

Analyzing The Relationship Between Metacognitive Strategies and Vocabulary Mastery at a High school Level

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Abstract

This research was conducted to know is there a correlation between students' metacognitive strategies and their vocabulary mastery. This research used correlational research method. The population of the research was 104 students of three classes of tenth grade of Accounting major at SMKN 7 Bekasi. A questionnaire was used to collect students' metacognitive strategies data, and a test was used to collect students' vocabulary mastery data. The result of the research shows that there is a significant correlation between students' metacognitive strategies and students' vocabulary mastery. This is shown by the result of r_{xy} which is higher than r_{table} ($0,6273 > 0,2287$), and the comparison between t_{count} and t_{table} which resulted in $t_{count} > t_{table}$ ($9,0002 > 1,9935$) with the regression line $\hat{Y} = 10,1609 + 0,9200X$. The coefficient determination result, which is $r_{xy}^2 = 0,3935 \times 100 = 39,3\%$, shows that the data obtained from this research represents 39,3% of the real situation. According to the description of data above, it can be concluded that there is a significant positive correlation between students' metacognitive strategies and students' vocabulary mastery.

Keywords: learning strategy, metacognitive, vocabulary.

1 INTRODUCTION

People communicate in a number of ways, but the most typical one is through words. Vocabulary is one of the core components of the English language that is very crucial to master as it is a key to success in acquiring the language. With vocabulary knowledge, people will be able to understand each other. It is only make sense that it should be a crucial aspect that students need to master.

In reality however, English might be one of the compulsory subjects in Indonesia, but many Indonesian students' graduates with little to no English vocabulary knowledge and minimum English skills, though the expectation in the curriculum is students' must at least know 3000 English vocabulary, many high school graduates cannot fulfil this expectations (Mustafa, 2019).

Learning strategies are actions students can do to enhance their personal learning. Many researchers have shown the importance of Language Learning Strategies for learners who want to be successful in their language learning (Giang & Tuan, 2018). Language learners benefit from strategies because they provide instruments for active, self-directed participation, which is critical for establishing communicative competence (Oxford, 1990).

One of many strategies in language learning is metacognitive strategies. Metacognitive strategies aid in the development of excellent thinking management skills in order to demonstrate academic success (Sari, 2018). Students can use metacognitive strategies to comprehend what they know, don't know, what they learn, and how they learn. Teaching students about metacognition, instructing them on tasks, training them to evaluate others, offering appropriate and necessarily linked feedback on their performance, and involving

students in sharing and exchanging pieces of information can improve metacognitive awareness in a real classroom setting (Devika & Singh, 2019).

However, there are still many obstacles in implementing the metacognitive strategy in a school setting as a whole (Norman, 2020) because metacognitive strategies require metacognitive awareness in its implementation. Metacognitive strategies' disadvantages can sometimes outweigh its' benefit if it wasn't implemented correctly (Norman, 2020). Therefore, this research wanted to see if there is a correlation between students' metacognitive strategies and their vocabulary mastery and see if the correlation is a positive correlation or negative correlation.

1.1 Vocabulary Mastery

Vocabulary is a list of target language terms for a certain language or a list of words that an individual speaker may know (Hatch & Brown, 1995). It is all the terms a person recognizes and use when discussing a certain subject in a specific language (Hornby, 2006). The word "mastery" refers to a possession or display of great skill or technique, it is a complete skill or knowledge that a person possesses (Hornby, 1995). Vocabulary mastery refers to a possession or display of great knowledge of words that a person has when discussing a certain subject in a language.

There are two types of vocabulary, they are productive and receptive vocabulary (Hiebert & Kamil, 2005). Productive vocabulary is the vocabulary that are familiar and used frequently in writing and speaking by the person producing it while receptive vocabulary is a set of words that a person can recognize and comprehend when they are spoken in context but cannot produce correctly (Hatch & Brown, 1995).

Vocabulary is divided into five different aspects (Lado, 1979), Namely Meaning (what the word intended to convey), spelling (the appearance of a word), pronunciation (how a word should sound), word classes (a category of words of similar form or function), and word usage (how a word is used in a language in terms of language variety). Considering languages are made up of words, teaching vocabulary is an important part of learning a language. More often than not, vocabulary is taught along with other skills like reading, writing and listening, rather than by itself.

1.2 Metacognitive Strategies

Metacognitive strategies are one of the six Language Learning Strategies (LLS) proposed by Oxford. It falls below the Indirect Category of LLS along with the other two categories. It is actions that goes beyond cognitive devices that provides a way for learners to coordinate their own learning process (Oxford, 1990). Metacognitive Strategies is a systematic, conscious, and goal-oriented strategy that involves the application of higher level cognitive abilities (Hacker, 1998). It enables learners to plan and manage their own learning.

In its operational use, metacognitive strategies are a set of strategies that involves: Centering Learning, Arranging and Planning Learning and Evaluating Learning. Furthermore, centering learning is divided into: overviewing materials and link it to the already known materials, paying attention and delaying speech production to focus on listening. Arranging learning is divided into finding out about language learning, organizing learning, setting learning goals and objectives, identifying the purpose of a language task, planning for a language task, and seeking practice opportunities. Lastly, evaluating learning is divided into self-monitoring and self-evaluation.

2 RESEARCH METHODS

This research used quantitative approach with correlation method. The aim of a correlational study is to see whether there is a correlation between two or more variables (Arikunto, 2010). It is also to determine the relationship between the two or more variable without changing, adding or manipulating the existing data (Arikunto, 2010). This research was conducted because the researcher wanted to collect a sufficient proof if there is a correlation between students' metacognitive strategies and students vocabulary mastery or not as well as to see if the correlation is a positive correlation or a negative correlation. The population of the research are the three classes of the 10th grade of Accounting Major at SMKN 7 Kota Bekasi with the total of 104 students.

2.1 Regression Analysis

The instruments used in this research are questionnaire and test. Questionnaire was used to measure students' metacognitive strategies while vocabulary test was used to measure students' vocabulary mastery. Regression analysis is a branch of statistics that studies the functional relationship of an independent variable (predictor) to a dependent variable (respond variable).

Linear regression analysis is when the relationship between variables are in the same direction and the line is forming a straight line, meaning that if X value is increased, so does Y value and vice versa (Sudjana, 2006). This research used simple linear regression because there is only one dependent variable and one independent variable. The formula is as follows:

$$Y = a + bX$$

With:

Y = predicted subject in the dependent variable

X = predicted subject in the independent variable that has a certain value

a = intercept

b = independent variable regression coefficient parameter.

2.2 Correlation Analysis

Correlation analysis was conducted to see the strength of the relationship between variable dependent and variable independent. Pearson Product Moment analysis technique was used in this research to analyze the strength of the relationship between both variables. The formula (Sugiyono, 2008) is as follows:

$$r_{xy} = \frac{N \sum XY - (\sum X)(\sum Y)}{\sqrt{[N \sum X^2 - (\sum X)^2][N \sum Y^2 - (\sum Y)^2]}}$$

Figure 1. Pearson Product Moment Formula

With:

R_{xy} = Correlation Coefficient

N = Number of Respondent

©x = Total score of X

©Y = Total score of Y

©X² = Total score of X square

©Y² = Total score of Y quadrate

According to Riduwan (2010), the correlation coefficient can be interpreted as follows:

Table 1. Coefficient Correlation Interpretation

Coefficient Interval	Correlation
0,80 – 1,000	Very Strong
0,60 – 0,799	Strong Enough
0,40 – 0,599	Moderate
0,20 – 0,399	Low
0,00 – 0,199	Very Low (No Correlation)

3 RESULT AND DISCUSSION

The survey data in this study were taken from 72 respondents consisting of two different classes that are the sample of this research and processed with the help of Ms. Excel. The statistical description of all respondents is as follows.

Table 2. Statistical Description of Variable X and Variable Y

	X	Y
Mean	80,027	83
Median	80	84
Mode	75	100
Standard Deviation	8,6691	12,7697
Variance	75,154	163,065
Maximum	105	100
Minimum	63	52

From the statistical description on table 2 above, it can be seen that the average score of Metacognitive Strategies is 80,0278. The median or the middle score score is 80. The mode or the score that appears the most is 75. The highest score of Metacognitive Strategies test is 105 while the lowest score is 63. The standard deviation, which shows how dispersed the data is in relation to the mean, is 8,6691 with variance or the degree of spread in the data of 75,1541.

As for Students' Vocabulary Mastery, it can be seen that the average score is 83. The median or the middle score score is 84. The mode or the score that appears the most is 100. The highest score of Students' Vocabulary Test is 100 while the lowest score is 52. The standard deviation, which shows how dispersed the data is in relation to the mean, is 12,7697 with variance or the degree of spread in the data of 163,0653.

3.1 Normality Test

3.1.1 Normality Test X Variable

After calculating the data, the researcher obtained the result of $L_{count} = 0,0678$. To find out whether a sample came from a normally distributed population, L_{count} had to be compared with L_{table} . In this case, the L_{table} for 72 at the significant level 0,05 with $N = 72$ is 0,1044.

Table 3. Normality Test of X Variable

N	a	L _{count}	L _{table}	Assumption	Decision
72	0,05	0,0678	0,1044	Data Normally Distributed	Ho is Accepted

From the information above, it can be seen that $L_{count} < L_{table}$ (L_{count} is lower than L_{table}) resulted in H_0 is accepted which means that the sample came from a normally distributed population.

3.1.2 Normality Test Y Variable

Based on the calculation of the data, the researcher obtained the result of $L_{count} = 0,0880$. To find out whether a sample came from a normally distributed population, L_{count} had to be compared with L_{table} . In this case, the L_{table} for 72 at the significant level 0,05 with $N = 72$ is 0,1044.

Table 4. Normality Test of Y Variable

N	a	L _{count}	L _{table}	Assumption	Decision
72	0,05	0,0880	0,1044	Data Normally Distributed	Ho is Accepted

From the table above, it can be seen that L_{count} is smaller than L_{table} resulted in H_0 is accepted, which means that the sample came from a normally distributed population.

3.2 Linear Regression Test

Based on the result of X variable and Y variable instruments, the researcher obtained the data as follows:

Table 5. Linear Regression Test Result

$\sum X$	$\sum Y$	$\sum XY$	$\sum X^2$	$\sum Y^2$
5762	6033	487717	466456	516995

Those numbers when inputted to the formula, will show these results:

$$a = 10,1609$$

$$b = 0,92007$$

From the calculation above, the regression result is as follows:

$$Y = 10,1609 + 0,9200 X$$

The number above shows that there is a positive correlation between variable X and variable Y where Y value will increase every time there is an increase in X value.

3.3 Hypothesis Test

The hypothesis for this research is as follows:

$$r_{table} > r_{count} = \text{accept } H_0$$

$$r_{table} < r_{count} = \text{reject } H_0$$

a. H_0 = Null Hypothesis ($\rho = 0$)

Meaning that: there is no relationship between variable X and variable Y

b. H_1 = Alternative Hypothesis ($\rho \neq 0$)

Meaning that: there is a relationship between variable X and variable Y

Based on the calculation using Pearson's Product Moment formula, the researcher obtained the result $r_{xy} = 0.6273$, the r_{table} for this hypothesis is 0,2287. This means that $r_{table} < r_{count}$, therefore the researcher can reject H_0 , meaning that there is a correlation between variable X and variable Y.

3.4 Significant Test

The relationship between variables are significant if t_{count} is higher than t_{table} . From the hypothesis test, the researcher already obtained $r_{xy} = 0,6273$. With the calculation, $t_{\text{count}} = 9,0002$ is obtained. When compared to t_{table} , which in this case is 1,9935 (significance level 0,05 with $dk = n-2$), the researcher gains information that $t_{\text{count}} > t_{\text{table}}$ which can be concluded that there is a significant correlation between variable X and variable Y.

3.5 Correlation Coefficient

To find out how much of the result of this calculation represent the real situation, the researcher needs to find the correlation coefficient

$$R^2 = r_{xy}^2 \times 100$$

$$R^2 = 0,62732 \times 100$$

$$R^2 = 0,3935 \times 100$$

$$R^2 = 39,3\%$$

This calculation shows that 39,3% of the sample can represent a real correlation in the population.

3.6 Discussion

As the researcher had mentioned in the first chapter, this research was conducted with the intention to find out whether there is a correlation between students' metacognitive strategies (Variable X) and their vocabulary mastery (Variable Y). The hypothesis is when H_0 is accepted, meaning that there is no correlation between the two variables, in contrast to that, there is a correlation between the two variables if H_1 is accepted.

The researcher had collected the data needed to test the hypothesis of this research, the data was collected using two instruments; the metacognitive strategies questionnaire and vocabulary mastery test. Based on the result of the calculation of coefficient correlation, the researcher finds out that there is a positive correlation between students' metacognitive strategies and their vocabulary mastery at the 10th grade of Accounting major at SMKN 7 Kota Bekasi. This claim is based on the research findings above that shows the statistical analysis of quantitative Pearson's Product Moment and t-test, which results was H_a is accepted because r_{xy} is higher than r_{table} , and H_0 is rejected because t_{count} is higher than t_{table} . The result of linearity test shows that $\hat{Y} = 10,1609 + 0,9200 X$, hence why the researcher conclude that there is a positive correlation between students' metacognitive strategies and their vocabulary mastery. That, and the coefficient of determination of the variables are 39,3%, it means that students' metacognitive strategies contributes 39,3% to students' vocabulary mastery.

The result of the research shows that there is a positive significant correlation between the two variables. Oxford states that metacognitive strategies enable learners to plan and manage their own learning. A research conducted by Devika & Singh shows that learners can use metacognitive strategies to comprehend what they know, don't know, what they learn, and how they learn. This study found that teaching students about metacognition, instructing them on tasks, training them to evaluate others, offering appropriate and necessarily linked feedback on their performance, and involving students in sharing and exchanging pieces of information can improve metacognitive awareness in a real classroom setting. Muhid et. al. studied the effect of metacognitive strategies implementation on students' reading comprehension achievement, he found out that the students who were exposed to the metacognitive strategies tend to score higher than those who were not. The findings revealed that students who employed more metacognitive methods performed better on the reading comprehension exam than those who did not. Another research by Marlin also offers a positive point of view toward metacognitive strategy where 95% of the students use metacognitive strategies to help them during learning speaking.

This research has a similar general result as the previous research mentioned above, the positive relationship of students' metacognitive strategies and their vocabulary mastery shows that the more students' implement metacognitive strategies in their studies, the more their vocabulary mastery will increase. The findings of this research can be a good

reason why teacher needs to teach students about metacognitive strategies. Other than that, it can be interpreted that the teacher can implement metacognitive strategies in their teaching so that students can learn to overview the material given and link it to the already known materials, learn to pay attention to the actual learning process, arranging and planning their own learning, setting goals for their own study, identify the purpose of their study, seeking opportunities to practice, self-monitoring their learning as well as learning how to self-evaluate their own learning. This research has conducted to collect the data to support that claim as well as to prove the hypothesis.

4 CONCLUSION

From the result of Pearson's Product Moment analysis, the researcher gained correlation coefficient (r_{xy}) of 0,6273. This shows that there is a correlation between students' metacognitive strategies and their vocabulary mastery. Other than that, the result of linear regression, which is $\hat{Y} = 10,1609 + 0,9200 X$, shows that the correlation is a positive correlation. Meaning that the more students understand and implement metacognitive strategies in their study, the higher their chance to score better in vocabulary tests. The result of the coefficient determination (R^2) in this research is 0,3935, this shows that metacognitive strategies contribute 39,3% to students' vocabulary mastery, the other 60,5% is affected by other aspect of studying that was not a part of this research.

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