CHAPTER III
RESEARCH METHODS

3.1 Type of the Research

This research is a quantitative research that uses a correlational research design. According to Gay et al. (2012:7), quantitative research involves gathering and evaluating numerical data in order to characterize, clarify, forecast, or manage relevant phenomena. A quantitative approach, on the other hand, comprises systematic techniques for examining the relationships between variables in addition to numerical data.

Correlational research, as described by Gay et al. (2012:204), describes an existing condition, which is why it is occasionally seen as a form of descriptive study. Nevertheless, the state it depicts differs from what is generally noted in observational or survey research. In correlational research, information is gathered to ascertain if and to what extent two or more measurable variables are related. Finding the links between variables (a relationship study) or using these associations to generate predictions (a prediction study) are two possible goals of correlational research. The purpose of this study is to investigate the connection between eleventh-grade students' self-confidence and their ability to speak English.

3.2 Variables of the Research

In correlational research, data is collected to ascertain whether two or more quantitative variables are related, and if so, to what extent. A variable is an attribute or state that is subject to change, like test scores, height, or IQ (Gay et al., 2012:9).

In this research, there are two main variables: the independent variable and the dependent variable. According to Gay et al. (2012:176), the independent variable is the treatment or cause, while the dependent variable is the outcome or effect of the independent variable.

a) The independent variable in this research is English-speaking skills, which refers to the ability of students to speak English effectively, including aspects such as fluency, pronunciation, grammar, vocabulary and comprehension.
b) The dependent variable in this research is self-confidence, which refers to the students' belief in their ability to communicate in English.

3.3 Population and Sample

3.3.1 Population

A population also referred to as a target population refers to the entire set of elements from which a sample is drawn. It is the larger group to which a researcher intends to generalize the findings of the study. In other words, it is the total group of individuals or units that the researcher is interested in studying (Johnson at al. 2014:346).In this research, the population consists of all eleventh-grade students at SMA Negeri 1 Alasa in the academic year 2024/2025.

1.3.2 Sample

To select the sample, the research uses cluster sampling, a sampling technique in which clusters (groups of individuals with shared characteristics, such as classrooms or schools) are randomly selected rather than choosing individual units. Clusters could include schools, classrooms, or even specific groups of students, as opposed to selecting individuals directly (Johnson at al. 2014:359).

According to Gay (2010), cluster sampling is almost the same as random sampling, but the difference is that it selects groups (called clusters) instead of individuals. To apply this method, researchers first define the population and decide the number of samples needed. Then, they choose a logical type of cluster, such as a school or neighborhood, and make a list of all clusters in the population. After that, they estimate how many people are in each

cluster. To find out how many clusters are needed, the total sample size is divided by the average number of people per cluster. Once the number is known, researchers randomly select the required clusters using a table of random numbers. Finally, all individuals in the selected clusters are included in the research.

For this research, the cluster chosen is XI Ki Hadjar Dewantara, a class within the population of eleventh-grade students. Using cluster sampling allows the research to focus on a specific group of students within a manageable subset, making it practical and efficient for data collection.

3.4 Instrument of the Research

According to Gay et al. (2012: 113) an instrument is a tool (test) that can be used to collect data in research. In the instrument, the researcher explains what tools are used to measure the research variables, in this case English-speaking skills and self-confidence.

The data collection forms for this research are a speaking test and a questionnaire.

a) Speaking Test

It is one of the core tools that this research uses to evaluate students' English-speaking skill. The Speaking Test is designed to examine the following aspects: fluency, pronunciation, grammar, vocabulary and comprehension. Students are assessed via speaking tasks that include giving a one-minute short monologue about a specific topic or having a conversation with a peer or examiner to give a modelling of real-life communication situations. The researcher collect and done it by taking video.

The test is given by two independent raters to guarantee accuracy and reliability, and the entire report of the test is kept for further analysis if necessary. A standard rubric is used to provide systematic criteria to measure students' performance on this test in terms of coverage. The purpose of this speaking test is to provide

evidence of student's objective degree of English-speaking abilities and by comparison with their level of self-confidence.

b) Questionnaire

Questionnaire refers to a set of written survey questions to collect statements from respondents concerning different aspects of the research topic (Gay et al. 2012: 186). To measure the main variables in this research, the questionnaire will be using Likert Scale. As mentioned by Gay et al. (2012): 199, Likert Scale is a useful questionnaire for attitudes, opinions and perceptions. This involves three main types of responses, which include: Agree (A), Strongly Agree (SA), Disagree (D) and Strongly Disagree (SD). Each statement has a point value and the sum of points for all statements determines a person's score.

Table 3.4 Likert Scale

No	Responds Option	Score
1	Strongly Agree	4
2	Agree	3
3	Disagree	2
4	Strongly Disagree	1

This scale includes statements about the participant's attitude toward self-confidence. In particular, the four-point Likert scale is chosen mainly because neutral responses are nipped in the bud so that it is possible to express directly the participant's attitude towards each statement in question. Once again, the uses of a Likert scale are intended to capture subjective experiences so as to be able to study the association between self-confidence. In this research, we aim to collect valid information on student's attitudes toward their ability to speak, and also, the role of self-confidence in improving speaking skill.

3.5 Data Collecting Technique

Data collection technique in this study consisted of two major instruments:

a) Speaking test

The speaking test was a method for directly measuring students' English language skills. Students were asked to deliver a short monologue about a topic of their choice such as: explaining their favorite hobby; explaining their regular day or their daily routine; or explaining an experience during travel. Each student spoke 1–2 minutes show fluency, pronunciation, grammar, vocabulary and comprehension.

Independent raters assessed the student's performance in accordance with a rubric detailed above (see Table 2.1) and included consideration of things such as clarity of fluency, pronunciation, grammar, vocabulary and comprehension of ideas. The students were taped for further analysis, in order to ensure that it was reliable and fair. In doing so, students developed the opportunity to demonstrate their speaking ability in a structured, but natural manner. Table 2.1 is the rubric for rating speaking skills.

b) Questionnaire

The self-confidence questionnaire was filled out by students to collect the self-confidence of their speaking ability in English. The number of items in the questionnaire was varied according to the Likert scale (Strongly Agree = 4, Agree = 3, Disagree = 2, Strongly Disagree = 1), and it is important to include items that are consistent with a certain level of self-confidence (e. g. self-efficacy, self-esteem and speaking anxiety).

3.6 Data Analysis Technique

The self-confidence questionnaire was filled out by students to collect the self-confidence of their speaking ability in English. The number of items in the questionnaire was varied according to the Likert scale (Strongly Agree

= 4, Agree = 3, Disagree = 2, Strongly Disagree = 1), and it is important to include items that are consistent with a certain level of self-confidence (e. g. self-efficacy, self-esteem and speaking anxiety).The data analysis was conducted in several steps:

a) Validity and Reliability Test

According to Gay (2012:177), validity and reliability tests were conducted in this research to ensure that the instruments demonstrated appropriate and consistent measures. Ghozali in Vol et al. (2021) state four important aspectsin the validity test, namely clarity (the item is easy to understand), relevance (the item matches what is being measured), measurability (the item can produce data that can be analyzed), and suitability (the item fits the level and background of the participants).

On the basis of this test, validity of variable X was tested by Intraclass Correlational Correlation (ICC). Since ICC is a reliability test statistic of the same variable with a continuous scale which is measured in one or more separate measuring devices, it can be used in correlation research (Ismunarti et al. (2020). In this case, the same student's speaking skill was evaluated by the researcher who assessed the first rater and the student teacher who assessed the second rater. The degree of consistency between the two raters in assigning the student speaking competence scores is measured by this ICC test. The speaking test can be considered dependable when the ICC represents a high number because that indicates that the two raters consistently assess the same student.

Table 3.6 ICC statistical criteria

ICC	**Criterion**
ICC < 0,4	Poor
0,4 ≤ ICC < 0,75	Fair To Good
ICC ≥ 0,75	Excellent

Source : Adapted from Zaki inIsmunarti et al. 2020)

Between then and now, the validity test was done on the data collection questionnaire of variable Y (self-confidence) to evaluate validity. SPSS 25 software (which measures how closely the questionnaire's items relate to the research objectives and the research are relevant to measure self-confidence) was used to assess the validity

of the questionnaire. This test included revision of some of the items in the questionnaire to better measure the relevant variables once the validity test had been done.

Cronbach's Alpha was computed using SPSS 25 software to assess the reliability of variable Y The internal consistency of the items of the questionnaire is tested on this test. The questionnaire is considered to be credible and worth further research if the Cronbach's Alpha is greater than 0.70. This reliability test verifies that the questionnaire measures students' self-confidence accurately.

b) Descriptive Statistics

According to Yellapu (2019) Descriptive statistics are summarized data in an ordered way by describing the relationship between variables in a sample or population. Descriptive statistics were used to measure the central tendency (mean, median, mode), and standard deviation. To calculate the mean score, the following formula was applied:

$$\bar{X}=\frac{\sum X}{n}$$

Note:

$\bar{X}$: mean

$\sum X$: Raw score obtained by the subject

n : Number of subjects with scores

Meanwhile, to calculate the standard deviation, the following formula is used:

$$\text{SD} = \sqrt{SS} \quad \text{Where SS} = \sum X^2 - \frac{(\sum X)^2}{n}$$

Note:

SD : Standard Deviation

SS : Sum of Squares

$\sum X^2$: Sum of the squared individual scores

n : Number of subjects

c) Normality Test

It was crucial to determine whether the data for each variable was normally distributed before doing the correlation test. The Shapiro-Wilk approach, which is thought to be more suitable for small sample sizes, especially when the number of respondents is less than 50, was used in this research to conduct the normality test. Both the self-confidence questionnaire scores and the English-speaking skill scores were subjected to this test. The significance value (Sig.) was compared to the 0.05 cutoff point in order to understand the results. The data is considered normally distributed and satisfies the prerequisite for conducting parametric tests like the Pearson Product-Moment Correlation if the significance value is higher than 0.05.

d) Correlation Analysis

To analyze the relationship between students' self-confidence and their English-speaking skills, correlation analysis was conducted using the Pearson Product-Moment Correlation. This statistical method helped determine the strength and direction of the linear relationship between the two variables. By calculating the correlation coefficient, it was possible to assess whether higher self-confidence was associated with better English-speaking skills or vice versa. The formula used for the correlation calculation was as follows:

$$r = \frac{\sum XY - \frac{(\sum X)(\sum Y)}{n}}{\sqrt{\left[\sum X^2 - \frac{(\sum X)^2}{n}\right]\left[\sum Y^2 - \frac{(\sum Y)^2}{n}\right]}}$$

Note:

r : Pearson correlation coefficient

X and Y : The values of the variables being correlated

n : Number of paired scores

To be more precise, a correlation coefficient is a value between -1 and 1, where zero indicates no association at all.

a) A positive correlation exists if the value is higher than zero.

b) A negative correlation exists if the value is less than zero.

c) There is no correlation between the two variables being correlated if the number equals zero.

If the relationship between the variables were statistically significant, the significance level (p-value) that the SPSS output calculated and the interpretation of the correlation (R-value) were taken into consideration. If the correlation (p-value) 0.05 it is considered to be significant which provides further evidence for or against the hypothesis. As a result, the statistical analysis's significance level was used in support of the finding that there was or was not a correlation among the two variables, in addition to the value of r.

e) Simple Linear Regression Analysis

According to Ryantika et al. 2023), In correlation research, linear regression is an analytical method for assessing the strength of a relationship between an independent variable and a dependent variable. According to Ryantika et al. 2023), linear regression is used to study the relationship of one or more variables on another variable. In correlation analysis, linear regression not only finds the direction of the relationship but also determines the impact of a change in an independent variable on the dependent variable.

Simple linear regression follows the formula:

$$(Y = a + bX)$$

Note:

Y : dependent variable

a : the y-intercept

b : the slope

X : independent variable

f) Hypothesis Testing

According to Cresswell et al. (2018: 109), the hypothesis is a prediction of an event or relationship between two variables. Based on this prediction, researcher can determine the research direction and

focus, as well as to formulate the analysis of the data. Gay et al. (2012: 344) describe hypothesis testing as a systematic decision-making process whereby researcher evaluates the findings of a research project against their expectations and hypotheses. Such an evaluation ensures that all predictions are thoroughly reviewed so as to identify whether or not they support or contradict a hypothesis proposed. By means of a significance threshold, such as $P < 0.05$, researcher is establishing a threshold for statistical significance which may reduce the risk of drawing an incorrect conclusion. Hypothesis testing aims to determine whether there is enough evidence from a sample to reject a null hypothesis, which typically states there is no effect or relationship between variables.

According to Bank et al. (2020) in the determination of decision on hypothesis by method of t test statistics can be judged by studying the results of t count compared with t table with the test criteria as follows:

a) If tcount > ttable), H0 will be rejected and H1 will be accepted (there is a correlation).
b) Otherwise tcount < ttable, so H0 is accepted and H1 is rejected (no correlation).

g) Software Tools

The statistical analysis was carried out with SPSS 25 and Excel for the correlational coefficients, and the hypothesis testing. These tools enabled the efficient processing of data and exact computation of the relationship between student self-confidence and English speaking ability.

3.7 Setting and Schedule of the Research

3.7.1 Setting

It was conducted at SMA Negeri 1 Alasa and mainly among the eleventh grade students in the XI Ki Hadjar Dewantara class. Data

collection was carried out in English classrooms where the students took the speaking test and the self-confidence questionnaire.

3.7.2 Schedule

The research was conducted after the approval of the proposal at the seminar and official permission to conduct the research was received, the research was carried out over a period of approximately two months in order to collect information and data according to the objectives and needs of the study.