

## CHAPTER III

### METHODOLOGY OF THE RESEARCH

#### A. Research Design

Considering data the type of research used in this research is survey research using quantitative research methods. Using this type of survey research because in data collection the author collects information from the respondents using a questionnaire as the main method. As stated by Masri Singarimbun that survey research is research that takes a sample from one population and uses a questionnaire as the main data collection tool.<sup>1</sup> Meanwhile, quantitative research methods are used because quantitative research aims to determine the relationship between two or more variables that are causal, theory testing and data analysis using statistics to test hypotheses.<sup>2</sup>

Based on the above opinion, the type of survey research using quantitative research methods in terms of its usefulness is in accordance with the research that the author did, namely to find out the benefits of using the kahoot application as an evaluation tool in learning English.

#### B. Location and Duration of the Research

The location of this research was conducted at SMK Negeri 3 Pinrang. It located in Jl. Poros Pinrang-Parepare, RT.02/RW. 02, Padaidi, Mattiro Bulu, Kabupaten Pinrang, Sulawesi Selatan. The duration of this research is 45 days because need several time to collect data and analyze the data.

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<sup>1</sup>Masri Singarimbun dan Sofian Effendi (ed), *Metode Penelitian Survey*, (Jakarta: LP3ES, 1989), cet.1, p. 3.

<sup>2</sup>Sugiono, *Metode Penelitian Pendidikan Pendekatan Kuantitatif, Kualitatif, dan R & D*, (Bandung: Alfabeta, 2008), p. 23-24.

## C. Population and Sample

### 1. Population

L.R Gay states that population is the group of interest to the research, the group to which she or he would like the result of the study to be generalized.<sup>3</sup>Population in this research is tenth grade of SMK Negeri 3 Pinrang academic year 2019/ 2020. The class are X Computer and Network Engineering 1 and X Computer and Network Engineering 2. The distribution of population as follow.

Table. 3.1 The tenth grade of Computer and Network Engineering Majors

No	Class	Student
1.	TKJ 1	30
2.	TKJ 2	33
	Total	63

### 2. Sample

The sample technique was used purposive random sampling. The researcher choose one class. The class is X Computer and Network Engineering Majors 2. The researcher choose X TKJ 2 because in this class have 33 student. According to the needs of the sample from the researcher and then students from this class have good responses from several classes.

## D. Procedure of Collecting Data

The procedures of collecting data as follows.

### 1. Test

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<sup>3</sup> L.R.Gay, *Educational research: Competencies for Analysis & Application* (United State of America: Charles E. Merril Publishing Co, 1981), p. 86.

The test is a method (that can be used) or a procedure (that needs to be taken) in the context of measurement and assessment in the field of education, in the form of assigning assignments or a series of questions that must be done by the respondent.<sup>4</sup> The test used in the use of the kahoot application is that each quiz category uses 30 questions, consisting of 20 quizzes and 10 true false. The test that was given to students is in the form of selected test questions on the English language material in the odd semester of class X, Computer and Network Engineering Major of SMK Negeri 3 PINRANG.

## 2. Questionnaire

A questionnaire is a list of questions that must be filled in by the person to be measured (the respondent).<sup>5</sup> List of questions or statements given in the form of statements or closed questions. Aim to find out students' responses to the evaluation tools that will be provided.

## E. Instrument

In this research the researcher applies test to instrument of this research. The research instrument is a measuring tool such as tests, questionnaires, interview guides and observation guides used to collect data in a study. The instruments used in this study were tests and questionnaires.

### 1. Test Instrument

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<sup>4</sup>Anas Sudijono, "Pengantar Evaluasi Pendidikan", (Jakarta: Rajawali, 2011), p. 67.

<sup>5</sup>Suharsimi Arikunto, "Dasar-Dasar Evaluasi Pendidikan, (Jakarta: Bumi Aksara, 2016), p. 42.

This study was used an instrument taken from the syllabus of SMK Negeri 3 Pinrang in computer and network engineering major's class X odd semester in English subjects.

Table. 3.2 The Syllabus of Odd Semester in English Subject

Kompetensi Dasar	Indikator Pelajaran	Materi Pembelajaran	Bentuk Soal	No Soal
3.1 Menganalisis fungsi sosial, struktur teks, dan unsur kebahasaan teks interaksi transaksional lisan dan tulis yang melibatkan tindakan memberi dan meminta informasi terkait jati diri dan hubungan keluarga, sesuai dengan konteks penggunaannya	3.1.1 Mengidentifikasi struktur teks dan unsur kebahasaan pada teks pemaparan jati diri sesuai dengan konteks penggunaannya 3.1.2 Menyebutkan fungsi social ungkapan-ungkapan untuk memaparkan jatidiri 3.1.3 Membedakan ungkapan-ungkapan yang digunakan dalam pemaparan jatidiri sesuai dengan konteks penggunaannya.	1. Mengenalkan, menjalin hubungan interpersonal dengan teman dan guru ( Introduction) 2. Simple present	Quis Survey Quis Survey	5,7,8, 10 18,21 1,2,4 3,6,9,
3.3 Menganalisis fungsi sosial, struktur teks, dan unsur kebahasaan teks interaksi transaksional lisan dan tulis yang melibatkan tindakan memberi dan meminta informasi terkait niat melakukan suatu tindakan/kegiatan , sesuai dengan konteks penggunaannya. (Perhatikan unsur	3.1.1. Mengidentifikasi struktur teks dan unsur kebahasaan pada teks pemaparan niat melakukan sesuatu sesuai dengan konteks penggunaannya 3.1.2. Menyebutkan fungsi social ungkapan-ungkapan untuk memaparkan niat melakukan sesuatu 3.1.3. Membedakan ungkapan-ungkapan yang digunakan dalam pemaparan niat melakukan	Intension Simple future Wishing and Hope	Quis Quis Survey Quis	22,23, 25,28 ,29 15 16,17, 19, 20

kebahasaan be going to, would like to))		sesuatu sesuai		Survey	24
3.5 Menganalisis fungsi sosial, struktur teks, dan unsur kebahasaan beberapa teks khusus dalam bentuk pemberitahuan (announcement), dengan memberi dan meminta informasi terkait kegiatan sekolah/tempat kerja, sesuai dengan konteks penggunaannya	3.5.1 3.5.2	Mengidentifikasi struktur teks dan unsur kebahasaan beberapa teks khusus dalam bentuk pemberitahuan (announcement), dengan memberi dan meminta informasi terkait kegiatan sekolah, sesuai dengan konteks penggunaannya Menyebutkan struktur teks dan unsur kebahasaan beberapa teks khusus dalam bentuk pemberitahuan (announcement),	Announcement	Quis	26
3.6 Menganalisis fungsi sosial, struktur teks, dan 4unsur kebahasaan teks interaksi transaksional lisan dan tulis yang melibatkan tindakan memberi dan meminta informasi terkait keadaan/tindakan/ kegiatan/kejadian yang dilakukan/terjadi di waktu lampau	3.6.1	Mengidentifikasi struktur teks dan unsur kebahasaan teks interaksi transaksional lisan dan tulis yang melibatkan tindakan memberi dan meminta informasi terkait keadaan/tindakan/ kegiatan/kejadian yang dilakukan/terjadi di waktu lampau yang merujuk waktu terjadinya dan kesudahannya, sesuai dengan konteks	Simple past tense	Quis Survey	11,13, 14 12,27, 30

yang merujuk waktu terjadinya dan kesudahannya, sesuai dengan konteks penggunaannya. (Perhatikan unsur kebahasaan simple past tense vs present perfect tense)	3.6.2 penggunaannya Menyebutkan struktur teks dan unsur kebahasaan teks interaksi transaksional lisan dan tulis yang melibatkan tindakan memberi dan meminta informasi terkait keadaan/tindakan/ kegiatan/kejadian yang dilakukan/terjadi di waktu lampau yang merujuk waktu terjadinya dan kesudahannya.			
Total Soal				30 Soal

## 2. Questionnaire

Questionnaire is often known as a questionnaire. Basically, a questionnaire is a list of questions that must be filled in by the person to be measured (the respondent). The questionnaire instrument used was a validation sheet in the form of a questionnaire using a Likert scale. The Likert scale is used to develop instruments used to develop instruments used to measure attitudes, perceptions, and opinions of a person. In this instrument, the form of questionnaire related with using kahoot application.

Table. 3.3 Instrument Questionnaire

No	Variabel	Aspek yang dinilai	Indikator	Nomor Pertanyaan
1.	Kahoot Application	Kelayakan tampilan alat evaluasi dan	a. kemenarikan	1,2,3,4,5,6,7,8, da 17
			b.kualitas isi	9,11,12

		kelayakan tampilan alat evaluasi	c.kebahasaan d.kemudahan	13, 14, dan 15 10,16, 18, 19, dan 20
Total Pernyataan			20 Butir Penyataan	

#### F. Technique of Data Analysis

The data was collected through test that have been analyzed by using quantitative analysis. The data analysis techniques used in this research are:

##### 1. Analysis of Students' Responses

Analyzing students' responses to the test system, the researcher measured it by giving a questionnaire to the students' responses to each student using a Likert scale as follows:

Table 3.4 Student Response Scores

Score	Criteria
5	Strongly agree
4	Agree
3	Don't agree
2	Disagree
1	Strongly disagree

$$P = \frac{F}{N} \times 100\%$$

Where:

P: Percentage

F: Frequency

N: Total Number of Sample

From the results of the data analysis above, it can be concluded that the students' responses to the evaluation tools using the kahoot application are as follows:

Table 3.5 The criteria scale according to Arikunto<sup>6</sup>

Score	Criteria
$80\% < x \leq 100\%$	Very interesting
$60\% < x \leq 80\%$	Interesting
$40\% < x \leq 60\%$	Less attractive
$20\% < x \leq 40\%$	Not attractive
$0\% < x \leq 20\%$	Very unattractive

## 2. Test The Instrument

The validity level of the test item test instrument will be seen. In testing the instrument is divided into several, namely:

### a. Validate Question Items

An instrument is said to be valid if the instrument can measure something to be measured. The dichotomous item score (0.1) uses the biserial point coefficient ( $r_{pbis}$ ), namely:

$$r_{pbis} = \frac{Mp - Mt}{St} \sqrt{\frac{p}{q}}$$

Where:

$r_{pbis}$  : biserial correlation coefficient

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<sup>6</sup>Suharsimi Arikunto, , " *Manajemen Penelitian*"( Jakarta: Rineka Cipta, 2010), p. 44

$M_p$  : the mean total score of subjects who answered correctly for the item whose validity was sought

$M_t$  : average question score

$S_t$  : Standard deviation of the total score

$P$  : The proportion of students who answered correctly

$$p = \frac{\text{banyaknya siswa yang menjawab benar}}{\text{jumlah seluruh siswa}}$$

$q$  : The proportion of students who answered incorrectly ( $1-p$ )

The value of  $r_{pbis}$  will be compared with the correlation coefficient table  $r_{table} = r(a, n-2)$ . If  $r_{pbis} > r_{table}$ , then the instrument is valid.

#### b. Reliability

Reliability test is done by way of using the formula  $KR_{21}$  as follows:<sup>7</sup>

$$r_{11} = \left( \frac{n}{n-1} \right) \left( 1 - \frac{Mt(n-Mt)}{(n)(\sigma_t^2)} \right)$$

Where:

$r_{11}$  : Instrument reliability

$n$  : Number of items

$M_t$  : Average score of all question items

$\sigma_t$  : variance of total test scores

The results of the calculations from the reliability test of the next test items have the meaning according to the following criteria table:

Table. 3.6 Reliability index

Intervals coefficient	Classification
0,00 – 0,59	Low

<sup>7</sup> Riduwan, *Metode dan Teknik Menyusun Tesis*, (Bandung : Alfabeta, 2010), p. 120

0,60 – 0,79	Moderate
0,80 – 0,89	High
0,90 – 1,00	Very High

Based on the criteria in the table above, the evaluation tool has a high reliability category if the interval coefficient is above 0.80.

#### c. The Difficulty Items

The way to do the analysis to determine the difficulty items of the question is by using the following formula:

$$TK = \frac{B}{Js}$$

Where:

TK : difficulty index for each item

B : the number of students who answered each item correct

Js : the number of students

The criterion used is that the smaller the index obtained, the more difficult the question is. Conversely, the greater the index obtained, the easier the problem will be.

Table 3.7 Difficulty Items Index

Difficulty Index	Criteria
0,00 – 0,30	Hard
0,31 - 0,70	Moderate
0,71 – 1,00	Easy

#### d. The Difference Items

Analyzing distinguishing power means examining test questions in terms of the test's ability in distinguishing students who fall into the weak / low category and the strong / high achievement category. The formula used to calculate the distinguishing power of the items is:

$$DB = PT - PR$$

Where:

**BD** : Difference

**PT** : High group proportion

**PR** : Low group proportion

The steps taken to analyze the distinguishing power of the items are as follows:

1. Sort students' answers from the highest to the lowest.
2. Divide the top group and the bottom group.
3. Calculate the proportion of the upper and lower groups with the formula and  

$$PT = \frac{PA}{JA} \quad PR = \frac{PB}{JB}$$
4. Calculating the difference power with a predetermined formula.

Table 3.8 Item Difference Index

Difference items	Criteria
$0.70 < x \leq 1.00$	Very well
$0.40 < x \leq 0.70$	Well
$0.20 < x \leq 0.40$	Enough
$0.00 < x \leq 0.20$	Bad
$x < x \leq 0.00$	Very Bad

### e. Distractor Analysis

In multiple choice questions, there are alternative answers (options) which are distractors. Good question items, the trickster will be chosen evenly by students who answer the wrong one. On the other hand, the items that are not good enough will be selected unevenly. Distractors are considered good if the number of students who choose the cheaters is the same or close to the ideal number. The cheat index is calculated using the formula:

$$IP = \frac{P}{(N - B)/(n - 1)} \times 100\%$$

Where:

IP = cheat index

P = the number of students who chose a cheat

N = the number of students who took the test

B = the number of students who answered correctly on each question

n = number of alternative answers (options)

I = Fixed number

Table 3.9 Criteria Dictator Index

<b>Dictator Index</b>	<b>Dictator Quality</b>	<b>Criteria</b>
$75\% < IP \leq 125\%$	++	Very Good
$50\% < IP \leq 75\% \text{ or } 125\% < IP \leq 150\%$	+	Good
$25\% < IP \leq 50\% \text{ or } 150\% < IP \leq 175\%$	-	Enough
$0\% < IP \leq 25\% \text{ or } 175\% < IP \leq 200\%$	--	Bad
$IP > 200\%$	---	Very Bad

	**	Key Answer
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