CHAPTER III
RESEARCH PROCEDURES

This chapter provided the methodology utilized to conduct the study. This chapter outlines six parts of the research procedure, namely research design, research variables, population and sample, data collection technique, data analysis technique, and research schedules. More details are described below.

A. Research Design

This study used a quantitative research approach, with correlation research design. Correlation research is one of the quantitative methods of non-experimental research. Creswell (2009) defined correlational research as a quantitative design that used statistical tests to measure relationships between variables. Fraenkel et al. (2012), on the other hand, emphasize its descriptive aspect, calling it a form of descriptive research that describes existing relationships. Despite the difference in emphasis, both agree on the essence of correlation research to measure and describe the relationship between variables. There were three types of correlation according to Rukminingsih et al. (2020), there are bivariate correlation, regression & prediction, and multiple regression. Bivariate correlation is a research design that describes the relationship between two variables. Regression and prediction were used to predict the value of one variable based on the value of another variable. In contrast, multiple regression is an extension of simple regression and prediction with the addition of several variables. This study used bivariate because this method was appropriate to see the relationship between two variables. This study wanted to find out if there was a relationship between students' speed reading and their reading comprehension. This design was chosen because it suited the purpose of the study to measure the strength of the relationship between the two variables without manipulating the independent variables. Correlation research allowed testing hypotheses about relationships using quantitative data, providing insight into how strongly reading speed was related to reading comprehension levels. Thus, this study provided empirical data on the correlation between the two variables.

B. Research Variables

This study used two variables, with variable X representing the independent variable, referred to as 'Students Reading Speed', which can be measured in WPM (words per minute). This was evaluated by measuring the duration from when the student starts reading the text until they finish reading it. While variable Y, referred to as the dependent variable, was 'Students Reading Comprehension'. This variable assesses students' capacity to grasp the meanings of words, identify main ideas, recognize relationships among paragraphs, and draw conclusions from English texts.

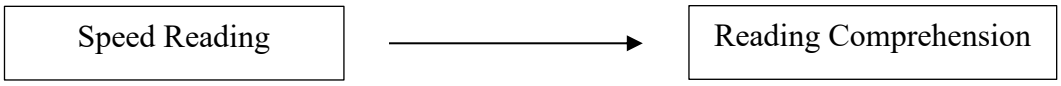

Figure 3.1 ***Research Variables***

C. Population and Sample

1. Population

Research required a research subject, which is also called a population. The population was the large group that would benefit from the results of the research. Without research subjects, research could not be conducted. According to Cresswell (2012), the population is a group of individuals who have the same characteristics. The population in this study consisted of 2023 English Department students who were in their second grade at the university in Tasikmalaya. The total population was 139 students, divided into 4 classes. The detailed distribution of the population following in the table:

Table 3.1 ***Population***

No.	Class	Total
1	A	38
2	B	36
3	C	35
4	D	30
Total		139

2. Sample

Large group studies can be conducted, but they are often time-consuming. Therefore, sampling is important for research efficiency. A sample is a smaller group that has similar characteristics to the population (Sugiyono, 2012). According to Arikunto (2010), if the population is less than 100, all subjects should be taken as samples. However, if the population is more than 100, it is recommended to sample between 10-25% of the population. In this study, the researcher chose the *cluster random sampling* method, which gives each class an equal chance of being selected. Class selection was done randomly using the spinning wheel application, and class C with 35 students was selected as the sample. This sample size conforms to Arikunto's (2010) guidelines and reflects the characteristics of the population, including the age range of 19-20 years and gender diversity among students.

D. Data Collection

The data collection procedure in this study involved a speed reading test and a reading comprehension test. Validity and reliability tests were conducted on non-samples to determine whether the test instruments in this study were suitable for use or not.

1. Validity and Reliability Test

a. Validity

Validity was used to ensure that the measuring instrument actually measured what it intended to measure. According to Ary (2010), validity was defined as the extent to which an instrument measures what it claims to measure. Although this study used a reading speed test and a comprehension test, only the comprehension test was validated because reading speed was not included in the scope of the research material.

b. Reliability

Reliability was used to ensure that the measuring instrument is consistent and stable in producing results if used repeatedly under the same conditions. Brown (2003) stated that the characteristic of reliability is

sometimes called consistency. The reliability measurement method used in this research was the internal consistency test, in accordance with the procedure described by Hajar (2018), which involves testing the instrument once on all research subjects. The internal consistency test was used because it is suitable for instruments with many items, such as questionnaires or knowledge tests. Performed with Cronbach's alpha method to calculate the average correlation between all items is an instrument. The researcher used SPSS version 24 to determine whether the test was reliable or not.

2. Test

This study used two types of instruments: a speed reading test and a reading comprehension test. The speed reading test was used to determine the Words Per Minute (WPM) and evaluate students' ability to use speed reading techniques. Meanwhile, the reading comprehension test was used to assess students' level of understanding of the reading content. This study utilized the ReadingSoft.com website, which provided a free online speed reading test. Reading Soft was an innovative computer program designed to improve reading skills. The website was founded in Switzerland in 1998 by Charles Cousin and Michel C. Vinckenbosch, who were two professionals in the field of educational technology. They had a vision to create a software solution that could help people improve their reading skills. The website provided interactive tests to measure a user's reading speed and comprehension level. These tests helped users understand their reading profile, such as whether they were slow, average, or fast readers. The website was easily accessible and interactive, allowing users to conduct the test independently. This could increase participation in research, especially if it involved many respondents. As such, it allowed researchers to use the site as a tool to measure students' reading speed and reading comprehension levels.

a. Speed Reading Test

The research instrument in this study used a reading speed test. This test was conducted by utilizing the readingsoft.com website. Participants

were asked to read the text available on the website. The text used was 597 words long and addressed the main topic of improving reading speed and comprehension. The text covered the importance of reading in the knowledge economy, the current state of reading speed and comprehension, as well as various methods to improve these skills, including seminars, books and computer programs. To find out the reading speed score of each student individually, reading time was calculated automatically by the website. Reading speed was measured using Soedarso's (2010) formula:

$$\frac{\text{Number of words read}}{\text{Time taken}} \times 60 \text{ seconds} = \text{Number of WPM (Word Per Minute)}$$

Figure 3.2 ***Measure Speed Reading***

After obtaining the WPM data, the researcher then categorized the students' scores into classification levels. The reading speed classification used the theory of Kurniati et al. (2017)

Table 3.2 ***Speed Reading Classification***

No.	Word Per Minute (WPM)	Classification
1.	Less than 100 WPM	Very slow
2.	100 – 149 WPM	Slow
3.	150 – 199 WPM	Medium
4.	200 – 249 WPM	Fast
5.	More than 250 WPM	Very fast

For example, A reads 450 words in 2 minutes or 120 seconds in total, therefore A's speed is: (450/120 seconds) X 60 = 225 WPM. Thus, it could be concluded that A is categorized as a fast reader.

b. Reading Comprehension Test

Students' reading comprehension ability was measured using questions/quizzes taken on the same website. The questions consisted of 11 multiple-choice questions. These questions were given after the reading speed test. The scores obtained were the data on the participants' reading comprehension level. The score for a correct answer was 1 point. To find

out the reading comprehension score of each student individually, the data is calculated using the following formula Tampubolon (1990: 7):

$$\frac{\text{Number of correct answers}}{\text{Number of questions}} \times 100\% = \text{Reading comprehension}$$

Figure 3.3 ***Measure Reading Comprehension***

After obtaining reading comprehension data, the researcher then categorized the students' scores into classification levels. The reading comprehension used the theory of Hidayah's (2012).

Table 3.3 ***Reading Comprehension Classification Level***

No.	Correct Score Range	Classification
1.	< 50	Less
2.	51 - 60	Average
3.	61 - 84	Good
4.	85 - 100	Perfect

For example, A answered 9 out of 11 questions provided then A's reading comprehension is: (9/11) x 100% = 81%. Thus, it could be concluded that A was categorized as having a good comprehension level.

E. Data Analysis

1. Normality Test

The normality test aims to determine whether the data is normal or not. The data can be said to be normal if the probability is higher than 0.05. In this study, researchers used statistical calculations using SPSS to calculate the Kolmogorov-Smirnov normality test.

2. Hypothesis Testing

The data collected from the reading speed test and the reading comprehension test then analyzed using the Pearson Product Moment (r) correlation coefficient with SPSS. The Pearson Product Moment test is one of several types of correlation tests used to determine the degree of relationship between 2 variables on an interval or ratio scale, where this test

will return a correlation coefficient value whose values range between -1, 0 and 1. A value of -1 means there is a perfect negative correlation, 0 means there is no correlation and a value of 1 means there is a perfect positive correlation. This method of analysis was used to show whether there is a significant correlation between students' speed reading and their reading comprehension. Pearson Product Moment is one of the correlation tests used to determine the degree of relationship between 2 variables.

The formula used in this study was the Pearson Product Moment correlation formula as follows:

$$rxy = \frac{N\Sigma XY - (\Sigma X)(\Sigma Y)}{\sqrt{(N\Sigma X^2 - (\Sigma X)^2)(N\Sigma Y^2 - (\Sigma Y)^2)}}$$

rxy	=	The correlation Coefficient Between Students' Speed Reading and Reading comprehension
N	=	The Number of Respondents
X	=	The Students' Score of Speed Reading
Y	=	The Students' Score of Reading Comprehension
∑X	=	The Sum of Speed Reading Score
∑Y	=	The Sum of Reading Comprehension Score
∑X2	=	The Sum of Squares of Speed Reading Score
∑Y2	=	The Sum of Squares of Reading Comprehension Score
(∑X)2	=	The Squares of The Sum of Speed Reading Scores
(∑Y)2	=	The Squares of The Sum of Reading Comprehension Scores
∑XY	=	Total Number of Speed Reading Score and Reading Comprehension Score

(Cresswell, 2012)

F. Time and Place of the Research

This research was conducted from September 2024 to July 2025 at a university in Tasikmalaya City. Data collection was carried out on Tuesday, April 22, 2025.

Table 3.4 ***Research Timeline***

Activities	Month											
	Agt 2024	Sep 2024	Oct 2024	Nov 2024	Dec 2024	Jan 2025	Feb 2025	Mar 2025	Apr 2025	May 2025	Jun 2025	Jul 2025
Research Proposal Writing												
Research Proposal Examination												
Data Collection												
Data Analysis												
Thesis Examination												