

CHAPTER III

RESEARCH METHODOLOGY

A. Research Design

This study applies a quantitative descriptive approach to collect and analyse numerical data statistically and objectively. According to Sugiyono (2019) The quantitative method is a research approach based on the philosophy of positivism, which is used to diagnose a specific population or sample with a generally random sampling technique. While Creswell et al. (2018) Stated that quantitative research deals with numbers like scores and rankings. Alternatively, how often something happens and uses statistics to answer specific research questions, or to see if one thing affects another. The data collection uses research instruments, while the analysis uses quantitative or statistical methods to test the established hypotheses.

The study used the survey method with a quantitative descriptive approach because it allows for a structured data collection process and statistical analysis that provides a comprehensive understanding of students' perceptions of Spotify as a means to developing their vocabulary through listening to English songs. Descriptive research aims to describe the phenomena that occur when the study is conducted and to analyze the causal factors of a particular symptom (Abdullah, 2015). This design was chosen because the quantitative descriptive method allows researchers to collect large amounts of data and analyze it statistically to identify patterns or tendencies in using Spotify as a medium for learning English.

B. Location and Time Research

This research was conducted at SMAN 25 Bandung, a state senior high school in Bandung City, West Java. The selection of this location was based on the researcher's accessibility considerations and the suitability of the characteristics of the students with the research objectives, namely grade X students who are English as a foreign language (EFL) learners and actively use Spotify to listen to English songs.

The research was conducted in the 2025 academic year, with the data collection process carried out online and offline. Although the research instrument in the form of a questionnaire was prepared in the form of Google Forms, the filling was carried out directly in class under the supervision of the subject teacher. This approach was chosen so that the filling process runs conductively, is controlled, and minimizes external inference that can affect the accuracy of the data. In addition, researchers can also carry out direct supervision to ensure the validity of the data collection process.

C. Population and Sample

1. Population

According to Suharsimim (2006) population refers to the entire research subject used as data in qualitative and quantitative measurements, regarding specific characteristics of all group members, by all the research objectives. This study's subject consists of students in grades X-10 and X-12 in SMAN 25 Bandung, allowing researchers to obtain diverse data while still focusing on the same grade level.

2. Sample

The sampling technique in this study uses the saturated sampling technique, where all the populations in this study are used as samples. According to Sugiyono (2019) Saturated sampling is a sample selection technique in which all members of the population are used as samples.

A sample is part of the number and characteristics possessed by the population. If the population is significant, and researchers cannot study everything in the population, for example, due to limited funds, manpower, and time, then researchers can use samples taken from that population (Sugiyono, 2019). Therefore, samples taken from the population must be truly representative. In this study, the population and saturated samples taken were all students in grades X-10 and X-12 at SMAN 25 Bandung, with a population of 60 people who would be used as saturated samples in this study, including 28 students from X-10 and 32 students from X-12.

D. Research Instrument

Research instruments are tools used to observe an event or incident. They function to measure the value of the variables studied (Sugiyono, 2019, p. 135). In this study, researchers used a questionnaire as a data collection tool. The instrument is designed to obtain accurate data based on the study's objectives.

1. Questionnaire

This study uses a questionnaire as a data collection method, aiming to obtain structured and unstructured data by asking participants to fill in questions that have been prepared (Taherdoost, 2016, p. 2). The questionnaire was designed using a Likert scale, allowing respondents to provide answers based on their level of agreement with the statements presented. The Likert scale was chosen because it can measure perceptions or attitudes more systematically and quantitatively (Sugiyono, 2019). Each statement in the questionnaire was prepared according to the research objectives and tested for validity through content validity with expert judgement. In addition, construct validity was tested using Pearson's correlation to ensure that the instrument measures the intended concept. The Likert scale in this study includes five levels of response: Strongly Agree (SA), Agree (A), Neutral (N), Disagree (D), Strongly Disagree (SD).

Table 3.1
Likert Scale

Answer	Score
Strongly Disagree (SD)	1
Disagree (D)	2
Neutral (N)	3
Agree (A)	4
Strongly Agree (SA)	5

2. Validation Instrument

a. Validity

An instrument is considered valid if it produces scores accurately describing the measured attributes (Azwar, 2019). This process is carried out to ensure that the questionnaire truly measures students' perception of Spotify accurately to determine the relationship between each questionnaire item and the total score, the Parson correlation formula is used, with the following formula:

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

Describes as follows:

r = Validity coefficient

N = Number of respondents

$\sum XY$ = The sum of the multiplication between the items scores and the total score

$\sum X$ = Number of item scores

$\sum Y$ = Total number of scores

$\sum X^2$ = Sum of squares of item scores

$\sum Y^2$ = Sum of squares of total scores

If the value of r count $>$ r table, then the item is valid.

Based on Table 3.2, the validity test results for each variable indicate that all statement items in the variable are declared valid. This because the calculated r -value for each item is bigger than 0.254 or the calculated $r > r$ table.

Table 3.2
Validity Test Results

Item	Rcount	Rtable	Conclusion
P1	0,564	0,254	Valid

P2	0,765	0.254	Valid
P3	0,725	0,254	Valid
P4	0,746	0,254	Valid
P5	0,768	0,254	Valid
P6	0,490	0,254	Valid
P7	0,441	0,254	Valid
P8	0,755	0,254	Valid
P9	0,628	0,254	Valid
P10	0,540	0,254	Valid
P11	0,712	0,254	Valid
P12	0,754	0,254	Valid
P13	0,301	0,254	Valid
P14	0,324	0,254	Valid
P15	0,269	0,254	Valid
P16	0,413	0,254	Valid
P17	0,362	0,254	Valid
P18	0,556	0,254	Valid
P19	0,570	0,254	Valid
P20	0,473	0,254	Valid

b. Reliability

A reliability test is conducted to ensure that this questionnaire produces consistent data. Reliability testing is a measurement method used to assess how much a variable remains consistent when tested repeatedly. To determine the level of consistency, researchers need to analyse the response of each item in the questionnaire and ensure that the results are consistent with the established hypothesis. In this study, reliability was tested using the Cronbach's's Alpha formula with the following formula:

$$\alpha = \frac{k}{k-1} \left(1 - \frac{\sum \sigma_i^2}{\sigma_t^2} \right)$$

Descriptions:

α = Cronbach's Alpha coefficient

k = Number of Questionnaire items

$\sum \sigma_i^2$ = Sum of variances of individual items

σ_t^2 = Total variance of all items

According to Ghozali (2018) Cronbach's Alpha value of ≥ 0.6 indicates that the instrument has good internal consistency, so it is suitable for this study.

Table 3.3
Reliability Statistics Results

Cronbach's Alpha	N of Items
.885	20

Through this validity and reliability test, it is expected that the data obtained can represent the phenomena studied accurately and reliably.

E. Research Procedure

This research procedure was carried out systematically through the following stages:

1. Preparation

The first stage in this research is the preparation stage, which begins with a literature study on using Spotify in English learning. This study aims to understand the concept, benefits, and findings of previous research relevant to the topic. After gaining a good understanding, the next stage is to design a research instrument in the form of a questionnaire designed to collect data for the research objectives. Experts carry out a validation process to ensure that this instrument is valid and can accurately measure research variables. After validation, the next stage is a pilot test of the research instrument. This trial aims to assess the clarity of the questions, identify possible errors, and evaluate the questionnaire's effectiveness before being distributed to primary respondents.

2. Data Collection

After the research instrument is ready, the research continues to the data collection stage. At this stage, the tested and refined questionnaire is distributed to the research sample, EFL students grade X in SMAN 25 Bandung, through an online and offline method to facilitate access for participants. This process includes collecting participants' responses, which will become primary data in the study. The data obtained is stored systematically for further analysis.

3. Data Analysis

Once the researcher has collected the data, the next step is data analysis. The priority in this process is to strictly test the validity and reliability of the questionnaire results, ensure that the data is credible, and measure the research variables accurately. After ensuring validity and reliability, researchers conduct descriptive statistical analysis using software such as SPSS, and Microsoft Excel. This approach reveals patterns and trends convincingly, providing a clear and comprehensive picture of the data collected.

4. Reporting

The final stage in this research is presenting the final results, where the data the researcher has analyzed is presented in the tables, graphs, and narrative descriptions. After the data is presented, conclusions will be drawn based on the analysis results to answer the previously formulated research questions. In addition, the research findings are compared with previous theories and research to provide a broader context and strengthen the arguments that can be conveyed. Thus, this research is expected to provide deeper insight into the role of Spotify in developing their vocabulary in English language learning.

F. Data Analysis Technique

The data obtained in this study will be analysed using descriptive statistical techniques. The questionnaire data were analysed quantitatively using statistics, which help to summarize and interpret numerical data. Descriptive statistics are essential in research analysis as they provide an overview of the

dataset, including key measures such as mean, median, mode, and frequency distribution (Bryman, 2016). Descriptive statistics were chosen because they simplify raw data into more meaningful information that can be easily interpreted and utilized in academic decision-making (Sugiyono, 2019). Therefore, this technique is very suitable for quantitative research that examines students' perception of using Spotify. The formula for this data analysis is as follows:

1. Percentage (%)

Percentage is used to determine the proportion of respondents who choose a category of answers. The formula is as follows:

$$P = \left(\frac{f}{N} \right) \times 100\%$$

Describes:

P = Percentage of respondents in a particular category

f = Frequency of responses in a specific category

N = Total number of respondents

2. Mean

The average is used to determine the general tendency of respondents' answer. The formula is:

$$X = \frac{\sum X}{N}$$

Description:

$\bar{X}$ = Mean (average score)

$\sum X$ = Total score from all responses

N = Total number of respondents