

CHAPTER III

METHODOLOGY

3.1 Design of the Research

This research is a quantitative study using a survey method. Quantitative research is an empirical study (based on evidence or accurate data) conducted systematically on social or natural phenomena using statistical methods or techniques. Research with a quantitative approach emphasizes its analysis of numerical data (numbers) processed by statistical methods. In quantitative research, the researcher uses a survey method to help obtain data. Surveys are used to collect data or information about a large population using a relatively small sample. Survey data collection can be obtained by distributing questionnaires.

3.2 Population and sample

3.2.1 Population

According to Creswell (2012, p. 142), a population is a group of individuals who have the same characteristics. The population in this study are 377 students of the eighth grade of SMP Negeri 17 Kota Jambi.

Table 3.1 Population of the research

No	Classes	Total
1	Class VIII A	36 students
2	Class VIII B	37 students
3	Class VIII C	38 students
4	Class VIII D	38 students
5	Class VIII E	37 students
6	Class VIII F	38 students
7	Class VIII G	37 students
8	Class VIII H	38 students
9	Class VIII I	36 students
Amount		337 students

**Source data from SMP Negeri 17 Kota Jambi*

3.2.2 Sample

In a quantitative approach, a target population (or sampling frame) is a group of individuals with some common defining characteristics that the researcher can identify and study (Cresswell, 2012, p. 142). In this research, the sampling method uses the Proportional Random Sampling technique. This technique is used to determine the number of samples if the population is stratified but less proportional. In determining the sample size in this study using the Lemeshow formula (1997) in Riyanto (2010) as follows:

$$n = \frac{Z^2 1 - \alpha /^2 \times P(1-P) \times N}{d^2(N-1) + Z^2 1 - \alpha \times P(1-P)}$$

n = Minimum sample size required

N = the number of population in the study

$Z^2 1 - \alpha /^2$ = Degree of confidence (1.96)

P = Proportion of cases in a certain period (0.5)

d = Limit of error or absolute precision (10%)

$$n = \frac{(1.96)^2 \times 0.5 (1-0.5) \times 337}{(0.1)^2 (337 - 1) + (1.96)^2 \times 0.5 (1-0.5)}$$

$$n = \frac{3.92 \times 0.5 \times 0.5 \times 337}{(0.01) (336) + 3.92 \times 0.5 (0.5)}$$

$$n = \frac{330.26}{2.36 + 0.98}$$

$$n = \frac{330.26}{4.34}$$

$$n = 76$$

Table 3.2 Sample of the Research

No	Classes	Total	Number of Samples
1	Class VIII A	36 students	$36 \times 76 : 337 = 8.11$
2	Class VIII B	37 students	$37 \times 76 : 337 = 8.34$
3	Class VIII C	38 students	$38 \times 76 : 337 = 8.6$
4	Class VIII D	38 students	$38 \times 76 : 337 = 8.6$
5	Class VIII E	37 students	$37 \times 76 : 337 = 8.34$
6	Class VIII F	38 students	$38 \times 76 : 337 = 8.6$
7	Class VIII G	37 students	$37 \times 76 : 337 = 8.34$
8	Class VIII H	38 students	$38 \times 76 : 337 = 8.6$
9	Class VIII I	36 students	$36 \times 76 : 337 = 8.11$
Amount		337 students	76 students

**source data from SMP Negeri 17 Kota Jambi*

3.3 Research Variables

According to Arikunto, 1989, variables are everything that varies and becomes the object of research. The independent variable in this study is the use of students' worksheets. The dependent variable is the effectiveness of English learning for the eighth-grade students at SMP Negeri 17 Kota Jambi.

3.4 Technique of Data Collection

1. Questionnaire

Primary data in this study were obtained through a survey given to the sample in this study. The researcher used a modified questionnaire to survey students' perception in English learning using student worksheet during the pandemic. The questionnaire is in the form of a Google Form and link of the form then distributed via WhatsApp group for eighth-grade students of SMP Negeri 17 Kota Jambi.

2. Document analysis

Riduwan (2013 p. 77) states that "Documentation aims to obtain data directly from the research site, including relevant books, regulations, activity reports, photographs, documentary films, and data relevant to research". In this study,

the researcher used mid-semester test score and the final score English subject for grade VIII students at SMP Negeri 17 Kota Jambi.

3.5 Instrument of the Research

The instrument in this study is a questionnaire filled in by respondents regarding the effectiveness of learning using worksheets during the pandemic period. The researcher modifies the questionnaire to survey students' perception in English learning using student worksheet during the pandemic. The questionnaire was adapted from research by Jannati, (2015), "*Pengaruh Penggunaan Lembar Kerja Siswa (LKS) Berbasis Keterampilan Sains Terhadap Hasil Belajar Siswa Pada Konsep Archaeobacteria dan Eubacteria*". Moreover, the researcher modified the questionnaire based on this research.

Table 3.3 Questionnaire Grid

No.	Indicator	Amount
1.	Learning English before using worksheets	5
2.	Implementation of student worksheets	5
3.	Student worksheet components	5
4.	The skills contained in the worksheet	5
Amount		20

**Source Jannati, 2015 p. 39 (modify)*

Riduwan (2012, p. 71) states that "A questionnaire is a list of questions that are given to other people who are willing to respond (respondents) according to user requests. The researcher used a set of close-ended questionnaire, and it is in the form of a Likert scale. The Likert scale used in formulating this questionnaire, which indicated whether they agree with the statements or otherwise.

The questionnaire used in this study is a checklist with scores for each alternative answer using a Likert scale. Respondents are asking to put a checkmark (√) in the available column according to the actual situation. Information regarding alternative answers is as follows:

- a. Strongly Agree
- b. Agree
- c. Neutral
- d. Disagree
- e. Strongly Disagree

In interpreting the data, the researcher used the scores on each item of the statement. The score for each statement item in the questionnaire can be seen in the table.

Table 3.4 Score for each item on a Likert scale

Response	Statement Score
Strongly Agree	5
Agree	4
Neutral	3
Disagree	2
Strongly Disagree	1

3.6 Validity and Reliability of the Questionnaire

3.6.1 Questionnaire Validity Test

According to Arifin (2012), stated validity is a degree of accuracy or feasibility of the instrument used to measure what is to be measured". A measuring instrument can have a high validity value if the measuring instrument can measure what we want to measure. The validity of the questionnaire must be tested.

In calculating the validity of the experimental results, the researcher used the Statistical Product and Service Solution Program (SPSS) version 16.0. According to Priyanto (2012: 118-9), the steps in calculating the forex test through the SPSS program are, "choose Analyze-Correlate-Bivariate. In the Bivariate Correlations dialogue, all variables are entered into the Variables box. In the Correlation Coefficient, select Pearson and, on the significance test, select Two-tailed".

The questions were tested on ten students of eighth-grade SMP Negeri 17 Kota Jambi. The researcher made the validity test in the form of a Google Form and

the link was distributed to the group that the researcher has been made before, which consists of 10 students. Here are the results of the analysis of the validity of the questionnaire items can be seen in the following table:

Table 3.5 Validity of Trial Questionnaires

No. Item Questions	r_{count}	$r_{\text{table (5\%)}}$	Criteria
1.	0.680	0.632	Valid
2.	0.373	0.632	Invalid
3.	0.621	0.632	Invalid
4.	0.167	0.632	Invalid
5.	0.725	0.632	Valid
6.	0.449	0.632	Invalid
7.	0.445	0.632	Invalid
8.	0.282	0.632	Invalid
9	0.840	0.632	Valid
10.	0.733	0.632	Valid
11.	0.683	0.632	Valid
12.	0.754	0.632	Valid
13.	0.837	0.632	Valid
14.	0.806	0.632	Valid
15.	0.357	0.632	Invalid
16.	0.845	0.632	Valid
17.	0.796	0.632	Valid
18.	0.847	0.632	Valid
19.	0.916	0.632	Valid
20.	0.802	0.632	Valid

Source: data processing

From the results of the research questionnaire, the use of students' worksheet to improve the effectiveness of English learning with 20 statements obtained 13 valid statements with 7 invalid statements. Invalid statements, namely numbers 2, 3, 4, 6, 7, 8, 15, then the statement items are not used. Valid statement items are numbers 1, 5, 9, 10, 11, 12, 13, 14, 16, 17, 18, 19, 20. So the statements in the following numbers were used in the research questionnaire.

3.6.2 Questionnaire Reliability Test

Sugiyono (2014: 168) explains, "A reliable instrument is an instrument that can be used several times to measure the same object; it will produce the same data". If the instrument is used repeatedly to measure objects, it will still produce the same data. The reliability test in this study used the *Cronbach Alpha* formula with the help of the SPSS version 16.0 program. The steps for the reliability test are to select *Analyze-Scale-Reliability Analysis*. In the *Reliability Analyze* dialogue box, valuable items are entered the *items* box. Then on statistics, in the *Descriptives for* section, select *scale if item deleted*. Then *continue*, on the *model* select *Alpha* then *OK*. The results of the calculation of the reliability test can be seen in the output *Reliability Statistics*. Here are the results of the analysis of the reliability of the questionnaire items can be seen in the following table:

Table 3.6 Reliability of Trial Questionnaires

No.	Variables	Cronbach Alpha	Criteria
1.	The use of student's worksheets	0.863	Reliable
2.	The effectiveness of English learning	0.916	Reliable

***Source Appendices 2**

According to Arikunto, 2006 p. 171, the questionnaire can be reliable if the *Cronbach Alpha* value is more significant than 0.60. In the statement item variable x, after the statement is tested on a valid statement number, the result is 0.863. The statement is said to be reliable because it is more significant than 0.60. Furthermore, the researcher conducted a reliability test on other statement items on the variable y, with the result of 0.916, which means that the statement on the questionnaire is reliable. The table can be seen in appendices 2.

3.7 Technique of Data Analysis

Data analysis in this study is quantitative descriptive statistical analysis techniques. There are several steps used by researcher in analyzing the results of the

questionnaire. First, after the results of the questionnaire have been collected, the researcher sorts the only used data left behind. Then, the researcher presents the results of the questionnaire in a pie chart so that the frequency and percentage in each respondent's answer can be seen. Furthermore, from obtaining respondents' answers, researcher will also measure students' perception of the use of worksheets during online learning during the pandemic period used Azwar's theory (2010), the measurement criteria consist of, (1) perception is said to be good if the total score on the respondent's answer is of the total the mean, and (2) the perception is said to be bad if the total score on the respondent's answer is \leq the total mean. Besides, the researcher also investigated the questionnaire results to see the effectiveness of using student worksheets while studying at home during the pandemic. The researcher used the table 3.7 to see the effectiveness of using this student worksheet based on each interval. Researcher used Microsoft Excel 2010 software in tabulating the data.

Table 3.7 Criteria for Effectiveness of Learning Outcomes

No.	Interval	Criteria
1.	76-100%	Very Effective
2.	56-75%	Effective
3.	50-55	Less Effective
4.	0-40%	Very Less Effective

**Source Sudjana, 2009*

Furthermore, in analyzing the data on student learning outcomes in English learning at home during the pandemic, the researcher used data from students' mid-semester test scores and student final scores. Each value is grouped with the criteria in the following table.

Table 3.8 Criteria for Achievement of Learning Outcomes

Nilai	Criteria
80-100	Excellent
70-79	Good
60-69	Enough
50-59	Bad
0-49	Very Bad

**Source Arikunto, 2010*

From the results of the analysis of learning outcomes, it can also be used to investigate the effectiveness of using student worksheets in English learning while study at home during a pandemic for class VIII students of SMP Negeri 17 Kota Jambi.