

CHAPTER IV

RESEARCH RESULTS AND DISCUSSIONS

This chapter presents the research findings and discussion. The research investigates whether there is a correlation between students' vocabulary mastery and speaking ability. The researcher used two types of instruments to obtain data from this research: a vocabulary mastery test and speaking ability test. The researcher gave a vocabulary mastery test to the grade 9 students consisting of 20 questions and told them to fill it in. After that, the researcher asked the students to speak in English about a topic (describing themselves, others or the classroom). The researcher analyzed students' vocabulary mastery and speaking ability based on the reported test results. The data were analyzed using SPSS software version 30. The results of students' vocabulary mastery and speaking ability will be explained as follows.

4.1 Research results

4.1.1 Pilot test

A pilot test was conducted to analyze and refine the instrument items, which would then be implemented in the following phases of the research.

The pilot test was conducted on 30 ninth-grade respondents from SMP Muhammadiyah 1 Kota Jambi on 07 October 2024. The pilot test instrument consisted of 20 vocabulary mastery items, comprising 10 multiple-choice questions, 5 matching exercises, and 5 fill-in-the-blank items.

1. Distractor Analysis

The distractor relates to the ability of test items to differentiate between students who have mastered the material and those who have not. The distractor analysis, conducted using Microsoft Excel, yielded results as presented in Appendix 4. Based on this analysis, it was found that two options in items 1 and 2 were rejected, one option each in items 2, 8, and 9 required revision, and one option in item 3 was rejected.

It can be concluded that options categorized as "diterima" indicate that these items effectively distinguish between students who understand the material and those who do not. Options categorized as "ditolak" cannot be used because no students chose that option and must be discarded, as they fail to differentiate between students who comprehend the material and those who do not. The question options on the "revisi" criteria were re-examined according to the needs of the research.

2. Difficulty level analysis

The analysis of item difficulty levels, conducted using Microsoft Excel, produced results as presented in Appendix 5. Based on the analysis, it was determined that 1 item fell into the difficult category, 5 items were classified as moderate, and 14 items were categorized as easy. The distribution of items based on their difficulty level classification is as follows:

Table 4.2 Distribution of items based on their difficulty level classification

Classification	Number of items	Total
Difficult	18	1
Medium	4, 6, 7, 10, 16	5
Easy	1, 2, 3, 5, 8, 9, 11, 12, 13, 14, 15, 17, 19,20	14

Test items that are excessively difficult may lead to student discouragement, as learners feel incapable of solving such problems. Conversely, items that are too easy fail to stimulate students to enhance their problem-solving efforts. Overly simple items are also problematic as they lack the capacity to differentiate between high-performing and low-performing students. Ideally, well-constructed test items should be neither too difficult nor too easy, falling into the moderate category. Based on the results of this analysis, the researcher implemented the following follow-up measures:

- 1) Test items categorized as good, meaning that they have a medium level of difficulty, are included in the research instrument and can be reused. These include items number 4, 6, 7, 10, and 16.
- 2) Item number 18, which falls into the difficult category, is revised by re-examining factors that may have made it challenging for students to answer correctly. This revision focuses on sentence clarity and the potential presence of difficult-to-understand terminology.
- 3) For the items that were found to be too easy, several follow-up actions were taken:

- a) Item numbers 1 and 2 were discarded and replaced with new items because they were too easy, and had weak distractor power.
- b) Item numbers 11, 12, 13, 14, 15, 17, 19, and 20 were revised by re-examining the factors that made these items too easy for students to answer correctly, with particular attention to sentence structure and terminology that might be too simple.
- c) Item numbers 3, 5, 8, and 9 will be revised due to an ineffective distractor index, which allows students to easily identify the correct answer among the options. Therefore, revisions were made by changing the answer choices for multiple-choice questions.

4.1.2 Validity test

The validity test is carried out with the help of SPSS version 30. The validity test is carried out to determine whether or not a variable is valid for each variable. This validity test uses the Pearson Product Moment correlation, the commonly used significance level is $(\alpha) = 0.05$ with a sample size $(n) = 40$ respondents, then the r table is 0.312. The results of the validity test are shown in the table below.

Table 4.3 Vocabulary Mastery Validity Test Results

Number of items	R count	R table	Criteria
Question 1	0.564	0.312	Valid
Question 2	0.664	0.312	Valid
Question 3	0.576	0.312	Valid
Question 4	0.399	0.312	Valid
Question 5	0.684	0.312	Valid
Question 6	0.395	0.312	Valid

Question 7	0.504	0.312	Valid
Question 8	0.506	0.312	Valid
Question 9	0.479	0.312	Valid
Question 10	0.348	0.312	Valid
Question 11	0.543	0.312	Valid
Question 12	0.320	0.312	Valid
Question 13	0.434	0.312	Valid
Question 14	0.759	0.312	Valid
Question 15	0.683	0.312	Valid
Question 16	0.350	0.312	Valid
Question 17	0.606	0.312	Valid
Question 18	0.321	0.312	Valid
Question 19	0.326	0.312	Valid
Question 20	0.590	0.312	Valid

Based on Table 4.3, it can be seen that all vocabulary mastery questions have a valid status because the r-count value of each question item has a value greater than the r-table value.

4.1.2 Reliability test

A variable is said to be valid if the answer to the question is always consistent. To measure the reliability of vocabulary mastery, the statistical test used is Cronbach Alpha (α). A variable is said to be reliable if it has a Cronbach Alpha value greater than 0.6. according to Taherdoost, 2008. The analysis was conducted with the help of SPSS version 30 software to test the reliability of the instrument. The results of the vocabulary mastery reliability test can be seen in the following table.

Table 4.4 Cronbach Alpha Questionnaire Reliability Test Results

Reliability Statistics	
Cronbach's Alpha	N of Items
.736	21

Based on the reliability test results in Table 4.4, the value is 0.736. The results were declared reliable as they > 0.6 . So it can be concluded that the results of this reliability test prove that all statements in the questionnaire are reliable. Meanwhile, to measure the reliability of speaking ability, researchers used interrater reliability with the Cohen Kappa (K) agreement coefficient. The results of the interrater reliability test can be seen in the following table.

Table 4.5 Interrater Reliability Result

Symmetric Measures				
		Value	Asymptotic Standard Error ^a	Approximate T ^b
Measure of Agreement	Kappa	.823	.065	13.153
N of Valid Cases		40		

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

Based on the interrater reliability in Table 4.5, the reliability value is 0.823 which means the reliability level is strong. (Based on Table 3.4 page 31)

4.1.3 Correlation Analysis

The Pearson Product Moment correlation test was used to analyze the correlation test.

The results were then compared with the interval table shown in the table below:

Table 4.6 Correlation Coefficient

Coefficient Correlation (r)	Interpretation
0,00 – 0,20	Very low correlation
0,21 – 0,40	Low Correlation
0,41 – 0,60	Moderate Correlation
0,61 – 0,80	High Correlation
0,81 – 1,00	Very High Correlation

The correlation coefficient results from the Pearson Product Moment correlation test will be compared with Table 4.7 to determine the relationship criteria between the two variables. The correlation range in this formula is 1.00, and 0.00, where 1.00 indicates a strong positive correlation between the two variables, and 0.00 indicates no correlation at all. The results of the Product Moment correlation test are shown in Table 4.7 below.

Table 4.7 Pearson Product Moment Correlation Test Results

Correlations			
		Vocabulary Mastery	Speaking Ability
Vocabulary Mastery	Pearson Correlation	1	.939**
	Sig. (2-tailed)		<.001
	N	40	40
Speaking Ability	Pearson Correlation	.939**	1
	Sig. (2-tailed)	<.001	
	N	40	40

** . Correlation is significant at the 0.01 level (2-tailed).

Based on Table 4.7, the resulting correlation coefficient is 0.939. These results show that the correlation coefficient is 0.81-1.00 with a very high correlation interpretation. In other words, there is a very high positive correlation between vocabulary mastery

and speaking ability. Positive correlation means that the correlation between two variables moves in the same direction, that is, both increase or decrease simultaneously. the value can be seen in the table below.

Table 4.8 Vocabulary and Speaking test score

Nama	Vocabulary score	Speaking score
KIYA	100	13,75
M. ILHAM R	75	8,53
RADEN D. S	25	5,19

Table 7 is the student's vocabulary and speaking test scores (detail in appendix 7). The higher the students' vocabulary mastery, the higher their speaking ability, and vice versa, the lower the students' vocabulary mastery, the lower their speaking ability.

4.2 Research discussions

Vocabulary mastery is needed to support good speaking skills. According to Suryanto 2021, the speaking ability can be improved by having a strong vocabulary. However, there are several problems related to vocabulary mastery and speaking ability such as difficulty in understanding the meaning of the words, a large number of words, difficulty pronouncing vocabulary correctly, lack of confidence, low learning motivation, and others. Those problems are experienced by students at SMP Muhammadiyah 1 Kota Jambi. The purpose of this research is to find out the correlation between students' vocabulary mastery and the speaking ability of grade 9 students at SMP Muhammadiyah 1 Kota Jambi.

In this study, the researcher used two instruments, namely a written test to measure students' vocabulary mastery and a spoken test to measure students' speaking ability. The two instruments were distributed to 40 respondents. The written test consists of 20 questions in the form of 10 multiple choices, 5 match-ups, and 5 fill the blank. The tests are given directly to students. To ensure the quality of the test, pilot tests are carried out, not only that, test question analysis is also carried out to get a good instrument. The results of the pilot analysis as described in Chapter 4, were used to improve the instrument. The revised instrument was distributed to 40 students of grade 9 SMP Muhammadiyah 1 Kota Jambi. The spoken test is carried out by instructing students to speak in English on a predetermined topic, namely describing themselves or describing the classroom for 3 to 5 minutes.

The results of the validity of the vocabulary test show that all items contained in the test are valid because the r count is greater than the r table. While the results of the vocabulary test reliability using the SPSS version 30 application are 0.736 which means the results are reliable because they are more than 0.6. Students' speaking ability is assessed using interrater reliability, where it takes two raters to measure how consistently different raters evaluate or score the same subject or item. the two raters are the English teacher of SMP Muhammadiyah 1 Jambi City and the researcher. The rater uses the speaking rubric as described in Chapter 3 to equalize the perception of the assessment. The data obtained from each rater is ordinal data, to carry out statistical tests interval data is required, therefore, researchers convert ordinal data to

intervals using Microsoft Excel. The results obtained from interrater reliability are 0.823 which indicates a strong level of reliability.

The results of the written and spoken tests were correlated using Pearson Product Moment analysis. Based on the correlation test results using Pearson Product Moment analysis, the correlation coefficient value is 0.939. Using the SPSS version 30 application program, the analysis results show a very high correlation between vocabulary mastery and speaking ability in 9th-grade students of SMP Muhammadiyah 1 Kota Jambi. The correlation coefficient of 0.939 recorded in the table is in the range of 0.81 - 1.00, indicating a very high correlation level. Therefore, it can be concluded that students' vocabulary mastery has a very strong relationship with students' speaking ability.