang berkaitan dengan kegiatan mandiri dalam hal ini mendalami materi perkuliahan harus senantiasa dilatih dengan cara memberikan tugas-tugas mandiri yang bervariatif tingkat kesulitannya.

Berkaitan dengan rincian per kategori hasil belajar mata kuliah Persamaan Diferensial pun menunjukkan hal positif (tabel 5), persentase hasil belajar per kategori sangat baik (36,7%), baik (43,3%), cukup (16,7%), dan kurang (3,3%). Adapun sebaran nilai mata kuliah (tabel 4.4) mahasiswa berada diantara 61,48 sampai dengan 89,22 atau berada diantara rentang nilai huruf C sampai dengan A.

Jadi secara deskriptif ada hubungan yang positif antara interaksi dosen-mahasiswa dalam proses pembelajaran dengan hasil belajar mahasiswa dan keterampilan belajar mahasiswa

dengan hasil belajar pada mata kuliah Persamaan Diferensial.

Berdasarkan hasil analisis data angket interaksi dosen-mahasiswa selama proses pembelajaran dan tes hasil belajar mahasiswa pada matakuliah Persamaan diferensial menggunakan uji korelasi diperoleh koefisien korelasi sebesar 0,272 dengan $\text{Sig. } (0,073)$, bila dibandingkan dengan $\alpha = 0,05$, maka $\text{Sig. } >\alpha$, dengan demikian nilai korelasi tersebut tidak signifikan. Interaksi dosen-mahasiswa berkontribusi terhadap hasil belajar sebesar 7,4 %, sementara 92,6 % merupakan kontribusi dari variabel-variabel yang tidak diamati dalam penelitian ini.

Kondisi ini sejalan dengan hasil penelitian Simanjuntak (2013) mengenai Kontribusi Kemampuan Guru Melaksanakan Pembelajaran Terhadap Hasil Belajar dan Sitepu (2015) berkaitan dengan Kontribusi Lembaga Pendidikan Terhadap Hasil Belajar. Keduanya menyimpulkan bahwa Kontribusi lembaga pendidikan (termasuk di dalamnya tenaga pendidik dan

model/metode pembelajaran) terhadap hasil belajar paling besar 10 %.

Berdasarkan hasil analisis data angket keterampilan belajar selama proses pembelajaran dan tes hasil belajar mahasiswa pada matakuliah Persamaan Diferensial menggunakan uji korelasi diperoleh koefisien korelasi sebesar 0,489 dengan $\text{Sig. } (0,003)$, bila dibandingkan dengan $\alpha = 0,05$, maka $\text{Sig. } <\alpha$, dengan demikian nilai korelasi tersebut signifikan. Keterampilan belajar mahasiswa berkontribusi terhadap hasil belajar sebesar 23,91 %, sementara 76,09 % merupakan kontribusi dari variabel-variabel yang tidak diamati dalam penelitian ini. Hasil ini sejalan dengan pendapat Prayitno (1997), bahwa keterampilan belajar bagi mahasiswa menjadi dasar dalam rangka memperoleh prestasi belajar.

Penelitian ini mengkaji juga korelasi interaksi dosen-mahasiswa dan keterampilan belajar mahasiswa secara bersama-sama terhadap hasil belajar mahasiswa. Berdasarkan hasil perhitungan dan

analisis diperoleh nilai korelasi sebesar 0,510 dengan kontribusi sebesar 26,01%. Hal ini menunjukkan bahwa secara bersama-sama berkontribusi secara signifikan terhadap peningkatan hasil belajar sebesar 26,01% sementara 73,99% diberikan oleh variabel-variabel lain di luar pengamatan penelitian ini.

Menggunakan hasil penelitian ini, bisa disimpulkan bahwa banyak faktor-faktor yang berkontribusi dalam peningkatan hasil belajar mahasiswa, dua diantaranya interaksi dosen-mahasiswa selama proses pembelajaran dan keterampilan belajar mahasiswa. Kedua faktor tersebut sebaiknya muncul secara bersamaan saat pembelajaran, karena berdasarkan perhitungan dan analisis, nilai kontribusi terbesar 26,01% diperoleh secara bersama-sama terhadap hasil belajar. Hal ini sejalan dengan pendapat Nasution (2001) keberhasilan pembelajaran di kelas terletak pada tenaga pendidik atau dosen, faktor lainnya berposisi sebagai pendukung. Namun

demikian untuk melengkapi proses pembelajaran di kelas, dosen atau tenaga pendidik perlu mengupayakan munculnya faktor-faktor lain yang berkontribusi terhadap hasil belajar, sehingga kontribusi sebesar 73,99% bisa terwujud dalam proses pembelajaran.

Namun hasil penelitian ini pun mungkin juga tidak terlepas dari kekeliruan saat proses pengisian angket, input data, perhitungan, maupun analisis data. Saat mengisi angket, ada mahasiswa yang mengisi butir-butir angket tanpa membacanya dengan seksama, hanya mengikuti pendapat dari teman sebelah atau tidak mengerti maksud dari butir pernyataan dalam angket. Kondisi seperti ini memungkinkan data yang ingin diungkap dalam penelitian menjadi bias. Kekeliruan saat input data, perhitungan maupun analisis data bisa menyebabkan kesimpulan yang diambil dalam penelitian ini tidak tepat.

E. SIMPULAN

Berdasarkan hasil penelitian, analisis dan pembahasan disimpulkan bahwa:

1. Terdapat kontribusi interaksi dosen-mahasiswa dalam proses pembelajaran terhadap hasil belajar matakuliah Persamaan Diferensial di Program Studi Pendidikan Matematika STKIP-PGRI Lubuklinggau. Kontribusi dosen-mahasiswa dalam proses pembelajaran sebesar 7,4 % namun tidak signifikan terhadap hasil belajar matakuliah Persamaan Diferensial.
2. Terdapat kontribusi yang signifikan keterampilan belajar mahasiswa terhadap hasil belajar matakuliah Persamaan Diferensial di Program Studi Pendidikan Matematika STKIP-PGRI Lubuklinggau. Kontribusi keterampilan belajar mahasiswa sebesar 23,91% terhadap hasil belajar matakuliah Persamaan Diferensial.
3. Terdapat kontribusi yang signifikan interaksi dosen-mahasiswa dalam proses pembelajaran dan keterampilan belajar mahasiswa secara

bersama-sama terhadap hasil belajar matakuliah Persamaan Diferensial di Program Studi Pendidikan Matematika STKIP-PGRI Lubuklinggau. Kontribusi interaksi dosen-mahasiswa dalam proses pembelajaran dan keterampilan belajar mahasiswa secara bersama-sama sebesar 26,01%, sementara 73,99% merupakan kontribusi dari variabel-variabel di luar pengamatan peneliti.

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PENGEMBANGAN MATERI GARIS SINGGUNG LINGKARAN DENGAN PENDEKATAN SCIENTIFIC

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ABSTRAK

Telah dilakukan penelitian yang bertujuan untuk mengembangkan bahan ajar materi garis singgung lingkaran dengan pendekatan *scientific* berupa Lembar Aktifitas Siswa (LAS) yang valid, praktis dan mempunyai efek potensial serta menjelaskan proses pengembangannya. Tahap penelitian meliput, tahap *preliminary* dan *prototyping* dengan alur *formatif evaluation*. Sebanyak 39 siswa SMPN 9 Palembang yang terlibat dalam tahap *prototyping*. Teknik pengumpulan data yang digunakan adalah dokumentasi, *walk through*, lembar observasi, dan hasil tes. Penelitian ini menghasilkan bahan ajar materi garis singgung lingkaran dengan pendekatan *scientific* berupa LAS yang valid, praktis, dan mempunyai efek potensial. Kevalidan bahan ajar ditinjau dari hasil validasi pakar pada tahap *expert review* dan uji prototipe pada tahap *small group*, sedangkan kepraktisan bahan ajar diperoleh dari revisi hasil uji *one-to-one* dan *small group*. Efek potensial dari bahan ajar ini diketahui dari hasil *field test* dan hasil tes evaluasi akhir siswa.

Kata kunci: Pendekatan scientific, garis singgung lingkaran, Lembar Aktifitas Siswa (LAS), pembelajaran matematika.

A. PENDAHULUAN

Materi garis singgung lingkaran merupakan pengembangan dari materi lingkaran, sedangkan lingkaran merupakan salah satu pokok bahasan geometri. Materi garis singgung lingkaran diajarkan di sekolah menengah pertama (SMP). Beberapa hasil penelitian tentang garis singgung lingkaran antara lain, penelitian Rohani (2010) tentang analisis kesalahan siswa dalam menyelesaikan soal-soal pokok bahasan garis singgung lingkaran yang dilakukan terhadap 35 siswa

didapatkan bahwa (1) sebanyak 10,36% siswa yang melakukan kesalahan pemahaman maksud soal, (2) sebanyak 35,36% siswa melakukan kesalahan pemahaman konsep, (3) sebanyak 25,24% siswa melakukan kesalahan penerapan rumus, (4) sebanyak 16,79% siswa melakukan kesalahan proses perhitungan, dalam penelitian ini dapat diambil kesimpulan bahwa kesalahan terbanyak yaitu pada pemahaman konsep materi garis singgung lingkaran. Penelitian Azimi dan Edi (2013) kesulitan siswa

mempelajari garis singgung lingkaran antara lain (1) memahami rumus panjang garis singgung lingkaran jika disajikan dalam bentuk definisi formal, (2) membedakan rumus panjang garis singgung lingkaran persekutuan luar dua lingkaran dengan garis singgung persekutuan dalam dua lingkaran. Penelitian Sepdoni (2013) pembelajaran materi garis singgung lingkaran masih menggunakan metode konvesional mengakibatkan (1) siswa hanya menghapal rumus-rumus, (2) siswa sering terjebak dalam penggunaan rumus-rumus karena sebagian siswa menerapkan rumus itu tanpa mengetahui makna dari rumus tersebut, (3) siswa mengabaikan sifat ketegak lurusan garis singgung lingkaran sehingga mengalami kesalahan dalam penerapan rumus *pythagoras*.

Ditinjau dari permasalahan pembelajaran matematika di sekolah sebagaimana yang dikemukakan oleh Hasratuddin (2010) bahwa praktek pembelajaran di sekolah-sekolah yang berlangsung selama ini, dan hampir di semua jenjang pendidikan, pada umumnya berlangsung satu arah, yaitu guru sebagai pusat pembelajaran (*teacher centered*). Nurhayati (2013)

guru lebih cenderung untuk memindahkan pengetahuan matematika kepada siswa dibandingkan siswa mengkonstruksi sendiri. Fauzan (dalam Sembiring, 2010) juga menyampaikan bahwa permasalahan terbesar pembelajaran matematika adalah menyajikan matematika sebagai produk jadi, siap pakai, abstrak dan diajarkan secara mekanistik: guru mendiktekan rumus dan prosedur kepada siswa. Dengan demikian, proses pembelajaran yang terjadi masih berpusat pada guru, yang menyebabkan siswa menjadi pasif saat belajar.

Berdasarkan uraian diatas, perlu adanya strategi pendekatan atau model pembelajaran untuk mencapai tujuan pendidikan secara umum dan khususnya tujuan dalam proses pembelajaran, salah satunya dengan suatu pendekatan yang digunakan pada kurikulum 2013 yaitu pendekatan *scientific*. Adapun proses pembelajaran yang diterapkan dalam pembelajaran *scientific* yakni terdiri atas lima pengalaman belajar pokok yaitu: mengamati, menanya, mengumpulkan informasi, mengasosiasi dan mengomunikasikan (Kemendikbud, 2013).

B. LANDASAN TEORI

1. Pendekatan *Scientific*

Dalam buku pedoman Diklat Implementasi Kurikulum (2013) dinyatakan bahwa pembelajaran merupakan proses ilmiah, karena itu kurikulum 2013 mengamanatkan esensi pendekatan ilmiah dalam pembelajaran. Pendekatan ilmiah diyakini sebagai titian emas perkembangan dan pengembangan sikap, keterampilan, dan pengetahuan peserta didik. Dalam proses ilmiah mengedepankan penalaran induktif dibandingkan penalaran deduktif. penalaran induktif memandang fenomena atau situasi spesifik untuk kemudian menarik kesimpulan secara keseluruhan. Sedangkan, penalaran deduktif melihat fenomena umum untuk kemudian menarik simpulan secara spesifik.

Metode ilmiah merujuk pada teknik-teknik investigasi atas fenomena atau gejala, memperoleh pengetahuan baru, atau mengoreksi dan memadukan pengetahuan sebelumnya. Untuk dapat disebut ilmiah, metode pencarian (*method of inquiry*) harus berbasis pada bukti-bukti dari objek yang dapat diobservasi, empiris, dan terukur

dengan prinsip-prinsip penalaran yang spesifik. Karena itu, metode ilmiah umumnya memuat serial aktivitas pengoleksian data melalui observasi dan eksperimen, kemudian memformulasikan dan menguji hipotesis.

2. Langkah-langkah

Pembelajaran dengan Pendekatan *Scientific*

Proses pembelajaran menyentuh tiga ranah, yaitu sikap, pengetahuan, dan keterampilan. Dalam proses pembelajaran berbasis pendekatan ilmiah, ranah sikap mengamit transformasi substansi atau materi ajar agar peserta didik “tahu mengapa”. Ranah keterampilan mengamit trasformasi substansi atau materi ajar agar peserta didik “tahu bagaimana”. Ranah pengetahuan mengamit transformasi substansi atau materi ajar agar peserta didik “tahu apa”. Hasil akhirnya adalah peningkatan dan keseimbangan antara kemampuan untuk menjadi manusia yang baik (soft skill) dan manusia yang memiliki kecakapan dan pengetahuan untuk hidup secara layak (hard skill) dari peserta didik yang meliputi aspek kompetensi sikap, keterampilan, dan pengetahuan. Pendekatan *scientific*

dalam pembelajaran meliputi lima langkah pokok yaitu mengamati, menanya, menalar, mencoba, dan mengkomunikasika (Kenmendikbud, 2013).

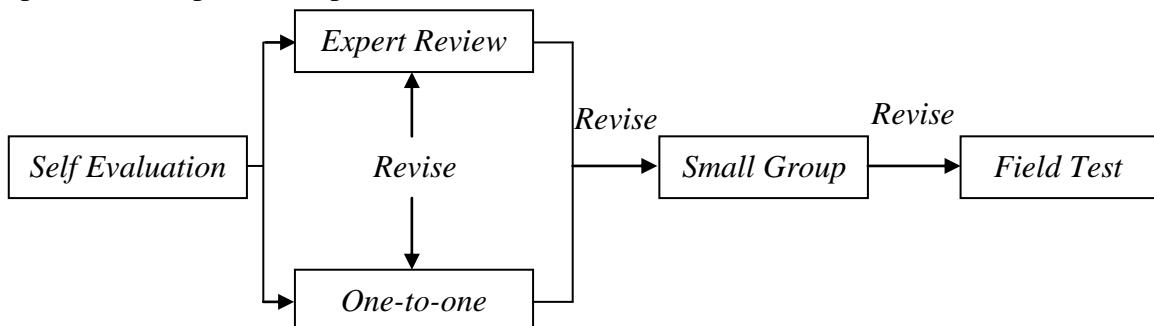
C. METODE PENELITIAN

Penelitian ini digolongkan penelitian *Design Research* model *Development Study*. Pengembangan bahan ajar ini dilakukan melalui dua tahapan yaitu tahap *preliminary* (persiapan) dan tahap *formative evaluation*. Penelitian pengembangan ini bertujuan untuk menghasilkan bahan ajar dengan pendekatan *scientific* yang valid, praktis, dan memiliki efek potensial.

Penjelasan langkah-langkah kegiatan pengembangan bahan ajar sebagai berikut. Tahap persiapan (*Preliminary*), Peneliti terlebih dahulu melakukan analisis kurikulum

matematika kelas VIII, analisis materi yang akan dijadikan bahan penelitian, analisis siswa, dan diskusi dengan guru di sekolah serta penyiapan keperluan lainnya seperti mengatur jadwal penelitian, berikutnya dilanjutkan dengan pendesainan materi bahan ajar garis singgung lingkaran yang mengacu pada pendekatan *scientific*. Pendesainan bahan ajar ini fokus pada tiga karakteristik yaitu konten, konstruk, dan bahasa. Pendesainan pengembangan materi garis singgung lingkaran ini akan menghasilkan prototipe awal. Selanjutnya akan dikembangkan melalui tahap *formative evaluation*. Tahap *formative evaluation* ini meliputi *self evaluation*, *expert reviews*, *one-to-one*, *small group*, dan *field test* (Tessmer, 1993).

Berikut alur desain *formative evaluation* yang akan dilaksanakan pada penelitian, dapat dilihat pada Gambar 1 berikut:



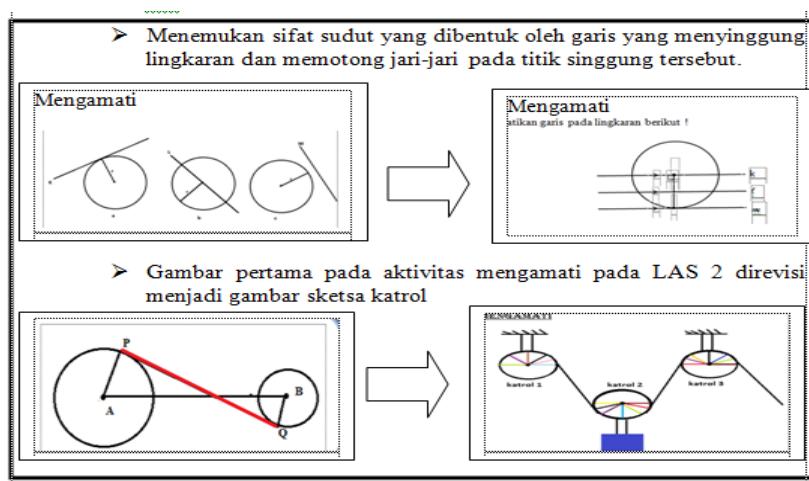
Gambar 1. Alur Desain *Formative Evaluation* (Tessmer, 1993)

D. HASIL PENELITIAN DAN PEMBAHASAN

1. Tahap *Self Evaluation*

Pada tahap ini, peneliti meneliti kembali desain prototipe awal. Telaah dilakukan dengan

mengecek kesesuaian desain bahan ajar baik dari segi konten, konstruk, dan bahasa serta. Adapun contoh perubahan bentuk gambar disajikan pada gambar 2 di bawah ini.



Gambar 2. Revisi Pada Self Evaluation

2. Tahap *One to one* dan *Expert Review*

Prototipe pertama hasil dari *self-evaluation* kemudian diuji coba pada tahap *one-to-one* dan *expert review* secara bersamaan. Uji *one-to-one* melibatkan 3 siswa kelas VIII. Uji coba ini dilakukan untuk melihat kepraktisan LAS yang dikembangkan serta melihat kesulitan-kesulitan yang mungkin terjadi dalam penggunaan LAS selama proses pembelajaran. LAS diberikan kepada siswa secara bertahap untuk mengsimulasikan

waktu penggeraan sesuai dengan banyaknya pertemuan. Setelah mengerjakan LAS tersebut, peneliti meminta siswa berkomentar terhadap LAS yang sudah dikerjakan dari awal sampai selesai. Selain itu, peneliti juga melakukan wawancara kepada siswa mengenai LAS yang sudah dikerjakan

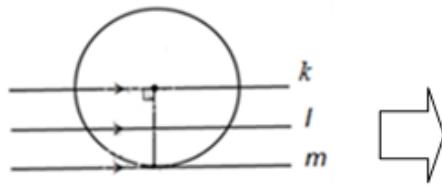
Sementara itu proses validasi dengan pakar (*expert review*) dilakukan oleh 4 orang pakar adapun keempat pager tersebut yaitu Prof. Dr. Siti Amin, M.Pd

(dosen matematika Universitas Negeri Surabaya), Dr. Abdurrahman As'ari, M.Si (Dosen matematika Universitas Malang),

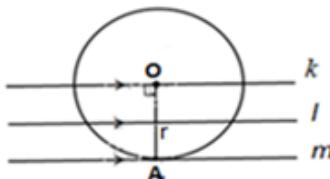
Berdasarkan hasil *one to one* dan *expert review* yang sudah dilakukan serta dikonsultasikan dengan pembimbing, maka prototipe 1 diperbaiki menjadi

Dr. Didi Suhendi, M. Hum (Dosen Bahasa Universitas Sriwijaya), Pirdaus, M.M, M.Pd (Widyaiswara LPMP Propinsi Sumatera Selatan). prototipe 2 sehingga menjadi bahan ajar yang valid. Salah satu contoh revisi prototipe 1 ke prototipe 2 dapat dilihat pada gambar 3 di bawah ini.

Prototipe 1



Prototipe 2



1. Berapa sudut yang terbentuk antara garis k dan jari-jari lingkaran?
2. Bagaimana kedudukan garis k dan garis l?
3. Bagaimana kedudukan garis k dan garis m?
4. Berapa sudut yang terbentuk antara garis m dan jari-jari lingkaran?

1. Berapa besar sudut yang terbentuk antara garis k dan jari-jari lingkaran (OA)?
2. Bagaimana kedudukan garis k dan garis l?
3. Bagaimana kedudukan garis k dan garis m?
4. Berapa besar sudut yang terbentuk antara garis m dan jari-jari lingkaran (OA)?

Gambar 3. Salah Satu Contoh Perubahan Prototipe 1 Menjadi Prototipe 2

3. Tahap *Small Group*

Uji small group melibatkan siswa kelas VIII SMP Negeri 9 Palembang. Masing-masing sebanyak 6 orang dengan kemampuan akademik yang heterogen menurut informasi dari guru mitra.

Pada tahap ini siswa mengerjakan LAS prototipe kedua.

Siswa mengerjakan secara berkelompok dan berdiskusi. LAS diberikan secara bertahap sesuai dengan banyak pertemuan. Adapun proses pada saat siswa mengerjakan LAS yaitu dari Mengamati, Menanya, Mengumpulkan informasi, Mengasosiasi, serta diakhiri dengan mengomunikasikan. Dari

aktivitas *small group* yang sudah dilakukan didapatkan saran dan komentar dan selanjutnya saran dan komentar tersebut dijadikan

dasar untuk memperbaiki prototipe 2 ke prototipe 3. Adapaun komentar dan saran serta keputusan revisi disajikan pada tabel 1 dibawah ini.

Tabel 1. Komentar dan Keputusan Revisi Berdasarkan Uji *Small Group*

Unit LAS	Komentar	Keputusan Revisi
LAS 1	<ul style="list-style-type: none">➤ Gambar masih ada yang kurang bisa dipahami (halaman 9 dan halaman 10)	<ul style="list-style-type: none">➤ Memperjelas keterangan jari-jari yang tegak lurus dengan garis yang dimaksud.
LAS 2	<ul style="list-style-type: none">➤ bahasa yang digunakan sedikit membingungkan (halaman 2)	<ul style="list-style-type: none">➤ Mengurangi gambar dari 3 menjadi 2 dan memperjelas maksud pertanyaan.
LAS 3	<ul style="list-style-type: none">➤ Gambar masih ada yang kurang bisa dipahami (gambar katrol)	<ul style="list-style-type: none">➤ Memperjelas keterangan gambar.

Secara keseluruhan, berdasarkan saran dari siswa dan diskusi pada saat mereka mengerjakan LAS revisi yang dilakukan lebih terfokuskan pada gambar. Selanjutnya, dari hasil revisi prototipe 2 menghasilkan prototipe 3.

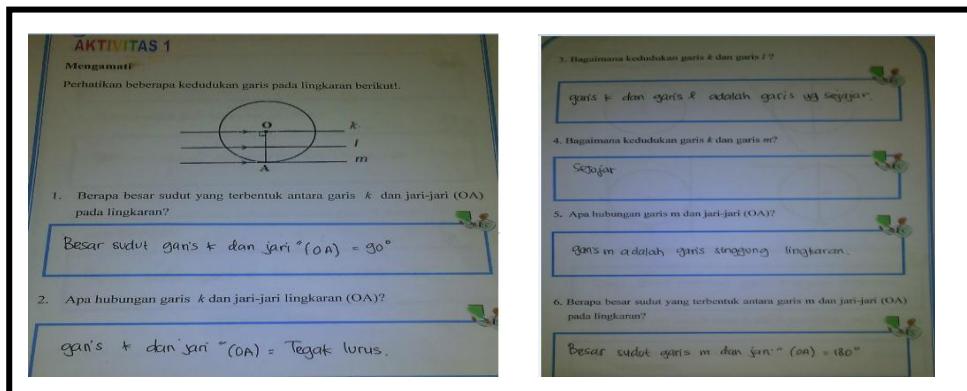
4. Tahap Field Tes

Dari kegiatan *small group* diperoleh prototipe 3 yang valid dan praktis. Selanjutnya, dilakukan *field test* untuk melihat efek potensial bahan ajar yang dikembangkan. Pada saat *field test*, setiap kelompok diberikan LAS

yang akan dikerjakan siswa secara berkelompok dengan tahapan Mengamati, Menanya, Mengumpulkan informasi, Mengasoiasi, dan Mengomunikasikan. Selanjutnya, setelah LAS selesai dikerjakan pada masing-masing kelompok, peneliti menunjuk salah satu kelompok untuk mempresentasikan hasil diskusi yang sudah dilakukan dan siswa pada kelompok lain menanggapi atau bertanya mengenai presentasi kelompok yang maju ke depan

Tahap terakhir dari pengembangan bahan ajar ini adalah tahap *field test*. Hasil *field test* dianalisis berdasarkan aspek *scientific* yang dijelaskan dibawah ini.

(a) Mengamati



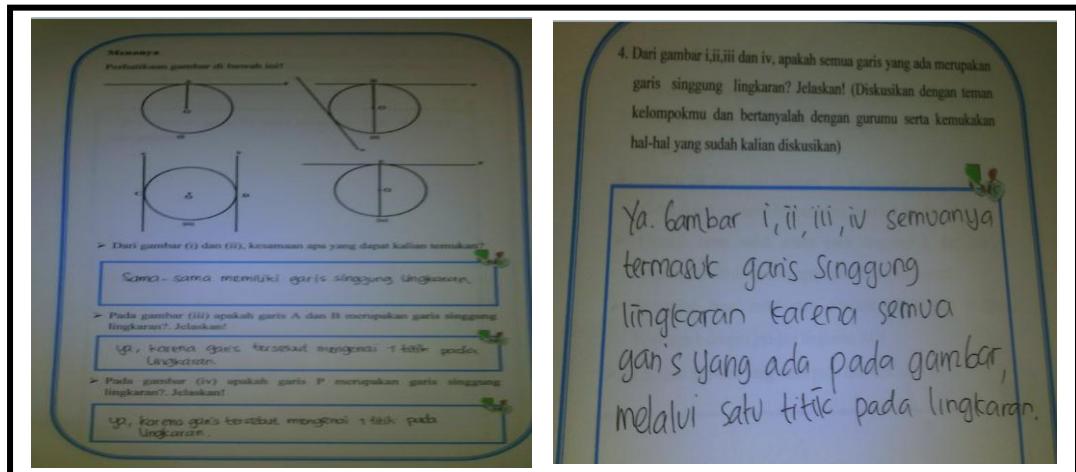
Gambar 4. Contoh Jawaban Siswa Pada Aktivitas Mengamati

Analisis :

Semua kelompok menjawab sesuai dengan yang diharapkan peneliti. Artinya semua kelompok memahami maksud petunjuk dalam melakukan aktivitas. Pada tahap ini, siswa melakukan kegiatan mengamati gambar dan memahaminya melalui pertanyaan yang diberikan pada LAS, pertanyaan diberikan secara sistematis diawali dari pertanyaan mengenai besar sudut yang dibentuk oleh garis k yang juga merupakan diameter dan tegak lurus dengan jari-jari (OA), dan garis k , l , dan m merupakan garis yang sejajar. sehingga pertanyaan tersebut menggiring siswa untuk menemukan

pengetahuan tentang besar sudut yang dibentuk oleh garis singgung yang memotong jari-jari pada titik singgung tersebut. Siswapun, dapat menemukan besar sudut yang dimaksud seperti terlihat pada LAS tersebut. Dari pengamatan yang dilakukan terlihat bahwa semua siswa melakukan aktivitas, begitu juga dengan observasi yang menyatakan bahwa siswa melakukan aktivitas mengamati sesuai dengan yang diharapkan. Berdasarkan hasil yang dilakukan siswa tersebut LAS yang dikembangkan memuat unsur-unsur karakteristik dalam hal ini aktivitas mengamati.

(b) Menanya



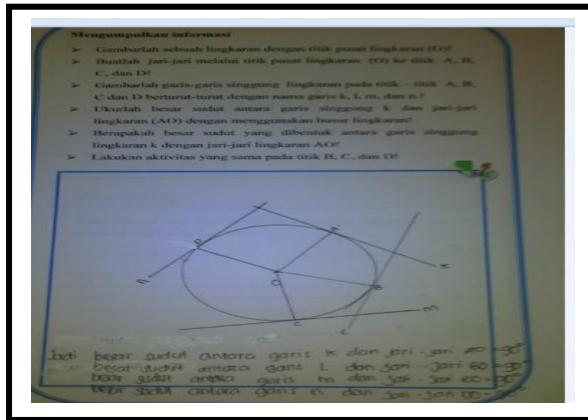
Gambar 5. Contoh Jawaban Siswa Pada Aktivitas Menanya

Analisis :

Semua kelompok menjawab dengan benar. Artinya semua kelompok memahami maksud petunjuk dalam melakukan aktivitas. Pada tahap ini, siswa melakukan kegiatan menanya dengan disajikan gambar dan pertanyaan-pertanyaan yang memangcing siswa untuk bertanya, pada aktivitas ini siswa diberikan empat gambar yang berbeda yang bertujuan agar siswa membandingkan gambar tersebut, dengan membandingkan gambar tersebut diharapkan siswa akan bertanya apakah garis-garis yang ada merupakan garis singggung lingkaran?. Disini siswa berdiskusi lalu menjawab pertanyaan-pertanyaan sesuai dengan pengetahuan yang didapatkan sebelumnya, terutama

menjawab berdasarkan definisi garis singgung. Selanjutnya, siswa juga bertanya tentang jawaban yang sudah mereka jawab, dan disinilah peneliti berperan menjawab pertanyaan siswa tersebut dengan menjelaskan bahwa alasan yang diberikan tidak hanya didasarkan pada definisi tapi juga bisa didapatkan dari pengetahuan pada tahap sebelumnya. Dari pengamatan yang dilakukan terlihat bahwa semua siswa melakukan aktivitas diskusi dan bertanya, begitu juga dengan observasi yang menyatakan bahwa siswa melakukan aktivitas menanya sesuai dengan yang diharapkan. Berdasarkan hasil yang dilakukan siswa tersebut LAS yang dikembangkan memuat unsur-unsur karakteristik dalam hal ini aktivitas menanya.

(c) Mengumpulkan Informasi



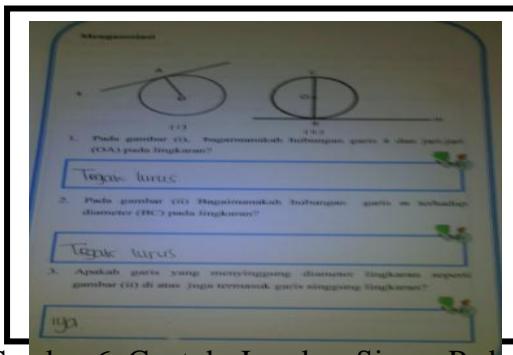
Gambar 5. Contoh Jawaban Siswa Pada Aktivitas Mengumpulkan Informasi

Analisis:

Semua kelompok melakukan aktivitas sesuai dengan yang diharapkan peneliti. Artinya semua kelompok memahami maksud petunjuk dalam melakukan aktivitas. Pada tahap ini, siswa mengumpulkan informasi dengan melakukan kegiatan mencoba sesuai dengan petunjuk yang ada pada LAS. Dari kegiatan mencoba tersebut siswa diberikan pertanyaan yang

bertujuan untuk menggali informasi dari kegiatan mencoba tersebut serta menguatkan pengetahuan yang sudah ada sebelumnya terhadap informasi yang didapatkan pada kegiatan mencoba. Berdasarkan hasil yang dilakukan siswa tersebut LAS yang dikembangkan memuat unsur-unsur karakteristik dalam hal ini aktivitas mengumpulkan informasi.

(d) Mengasosiasi



Gambar 6. Contoh Jawaban Siswa Pada Aktivitas

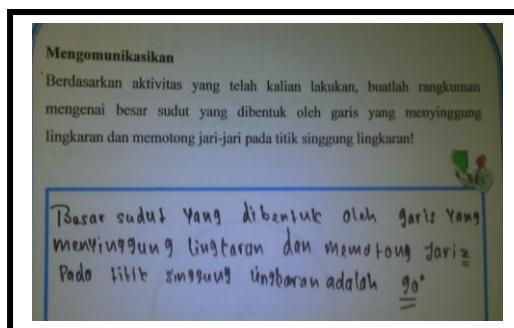
Analisis :

Semua kelompok menjawab sesuai dengan yang diharapkan

peneliti. Artinya semua kelompok memahami maksud petunjuk dalam melakukan aktivitas. Pada tahap ini,

siswa melakukan kegiatan mengasosiasi dengan cara diberikan dua gambar, gambar yang pertama adalah gambar yang diambil dari aktivitas sebelumnya sedangkan gambar yang kedua adalah gambar baru yang mengharuskan siswa untuk menalar dalam menjawab dan menjelaskan pertanyaan yang mengasosiasi.

(e) mengomunikasikan



Gambar 7. Contoh Jawaban Siswa Pada Aktivitas

Analisis :

Semua kelompok membuat rangkuman untuk menjawab tujuan pembelajaran. Rangkuman yang dibuat semuanya dapat menjawab tujuan pembelajaran, dengan jawaban yang berbeda-beda tapi maknanya sama. Pada tahap ini juga, peneliti meminta siswa untuk menjelaskan dengan bahasa mereka sendiri terhadap rangkuman yang mereka buat, dengan cara itu peneliti dapat menilai apakah siswa sudah memahami pengetahuan yang sudah mereka dapatkan dari aktivitas-aktivitas sebelumnya. Dari pengamatan

diberikan. Siswa menjawab dengan baik namun kurang bisa memberikan penjelasan dengan baik terhadap maksud gambar yang diberikan. Berdasarkan hasil yang dilakukan siswa tersebut LAS yang dikembangkan memuat unsur-unsur karakteristik dalam hal ini aktivitas mengasosiasi.

yang dilakukan terlihat bahwa semua siswa melakukan aktivitas tersebut, begitu juga dengan observasi yang menyatakan bahwa siswa melakukan aktivitas dengan baik dan benar. Berdasarkan hasil yang dilakukan siswa dan pengamatan yang dilakukan peneliti diperoleh bahwa siswa telah menemukan sifat pertama yaitu bahwa sudut yang dibentuk antara garis singgung lingkaran dan jari-jari lingkaran pada titik potong pada titik singgung lingkaran adalah 90° .

Setelah itu, pada akhir pembelajaran, dilakukan tes untuk mengukur kemampuan siswa. Pada tahap ini peneliti mengoreksi dan menganalisis data penilaian tertulis siswa pada materi garis singgung persekutuan dua lingkaran. Penilaian tertulis dilihat dari soal tes yang

dikerjakan siswa. Data hasil latihan tes kemampuan siswa dianalisis untuk menentukan nilai akhir dan kemudian dikonversikan ke dalam data kualitatif untuk menentukan kategori tingkat kemampuan siswa. Adapun tabel 2 sebagai berikut.

Tabel 2. Distribusi Frekuensi Hasil Tes

Nilai Akhir	Frekuensi	Persentase	Kategori Hasil Belajar
Baik	85,01 - 100,00	13	48,15% Sangat
	75,01 - 85,00	9	33,33% Baik
	60,01 – 75,00	3	11,11% Cukup
	40,00 – 60,00	2	7,41% Kurang
	00,00 – 40,00	0	0 Sangat
Kurang			
Jumlah		27	100%

Dari hasil tes akhir yang sudah dilakukan, diperoleh persentase hasil tes diatas 80% yang termasuk kategori sangat baik dan baik.

Pada proses pembelajaran dilakukan juga observasi mengenai keterampilan yaitu mengamati, menanya, mengumpulkan informasi, mengasosiasi, dan mengomunikasikan. Adapun dekriptor dari masing-masing lembar yang diobservasi adalah (1) memperhatikan permasalahan yang disajikan dalam lembar aktifitas secara saksama, (2) bertanya

mengenai informasi yang belum dipahami, (3) Melakukan aktifitas untuk mendapatkan informasi, (4) mampu menyelesaikan permasalahan yang diberikan, (5) membuat kesimpulan dari aktifitas yang sudah dilakukan. Data hasil observasi siswa dianalisis untuk menentukan pencapaian keterampilan *Scientific* dan kemudian dikonversikan ke dalam data kualitatif untuk menentukan kategori tingkat kemampuan siswa. Adapun tabel 3 adalah sebagai berikut.

Tabel 3. Distribusi Frekuensi Hasil Observasi Aktifitas Siswa

Kategori	Pertemuan (%)		
	1	2	3
Sangat Baik 26,00%	36,67%	30,00%	
Baik 63,33%	36,67%	54,00%	
Cukup 10,00%	20,00%	16,00%	
Kurang	6,67%	0	0
Sangat Kurang	0	0	0

Hasil observasi yang sudah dilakukan, diperoleh persentase aktifitas siswa diatas 70% yang termasuk kategori sangat baik dan baik.

Setelah melalui proses pengembangan yang dimulai dari *self evaluation*, *one to one* dan *expert review*, dan *small group* diperoleh lembar aktivitas siswa (LAS) yang dikembangkan berbasis pendekatan *scientific* dikategorikan valid dan praktis. Valid tergambar dari hasil penilaian validator, dimana semua validator menyatakan baik berdasarkan konten (sesuai dengan kompetensi dasar, dan indikator materi garis singgung persekutuan dua lingkaran), konstruk (sesuai dengan karakteristik/prinsip pendekatan *scientific*), dan bahasa (sesuai dengan EYD, kalimat tidak mengandung penafsiran ganda, batasan pertanyaan jelas). Praktis

tergambar dari hasil uji coba lapangan dimana rata-rata siswa dapat menggunakan bahan ajar berupa LAS dengan baik. Kepraktisan LAS dilihat dari proses pembelajaran pada saat *small group*, dimana semua siswa dalam kelompok tersebut dapat mengisi LAS yang diberikan. LAS yang telah dibuat dimulai dari mengamati suatu persoalan, yang dibantu dengan pertanyaan-pertanyaan, sehingga siswa dapat menemukan pengetahuan yang harapkan pada tujuan pemebelajaran, selanjutnya siswa akan melalui tahapan menanya, mengumpulkan informasi, mengasosiasi, dan mengomunikasiakn. Semua tahapan itu saling berhubungan yang pada akhirnya siswa dapat menyimpulkan secara utuh suatu konsep, ataupun rumus yang sudah ditemukan. Mudah dipakai pengguna, sesuai alur pikir

siswa, mudah dibaca, tidak menimbulkan penafsiran yang beragam, dan dapat digunakan oleh siswa dengan baik.

Efek potensial dapat dilihat dari aktivitas siswa dalam mengerjakan LAS, dimana siswa akan lebih mudah memahami konsep matematika yang terdapat pada LAS serta menggunakan konsep tersebut secara tepat dalam menyelesaikan persoalan yang diberikan. Selain itu juga efek potensial dapat dilihat dari respon siswa setelah mengerjakan LAS.

Pembahasan mengenai proses pembelajaran pada saat siswa mengerjakan LAS 1, LAS 2, dan LAS 3 Observer melakukan penilaian dengan menggunakan lembar observasi. Lembar observasi yang digunakan memuat lima unsur pendekatan *scientific* yaitu menagamati, menanya, mengumpulkan informasi, mengasosiasi, dan mengomunikasikan. Dari kelima penilaian tersebut, aktivitas mengasosiasi sangat berperan penting dalam meningkatkan kemampuan menalar siswa. Pada LAS 1, siswa mengawali aktivitas mengamati

gambar, berdiskusi dan bertanya, mengumpulkan informasi dari aktivitas melukis gambar dan selanjutnya siswa bernalar yang akhirnya siswa menemukan sifat-sifat garis yang menynggung lingkaran. Pada LAS 2, siswa juga mengawali aktivitas mengamati gambar, berdiskusi dan bertanya, mengumpulkan informasi dari aktivitas melukis gambar dan selanjutnya siswa bernalar yang akhirnya menemukan rumus menentukan panjang garis singgung persekutuan luar dua lingkarn. Pada LAS 3, siswa juga mengawali aktivitas mengamati gambar, berdiskusi dan bertanya, mengumpulkan informasi dari aktivitas melukis gambar dan selanjutnya siswa bernalar yang akhirnya menemukan rumus menentukan panjang garis singgung persekutuan dalam dua lingkaran.

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DESAIN PEMBELAJARAN LUAS PERMUKAAN LIMAS MENGGUNAKAN PENDEKATAN SAINTIFIK

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ABSTRAK

Telah dilakukan penelitian yang bertujuan untuk menghasilkan *learning trajectory* pada materi luas permukaan limas menggunakan pendekatan saintifik. Penelitian ini menggunakan penelitian *design research* yang melibatkan 30 orang siswa kelas VIII SMP Negeri 9 Palembang. Dalam penelitian ini serangkaian instruksi dikembangkan berdasarkan hipotesis proses pembelajaran yang dirancang menggunakan pendekatan saintifik. Penelitian ini memuat serangkaian pembelajaran yang terdiri dari 2 aktivitas mengenai luas permukaan limas. Hasil dari *learning trajectory* menunjukkan bahwa dengan pendekatan saintifik siswa dapat memahami konsep luas permukaan limas serta dapat menyelesaikan soal dalam kehidupan sehari-hari yang berhubungan dengan luas permukaan limas.

Kata kunci : pendekatan saintifik, limas , *design research*

A. PENDAHULUAN

Pada forum *Internasional Mathematical Olympiad (IMO)* menunjukan hasil yang jauh dari menggembirakan, rendahnya hasil matematika di Indonesia salah satunya disebabkan oleh rendahnya kualitas pembelajaran yang diselenggarakan guru disekolah, kurang tepatnya pendekatan pembelajaran yang dipilih guru bermuara pada kurang efektifnya pembelajaran yang dikembangkan di kelas (Faradhila,Sujadi,Kuswardi, 2013). Oleh karena itu sangat penting

Pembelajaran tentang luas permukaan tidak dapat dipisahkan dalam kehidupan sehari-hari, ada

bagi seorang guru memilih pendekatan yang sesuai dalam pembelajaran di kelas agar pembelajaran yang dilaksanakan dapat lebih efektif dan berdampak pada meningkatnya hasil belajar siswa. Pada tahun 2013 pemerintah mengamanatkan pendekatan saintifik merupakan salah satu pendekatan yang hendaknya diterapkan pada proses pembelajaran di kelas, sebagai penyempurnaan dari kurikulum sebelumnya yakni kurikulum KTSP.

banyak hal dalam kehidupan sehari-hari yang memuat tentang luas permukaan. Holt, Rinehart dan

Winson (2006) menyataan luas permukaan ini penting untuk mencari tahu jumlah kebutuhan bahan untuk menutupi sesuatu. Dengan memahami konsep dari luas kita dapat menentukan luas permukaan berbagai macam bangun ruang sisi datar. Penelitian ini difokuskan pada materi luas permukaan limas. Dimana dalam setiap aktivitasnya siswa diarahkan untuk menemukan konsep luas permukaan limas dengan melakukan penjumlahan pada sisi-sisi limas hal ini sejalan dengan apa yang dikemukakan Keshway (2013) untuk memperoleh luas permukaan kita harus dapat menghitung luas setiap sisi dan menjumlahkannya.

Limas merupakan salah satu bangun ruang sisi datar dimana sisisisinya dibatasi oleh bidang datar. Bangun ruang sisi datar disebut juga sebagai bidang banyak atau polihedron (Suwaji, 2008). Adapun permasalahan pada pembelajaran materi pokok bahasan luas permukaan bangun ruang sisi datar adalah seperti yang diungkapkan Kusumawati (2011) pada materi luas permukaan tugas yang diberikan oleh guru lebih banyak di dominasi dengan pemberian soal untuk langsung

menghitung luas permukaan, dimana pelaksanaan pembelajaran biasanya dimulai dengan penyajian materi, memberikan rumus dan contoh soal, setelah itu siswa diberi soal-soal latihan yang dikerjakan dengan menggunakan rumus yang sudah diberikan oleh guru. Siswa hanya perlu melihat rumus yang sudah diberikan dan mulai melakukan prosedur secara mekanis pada saat mengerjakan soal latihan.

Kegiatan pembelajaran lebih banyak terpusat pada guru sebagai pemberi informasi mengenai materi yang dipelajari, kegiatan pembelajaran cenderung satu arah dimana guru memberikan instruksi mengenai rumus-rumus tanpa adanya kegiatan yang dapat memberikan pemahaman menyeluruh mengenai materi yang dipelajari. Sama halnya dengan yang diungkapkan Zulkardi (2006) pendekatan matematika di Indonesia yang masih menggunakan pendekatan tradisional yang menekankan proses latihan. Proses pembelajaran yang seperti ini kurang dapat mengaktifkan siswa dalam belajar serta informasi yang diperoleh siswa juga sangat terbatas.

Adapun proses pembelajaran tersebut

tidak relevan dengan kurikulum 2013.

B. LANDASAN TEORI

1. Pendekatan Saintifik

Kurikulum 2013 mengamanatkan pendekatan ilmiah dalam pembelajaran, salah satu alternatifnya adalah pembelajaran menggunakan pendekatan saintifik (*Scientific Approach*). Pada pembelajaran matematika itu sendiri *scientific mathematic* merupakan proyek Eropa yang melibatkan kerjasama antara matematika dan ilmu pengetahuan. Ide dasarnya adalah untuk mendorong pembelajaran matematika dalam konteks ilmiah dan kegiatan siswa (Bechman, 2009:9).

Dengan adanya kegiatan yang dirancang sedemikian rupa diharapkan belajar matematika akan lebih menyenangkan sebab siswa mengalami secara langsung melalui serangkaian aktivitas pembelajaran. Langkah-langkah saintifik terdiri dari mengumpulkan data dari percobaan, mengembangkan dan menyelidiki suatu model matematika dalam bentuk representasi yang berbeda dan refleksi (Bechman, 2009).

2. Langkah-langkah Pendekatan Saintifik

Pembelajaran menggunakan pendekatan saintifik terdiri dari lima komponen utama yang dikenal dengan istilah 5M meliputi mengamati, menanya, mencoba, menalar dan membentuk jejaring.

a. Mengamati

Dalam kurikulum 2013 kegiatan mengamati tidak hanya terbatas pada indra penglihatan. Pada kegiatan mengamati hendaknya guru membuka secara luas dan bervariasi kegiatan peserta didik untuk melakukan pengamatan melalui kegiatan melihat, menyimak, mendengar dan membaca. Dalam proses pembelajaran menyimak dan mendengar apa yang disampaikan oleh gurunya termasuk dalam aktivitas mengamati.

b. Menanya

Kegiatan menanya dalam kegiatan pembelajaran adalah mengajukan pertanyaan tentang informasi yang tidak dipahami dari apa yang diamati atau pertanyaan untuk mendapatkan informasi tambahan tentang apa yang diamati

dimulai dari pertanyaan faktual sampai pertanyaan yang bersifat hipotetik (Kemendikbud, 2013). Pertanyaan siswa dapat mengukur sejauh mana pemahaman siswa mengenai materi yang mereka pelajari.

c. Menalar

Kegiatan menalar adalah memproses informasi yang sudah dikumpulkan baik terbatas dari hasil kegiatan mengumpulkan atau eksperimen maupun dari hasil kegiatan mengamati dan kegiatan mengumpulkan informasi. Aktivitas menalar dilakukan untuk menemukan keterkaitan antara satu informasi dengan informasi lainnya, sekaligus menemukan pola dari keterkaitan informasi tersebut (Kemendikbud, 2013).

d. Mencoba

Untuk memperoleh hasil belajar yang nyata atau otentik, peserta didik harus mencoba atau melakukan percobaan, terutama untuk materi atau substansi yang sesuai. Penerapan metode eksperimen atau mencoba dimaksud

untuk mengembangkan berbagai ranah tujuan belajar yaitu sikap , keterampilan dan pengetahuan.

e. Membentuk jejaring

Menurut Fauziah, Abdullah dan Hakim (2013), membentuk jejaring terdiri dari tiga langkah yaitu: menyimpulkan, menyajikan dan mengkomunikasikan. Menyimpulkan dapat dilakukan bersama-sama dalam satu kesatuan kelompok, atau bisa juga dengan dikerjakan sendiri setelah mendengarkan hasil kegiatan mengolah informasi. Hasil tugas yang diberikan guru dapat disajikan dalam bentuk laporan tugas atau portofolio sedangkan pada kegiatan akhir diharapkan peserta didik dapat mengkomunikasikan apa yang telah mereka peroleh pada saat proses pembelajaran berlangsung. Kegiatan mengkomunikasikan dapat dilakukan dengan cara menuliskan atau menceritakan apa yang telah ditemukan dalam kegiatan mencari informasi, mengasosiasi dan menemukan pola.

C. METODE PENELITIAN

Penelitian ini menggunakan metode penelitian desain (*design*

research) yang merupakan suatu cara yang tepat untuk menjawab pertanyaan peneliti dan mencapai

tujuan dari penelitian. Metode *design research* adalah suatu metode penelitian yang bertujuan untuk mengembangkan *local instruction theory* melalui kerjasama antara peneliti dan guru dalam meningkatkan kualitas pembelajaran (Gravemeijer & Van Eerde, 2009). Pada penelitian ini, terdapat dugaan-dugaan strategi dan pemikiran siswa yang dapat berubah dan berkembang selama proses pembelajaran. Hal ini menunjukkan bahwa terdapat siklus proses yang berulang dari eksperimen pemikiran (*thought experiment*) menuju eksperimen pembelajaran (*instruction experiment*). Dalam setiap siklus, dilakukan antisipasi eksperimen pemikiran dengan membayangkan bagaimana aktivitas pembelajaran yang diusulkan dapat digunakan di dalam kelas, dan apa yang dapat siswa pelajari karena mereka berpartisipasi di dalamnya (Bustang, Zulkardi, Darmawijoyo, Dolk, dan van Eerde, 2013).

Metode *design research* memiliki tiga tahapan penelitian yaitu *preliminary design*, *design experiment* (*pilot experiment* dan *teaching experiment*) dan *analysis*

representatif. Dasar penelitian ini adalah dugaan pembelajaran di kelas sehingga menghasilkan lintasan belajar. Dugaan tersebut dianalisis lalu didesain kembali dan direvisi kemudian di implementasikan lagi (Gravemeijer dan Cobb, 2001).

Pada tahap *preliminary design*, yang merupakan tahapan pertama dari metode *design research* dilakukan kajian literatur mengenai materi pembelajaran luas permukaan bangun ruang sisi datar, pendekatan saintifik dan kurikulum 2013. Selanjutnya peneliti melakukan diskusi dengan guru matematika mengenai kondisi kelas dan hal-hal apa saja yang dibutuhkan selama penelitian berlangsung. Selanjutnya akan dilakukan pendesainan terhadap hipotesis lintasan belajar (*Hypothetical Learning Trajectory*) yang merupakan suatu hipotesis atau dugaan bagaimana pemikiran dan pemahaman siswa berkembang dalam suatu aktivitas pembelajaran dimana dalam penelitian ini menggunakan pendekatan saintifik yang dikhususkan pada materi luas permukaan bangun ruang sisi datar. Menurut Gravemeijer (2004) HLT terdiri dari tiga komponen yakni : a.

Tujuan pembelajaran matematika bagi siswa; b. Aktivitas pembelajaran dan konteks yang digunakan dalam proses pembelajaran; c. Konjektur proses pembelajaran bagaimana mengetahui pemahaman dan strategi siswa yang muncul dan berkembang ketika aktivitas pembelajaran dilakukan dikelas. HLT yang dikembangkan berdasarkan literatur yang telah dikaji dan disesuaikan dengan pembelajaran sebenarnya selama percobaan mengajar materi luas permukaan bangun ruang sisi datar.

Tahap kedua dari penelitian ini adalah *Design Eksperiment* yang terdiri dari *pilot experiment* dan *teaching experiment*. Pada *Pilot experiment* dilakukan untuk

Teaching Experiment bertujuan untuk menguji coba rancangan *hypothetical learning trajectory* (HLT) yang telah diuji coba pada tahapan *pilot eksperiment* dan direvisi. Pada tahapan ini *hypothetical learning trajectory* (HLT) merupakan pedoman utama apa yang menjadi fokus dalam proses pembelajaran.

Tahap ketiga dari penelitian ini adalah *Restrospective Analysis*.

mengujicobakan HLT yang telah dirancang. Uji coba pada tahapan ini dilakukan terhadap enam orang siswa yang tidak berasal dari kelas yang akan dilakukan *teaching exsperiment*. keenam siswa yang dipilih memiliki kemampuan yang berbeda-beda terdiri dari dua orang siswa berkemampuan tinggi, dua orang siswa berkemampuan sedang dan dua orang siswa berkemampuan rendah. *Pilot exsperiment* bertujuan untuk menguji *hypothetical learning trajectory* (HLT) awal telah sesuai atau masih perlu dilakukan revisi ulang. Selanjutnya dari hasil tahapan ini peneliti akan memperoleh gambaran mengenai kondisi dan kemampuan siswa sebagai subyek penelitian.

Dimana data yang diperoleh pada tahap *teaching experiment* di analisis dan hasil dari analisisnya tersebut digunakan untuk merancang kegiatan pada pembelajaran berikutnya. Analisis pada tahap ini bertujuan untuk mengetahui bagaimana siswa dapat menggeneralisasikan aktivitas-aktivitas pada pembelajaran saintifik yang meliputi mengamati, menanya, menalar, mencoba dan membentuk jejaring pada materi luas permukaan

bangun ruang sisi datar yang telah dirancang untuk menjawab pertanyaan penelitian. Tahapan ini bergantung pada tujuan teoritis yang hendak dicapai, sehingga analisis yang dilakukan untuk mengetahui dukungan data terhadap *local instruction theory* (LIT). Pada tahap ini dilakukan rekonstruksi dan revisi pada *local instruction theory*. Selama

mengelakukan penelitian, beberapa teknik pengumpulan data seperti rekaman video, lembar aktivitas siswa, lembar observasi, wawancara, dan catatan lapangan dikumpulkan dan dianalisis untuk memperbaiki HLT yang telah didesain. Data yang diperoleh dianalisis secara retrospektif bersama HLT yang menjadi acuannya.

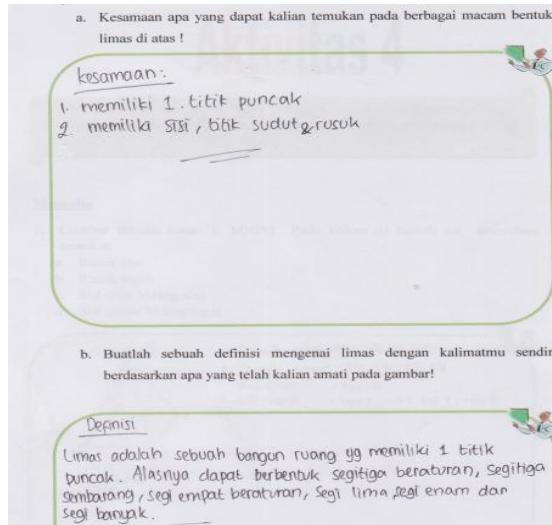
D. HASIL DAN PEMBAHASAN

Aktivitas 1 :

Tujuan dari aktivitas 1 adalah siswa dapat memahami dan menemukan konsep dari luas permukaan limas melalui pembelajaran menggunakan pendekatan saintifik yang dirancang dengan lima komponen utama yakni kegiatan mengamati, menanya, menalar, mencoba dan membentuk jejaring. Pada kegiatan mengamati siswa diharapkan dapat menyebutkan benda-benda apa saja yang termasuk limas dan menyebutkan benda-benda apa saja dalam kehidupan sehari-hari yang merupakan contoh limas. Selanjutnya pada aktivitas menanya siswa diminta mengemukaan ada berapa jumlah sisi, titik sudut dan

rusuk yang terdapat pada limas yang telah mereka temukan dan menuliskan sifat-sifat limas berdasarkan apa yang telah mereka amati dan temukan. Diaktivitas ini terdapat siswa yang mengalami kesulitan sehingga terjadi diskusi atau tanya jawab antara siswa dan guru.

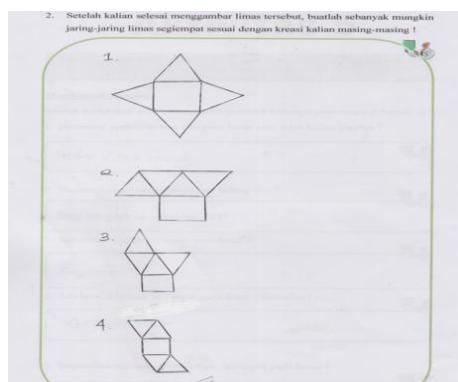
Aktivitas berikutnya adalah menalar. Aktivitas ini bertujuan agar siswa dapat menentukan kesamaan yang terdapat pada limas dan membuat definisi mengenai limas setelah mereka mengamati berbagai macam model limas yang disajikan dalam aktivitas menalar. Berikut contoh jawaban siswa pada aktivitas menalar.



Gambar 1 Aktivitas Menalar

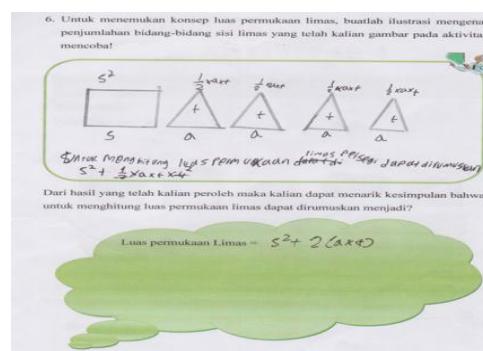
Pada aktivitas mencoba siswa diminta untuk menggambar limas segiempat serta menggambar jaring-jaring dari limas tersebut.

Jawaban siswa pada aktivitas mencoba



Gambar 2 Aktivitas Mencoba

Pada aktivitas membentuk jejeran siswa dapat menemukan konsep luas permukaan limas, membuat kesimpulan dan disajikan di depan kelas. Contoh kesimpulan yang berhasil dibuat siswa.



Gambar 3. membentuk jejeran

Berdasarkan jawaban di atas terlihat bahwa siswa memahami bahwa untuk menemukan luas permukaan limas yakni dengan melakukan penjumlahan terhadap sisi-sisi limas sehingga di peroleh

luas permukaan yang merupakan luas keseluruhan bagian-bagian limas. Selanjutnya siswa dapat menuliskan rumus luas permukaan berdasarkan apa yang mereka amati.

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