THE CORRELATION BETWEEN STUDENT’S ACHIEVEMENT IN VOCABULARY AND READING ABILITY OF THE TENTH-GRADe STUDENTS OF SMAN 1 BANGSAL

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Abstract: Vocabulary and reading are the most important aspects which have to be mastered by students in the middle of their English learning in class. Moreover, those two aspects are having a correlation to enhance their achievement in English comprehension besides writing and speaking. English learning in here has become a chance for the students to learn English as their foreign language. As we know, English as a foreign language is not an easy subject to be comprehended by students who have just learned it. Thus, students have to be more active and creative to create their own method to enhance their ability in English comprehension. This research was aimed to determine the correlation between students’ achievement in vocabulary and reading ability of the tenth-grade students at SMA 1 Bangsal. The research design was using the correlation design with the tenth-grade students as the population. When the research was conducted, the researcher only took some samples from tenth-grade students population by using the random sampling and found 75 students as the samples. Meanwhile, in collecting data process, the researcher has conducted the written test to find out the students’ achievement in vocabulary and reading ability. The data from tenth-grade students’ achievement was measured by Pearson Product Moment correlation formula, which become the analysis technique to evaluate a hypothesis concerning to the correlation between two variables that are examined statistically. The result showed that there is a significant correlation between students’ achievement in vocabulary and reading ability.

Keyword: Vocabulary, Reading Ability, Pearson Product Moment, Students’ Achievement

INTRODUCTION

English comprehension are having five important aspects which have to be mastered by the students who learn English as their foreign language (EFL). Those five aspects are vocabulary, reading, speaking, listening, and writing abilities. Each aspects became the most important instrument for students to learn and improve their ability in English. In English comprehension, non-native speakers required a solid foundation of vocabulary knowledge to
master English in any academic environment (Viera, 2017). Vocabulary is an important instrument in acquiring and understanding the language. The more vocabulary which the students have, the better comprehension they can get. Thus, learning the vocabulary could help them to obtain lots of words they have just learned before. By increasing those instrument, it could help the students to avoid in making some mistakes through their written or spoken texts.

On the contrary, vocabulary often becomes one of the most problematic reason to learn English not only for high school students, but also for university students. This could be happened because students are not used to communicate in English just like the native speakers do. Academic vocabulary on the other hand is the critical vocabulary to understand the concepts of the content which taught in schools (Zwiers, 2008). McKeon (2002) also argued that academic vocabulary enables us to communicate our needs, increases our chances that our needs are fulfilled and enables us to understand the needs of others. Furthermore, vocabulary is positively related to higher-status occupations (Zwiers, 2008).

Alongside with vocabulary, reading ability also became the most important instrument to be increased in English learning. Reading is an activity which can develop the knowledge and increase the vocabulary with understanding every part of the text to get some information. In English competences, the one that must be understood and studied is the ability to read (Joel in Sandaja, 2005). Basically, reading is a process to recognize and integrate the meaning of the word in the sentence structure and word reading, so the last result of the process of reading is someone able to make the essence of reading.

Reading becomes the act of interpreting printed and written texts. Through reading, the students could acquire some information, ideas, and broaden their interests. Nowadays, by understanding English, students are able to communicate and also read many kinds of English texts, beside English text book at school. From the explanation mentioned above, it showed us how important the vocabulary in reading activity. Based on the description of reading which has showed above, it showed that they have a close relation, and to observe the data, the writer will organize the test result to prove the influence of student’s achievement in vocabulary and reading.

LITERATURE REVIEW
A. Vocabulary in Students’ English Comprehension

Students’ vocabulary showed the enhancement of English comprehension if they could improve their habit in using English language through written or spoken texts, because the more frequently they improve the vocabulary, the more expert they will become. Thus, students have to practice in memorizing any vocabulary which they get from written or spoken texts, or even from listening music and speaking with the native speakers. According to Kridalaksana (2008), vocabulary is a component of a language that maintains all of information about meaning and using word in a language.

There were two kinds of vocabulary which have to be understood by the students, receptive and productive vocabulary. Receptive vocabulary refers to the words those native speakers and foreign learner or non-native speakers recognize and understand but hardly ever used, it is used passively in either listening or reading. Furthermore, productive vocabulary is utilized actively either in speaking or writing. Someone’s listening vocabulary is generally larger than his speaking vocabulary, while his reading vocabulary is relatively larger than his writing vocabulary.

In relation to kinds of vocabulary, Nation (2001), stated that there are four kinds of vocabulary in the text: 1) High frequency words, these words are almost 80% of the running words in the text; 2) Academic words, typically, these words make up about 9% of the running words in the text; 3) Technical words, these words make up about 5% of the running words in the text; 4) Low frequency words; these are the words of moderate frequency that did not manage to get into the high frequency list. They make up over 5% of the words in an academic text.

In other words, vocabulary could be presented in four types through the activity. There are reading vocabulary, listening vocabulary, speaking vocabulary, and writing vocabulary. In reading vocabulary, it consists of the word which has been found by people when they did reading activity. While listening vocabulary is the words that people listen and understand when they were talking.
to others or listening to the radio and television. Speaking vocabulary includes the words which people have used in their daily life and conversation. The last, writing vocabulary that consists of the word which people have used in writing essays, reports, letter, or any kinds of formal and informal texts.

B. Reading Ability in Students’ English Comprehension

Reading comprehension does not talk about memorizing and remembering every texts which students’ have read, but it is about the understanding to the ideas which have conveyed through the authors’ thought and message in the texts, (Anggraeny, 2011). Reading activity could be done for many purposes which can be showed from what kind of texts which the students should read.

There are seven aims of reading which could be found during the reading activity; 1) Reading for detail and fact to find the subject of the text, 2) Reading for main idea to find the problem statement of the text, 3) Reading for sequences of organization to find each part of the text, 4) Reading for inference to find what kind of message lied in the text, 5) Reading for classifying to find the unusual thing of the text, 6) Reading for evaluating to find the message and value of the text, 7) Reading for comparing to find what is the difference between the reality and the story of the text which brought by the author (Ali, 2010).

Furthermore, after knowing the aims of reading, students also have to know the classification or types of reading. According to (Patel and Jain, 2018), it is stated that there are seven types of reading. Each types of reading were showing how the reading activity is done by the readers; 1) Intensive reading is done by the reader to get knowledge or carry out the specific information. It is usually done in academic purposes; 2) Extensive reading is done by the reader to practice their directly and fluently reading ability; 3) Aloud reading is done by the reader to practice their pronunciation; 4) Silent reading is done to improve the reading ability in acquiring a lots of information by reading without making any sound; 5) Skimming reading is done to verify the potential skill while the readers or students have to read the text rapidly, but still could gather any information through the text; 6) Scanning reading is done to gather any specific information or find the answer of identified questions for the general understanding; 7) Close reading or searching reading, is done to complete the understanding in gathering the detailed comprehension for the academic purposes.

C. Conceptual Framework

Based on the explanation above, the researcher could formulate the conceptual framework, as follows

![Graph 1. Conceptual Framework of the Correlation between Students’ Achievement in Vocabulary and Reading Ability]

D. Correlation Between Students’ Vocabulary and Reading Ability

Both vocabulary and reading ability are having the important role in English learning. By having a bunch of vocabulary as the beginner, students’ reading ability was taking the role to improve it. The more books which students have read, the more vocabulary they could gather and learn. As for the example, when the students tried to improve their reading ability through the text books, they will begin to figure out the sound which represented by the letters through those texts. Later on, after the students clearly understood and recognized with the sounds which the words have made, they will try to find what is the exact pronunciation and the right words of the vocabulary they have listened before.
As for the beginner students who have just started to learn in gathering some vocabulary and reading activity, they will face the difficulties in differentiating and guessing what is the right vocabulary from the pronunciation they have listened. This exercise should be done by the students if they want to improve their abilities in English learning. Consequently, in order to understand a text, students need to know the meaning of the word which is being read in the text. However, to master the vocabulary, students are not only able to know the meaning of every word in the text, but also to go beyond it. In order words, he has to know the whole aspect of vocabulary, such as its synonym, antonym, and also its position in the sentence.

E. Correlation Between Students’ Achievement in Vocabulary and Reading Ability

Students should have practiced more by reading extensively to increase their reading ability in English learning. Thus, students always need a motivation, purpose and interest to do the activity. By having interest in reading extensively, students will encounter a lot of new vocabulary. Then, by having a good vocabulary, students might have more interests in reading. Therefore, the reading activity and vocabulary have a strong relationship in increasing reading ability. It can be hypothesized that someone who has high interest and has good vocabulary knowledge, he may have good ability in reading and kind of text, including recount text.

Reading is one of the most important skills which have to be mastered by students from every level of education, especially for high school student. As English is taught in school and becomes a compulsory subject, there are some materials that must be taught related to the standard of competences. One of the subjective is that the students are able to understand some types of text or commonly known as genre. Therefore, students’ reading ability are having an important role to achieve the competences.

Hereinafter, both vocabulary and reading ability could not be separated because of the correlation which completing reciprocally. As the researcher has explained above, by knowing and understanding the vocabulary, they will know the meaning of the vocabulary which have meant by reading the texts. Alongside with that, by enriching the vocabulary, students will decrease their mistakes that might be happened during the reading session. That is why, vocabulary became the most important point in increasing the students’ ability. Students will speak fluently, write easily and understand what they read and listen if they have enough vocabulary and capability to use it accurately. In other words, a student needs to know the meaning of words in order to they could understand the text easily, whether it is spoken or written text. Good of vocabulary is important for anyone who learns the language. Meanwhile, many studies have showed that a good reader also has good vocabulary knowledge.

RESEARCH METHOD

The researcher used the correlation design in conducting this research. Correlation research is being a part of descriptive research design which used to measure the correlation between two or more variables, (Latief, 2015). The measurement of those two variables are using the correlation statistic by collecting those variables from samples which have been selected, 75 tenth-grade students in SMAN 1 Bangsal. This kind of correlation research design was used because it has the characteristic which is more suitable with the objective of the research.

A. Procedures of the Research

The first step which has to be done in conducting this research was determine the population. Population is a large number of object which the researcher used to collect the data of the research, (Sugiyono, 2015). Furthermore, because of the large population of tenth-grade students in SMAN 1 Bangsal which consists of 380 students. By the large amount of the population, the researcher limited the data by taking samples through the random sampling and found 75 students from the tenth-grade. Random sampling technique involved the random selection of group which have already existed.

B. Instruments of the Research
Based on the instruments of the research, the researcher used three kinds of instruments to collect the data about the correlation between students’ ability, which are vocabulary and reading tests, also validity and reliability of instrument. Meanwhile, both of the vocabulary and reading tests were set up in collecting the data to measure the students’ skills, knowledge, intelligence and talent.

By conducting the vocabulary test, the researcher was giving some questions to the students which has been gotten from the internet. The questions consisted of 50 multiple choices which have to be answered by the students. Whereas, by conducting the reading test, the researcher also prepared some questions with the same amount just like in vocabulary test before.

Afterwards, when all the tests have already done, the researcher did the validity and reliability instrument. In this step, validity was done to make sure that both of vocabulary and reading tests result were valid and reliable. Validity is to measure the content for an instrument which design a condition based on the evaluation of subject matter. It is all because the material which have been taught to the students were based on the curriculum or curricular validity, (Arikunto, 2006). While reliability is needed for conducting any good test to the students, which the tests should be reliable as a measuring instrument, (Heaton as cited in Inayatul Maula, 2015). This reliability of the test showed whether the instrument is realiable and can be used to collect the data.

C. The Population and Sample

Population is the total number of people which became the subjects of the research, where the researcher could collect the data (Selinger, 1988). The researcher concluded that the population is a number of a group interest to be the subjects of the research. In this case, the subjects of the research were the tenth-grade students of SMAN 1 Bangsal in 2016/2017 academic years. The researcher got the data from the registration office that showed there were 380 students.

Sample was determined from a small amount of population which has to be observed, (Suharsimi, 2002). This sample should be well defined the class of people, events or subjects. A proper sample of the research should be consisted of 30 until 500 samples. Thus, from 380 populations of tenth-grade students, the researcher conducted the random sampling which can represent a whole data from the total numbers of students. As a result, the researcher found 75 students from the tenth-grade students in SMAN 1 Bangsal as the perfect samples to collect the data.

D. Technique and Data Collection

This steps became the process of collecting and measuring the data based on variable of the research. By conducting the tests for students, the researcher focused on the vocabulary and reading comprehension through the recount text to investigate the correlation between those tests with the students’ achievement. In vocabulary test, the researcher gave 50 questions including of multiple choice, and each of the number are having five choices from A, B, C, D, and E. While in reading test, the researcher also gave the same amount of questions, which is 50 questions with four multiple choices as the answers in A, B, C, and D.

E. Technique of Data Analysis

In this data analysis, the researcher collected the tenth-grade students’ scores from both of the tests in their second semester of 2016/2017 academic years. The researcher used Pearson Product Moment correlation formula as the measurement tool. This correlation technique was used to evaluate the hypothesis concerning the correlation between those two variables statistically, which are X and Y variables. This is the data operation technique based on (Sugiyono, 2013).

- Finding the Number of Correlation Using Formula:

\[
\begin{align*}
\rho_{xy} &= \frac{N \Sigma xy - (\Sigma x)(\Sigma y)}{\sqrt{[N \Sigma x^2 - (\Sigma x)^2][N \Sigma y^2 - (\Sigma y)^2]}} \\
N &= \text{Number of Participants} \\
x &= \text{Students’ Reading Scores} \\
y &= \text{Students’ Writing Scores} \\
\Sigma x &= \text{The Sum Scores of Reading} \\
\Sigma y &= \text{The Sum Scores of Writing} \\
\Sigma x^2 &= \text{The Sum of the Squared Scores of Reading} \\
\Sigma y^2 &= \text{The Sum of the Squared Scores of Writing} \\
\Sigma xy &= \text{The Sum of Multiplied Score between x and y}
\end{align*}
\]
• Finding the Significance between Two Variables Using Formula:

\[ T_{\text{count}} = \frac{r \sqrt{n - 2}}{\sqrt{1 - r^2}} \]

\[ T_{\text{count}} \approx t \text{ value} \]

The researcher conducted a field research to discover the correlation study between vocabulary and reading which have been done by the tenth-grade students of SMAN 1 Bangsal. This research was begin when the researcher is collecting the data from the students’ scores which have been taken from vocabulary and reading tests. The students’ scores were gained from a random sampling and were founded 75 students of the tenth-grade in each tests. Thus, the researcher collected 150 scores. The data of students’ scores of vocabulary and reading tests could be viewed as an appendix behind.

Whereas, from the data collection above, the researcher could obtain the information that the lowest score from the vocabulary test of the 75 tenth-grade students in SMAN 1 Bangsal was 34, and the highest score was 74 from the total samples which have been used. The result of this vocabulary test was marked as variable X. While the lowest score from reading text of the another 75 tenth-grade students in SMAN 1 Bangsal was 34, and the highest score was 90 from the total samples which have been used in this research.

DATA ANALYSIS

The researcher used the formula of “r” from Pearson Product Moment to analyze the data which have been collected above. Before the researcher did the calculation, the data was described as follows:

\[ N = 75 \]
\[ \sum x = 5214 \]
\[ \sum Y = 4230 \]
\[ \sum x^2 = 379404 \]
\[ \sum Y^2 = 246764 \]
\[ \sum XY = 296764 \]

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

\[ r_{\text{xy}} = \frac{75 \times 296764 - (5214)(4230)}{\sqrt{(75 \times 379404 - (5214)^2)(75 \times 246764 - (4230)^2)}} \]

\[ r_{\text{xy}} = \frac{22241700 - 22055220}{\sqrt{28455300 - 27185796}(18507300 - 17892900)} \]

\[ r_{\text{xy}} = \frac{1883680}{186480} \]

\[ r_{\text{xy}} = 1.0211549 \]

\[ r_{\text{xy}} \approx 0.211 \]

The researcher was ensure that the result of the calculation above is correct, because it was calculated carefully. The correlation value which has been analyzed was \( r_{\text{xy}} 0.211 \). It means that there was no mismatch in the process of calculating the data.

The table of \( r \) Value in Product Moment

<table>
<thead>
<tr>
<th>N</th>
<th>r</th>
<th>N</th>
<th>r</th>
<th>N</th>
<th>r</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>0.5</td>
<td>21</td>
<td>0.3</td>
<td>75</td>
<td>0.2</td>
</tr>
<tr>
<td>5</td>
<td>0.8</td>
<td>25</td>
<td>0.7</td>
<td>30</td>
<td>0.5</td>
</tr>
<tr>
<td>6</td>
<td>0.7</td>
<td>35</td>
<td>0.6</td>
<td>50</td>
<td>0.3</td>
</tr>
<tr>
<td>7</td>
<td>0.7</td>
<td>40</td>
<td>0.5</td>
<td>70</td>
<td>0.2</td>
</tr>
<tr>
<td>8</td>
<td>0.6</td>
<td>50</td>
<td>0.4</td>
<td>90</td>
<td>0.1</td>
</tr>
<tr>
<td>9</td>
<td>0.6</td>
<td>60</td>
<td>0.3</td>
<td>100</td>
<td>0.2</td>
</tr>
<tr>
<td>10</td>
<td>0.5</td>
<td>70</td>
<td>0.2</td>
<td>110</td>
<td>0.1</td>
</tr>
<tr>
<td>11</td>
<td>0.4</td>
<td>80</td>
<td>0.1</td>
<td>120</td>
<td>0.2</td>
</tr>
<tr>
<td>12</td>
<td>0.3</td>
<td>90</td>
<td>0.0</td>
<td>130</td>
<td>0.1</td>
</tr>
<tr>
<td>13</td>
<td>0.2</td>
<td>100</td>
<td>0.0</td>
<td>140</td>
<td>0.2</td>
</tr>
<tr>
<td>14</td>
<td>0.1</td>
<td>110</td>
<td>0.0</td>
<td>150</td>
<td>0.2</td>
</tr>
</tbody>
</table>

After finding the “r” correlation score, the next steps which the researcher should do was finding the significance of variables by calculating \( t_{\text{count}} \). The variable was tested by the significance test formula:

\[ t_{\text{count}} = \frac{r \sqrt{n - 2}}{\sqrt{1 - r^2}} \]

\[ t_{\text{count}} \approx 5.174064 \]

Before testing the \( t_{\text{count}} \), the researcher have made two hypotheses of significance, they were;

\[ H_0 : \text{There is no significant correlation between two variables} \]
\[ H_1 : \text{There is significant correlation between two variables} \]

The formulation of test:
1. If $t_o > t_{table}$, it means that the null hypothesis was rejected and there was a significant correlation.
2. If $t_o < t_{table}$, the null hypothesis was accepted and there was no significant correlation.

Based on the calculation above, the result which was compared by $t_{table}$ in the significant of 1%, 5%, and $n=75$, the researcher found the Degree of Freedom ($D_f$) with the formula:

$$D_f = N - nr$$

$$= 75 - 2$$

$$= 73$$

From $D_f = 73$, it was obtained that $t_{table}$ of 1% = 2.644. It indicated that $t_o > t_{table}$ in which 5,174 > 2,457. Therefore, the alternative hypothesis ($H_a$) was accepted. In other words, there was a significant correlation between vocabulary achievement and reading achievement.

**DATA INTERPRETATION**

Based on the correlation above, it has showed that the correlation value was $r_{xy}$ 0.485 and the degree of freedom ($D_f$) was 73. Meanwhile, in the table of significance has showed that $D_f$ value was 73, then the table of significance 1% was 2,644 and 5% was 1.993.

**Table of t Value:**

<table>
<thead>
<tr>
<th>$D_f$</th>
<th>$t_{table}$ 1%</th>
<th>$t_{table}$ 5%</th>
</tr>
</thead>
<tbody>
<tr>
<td>73</td>
<td>2.644</td>
<td>1.993</td>
</tr>
</tbody>
</table>

The statistical hypothesis stated:
1. If $r_o$ is the same as or higher then $r_t$, the $H_a$ is accepted.
2. If $r_o$ lower than $r_t$, the $H_a$ is rejected.

Based on the score of $r_o$ 0.485, it indicated the score of $r_o > r_t$ 1% and 5 %, in which 1% (0.518 > ) and 5% (0.518 > ). It showed that $H_a$ had accepted; or in other word there was a correlation between vocabulary and reading achievement.

To interpret the gravity of $r_o 0.518$, the table of “r” product moment had showed that the correlation value was on the medium size, in which between 0.400 – 0.599. The table of “r” interpretation which had adopted from Sugiantoro theory was such as follow:

**Correlation of Interpretation Table:**

<table>
<thead>
<tr>
<th>Interval coefficient</th>
<th>Relationship Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>0,00 – 0,199</td>
<td>Very Weak</td>
</tr>
<tr>
<td>0,20 – 0,399</td>
<td>Weak</td>
</tr>
<tr>
<td>0,40 – 0,599</td>
<td>Medium</td>
</tr>
<tr>
<td>0,60 – 0,799</td>
<td>High</td>
</tr>
<tr>
<td>0,80 – 1,000</td>
<td>Very High</td>
</tr>
</tbody>
</table>

As the conclusion, the data interpretation has showed a finding that vocabulary and reading achievement has showed that the correlation tends to the positive value and there was no negative correlation. Knowing whether the correlation value was significant, the data has been tested and the result was significant in which it indicates $t_o > t_{table}$. The score of significance was to 0.485. Meanwhile, the $D_f = 73$ indicated a significant score of 1% = and 5% =. It explained that the correlation score is significant.

As the conclusion, the data interpretation has showed a finding that vocabulary and reading
are having a correlation each other. Vocabulary achievement gave a contribution that \( r_{xy} 0.518 \) becomes the value of students' reading achievement. The results explained that the reading achievement was affected by the vocabulary achievement. Whereas the correlation between vocabulary and reading achievement had a significant value. Thus, it described that the better vocabulary achievement which the students have, the better reading achievement which the students will get.

**CONCLUSION**

Based on the research which had conducted, the conclusion could be drawn that there is a significant correlation between students' achievement in vocabulary and reading ability. It could be seen from the students' scores which has showed in the index correlation between X and Y variables \( (r_{xy}) \). The result from this research confirmed that students' vocabulary could increase at the same time when there is an improvement in their reading ability. Meanwhile, the students' vocabulary was decrease at the same time when there is no improvement from their reading ability.

**REFERENCES**


