

CHAPTER III

RESEARCH METHODOLOGY

A. Research Design

Research is a process of steps used to collect and analyze information to increase our understanding of a topic or issue. In a study, several methods are needed to find out problem solving in research. Using methods in research helps researcher to analyze, collect information and to obtain data from the sample under study. At a general level, the research consists of three steps: Pose a question, collect data to answer the question, Present an answer to the question (Creswell, 2012).

The design of this research is a descriptive study using a quantitative approach. Creswell (2014) explains that descriptive research is basically used if researcher wanted to identify various research problems, namely based on trends that actually occur in the field or the need to explain why something is in place of research. In this research, researcher conducted research on Student perceptions of The use of Telegram Bot in speaking learning in English to the B Afternoon Class second semester at IKIP PGRI Pontianak English Education Study Program.

B. Population and Sample

As for the importance of research quality, there were numbers of consideration to select the population and sample technique in this research. The researcher presents relate explanation belows:

1. Population

Population is a group or individual that has one or more characteristics that can be collected and analyzed. According to Murphy (2016) population is a group of individuals, objects, or items from which samples are taken from measurements. The population in this study were all second semester students at IKIP-PGRI Pontianak English Language Education Study Program. The total is 130 students divided into four classes. The classes are A, B, Morning and A, B, Afternoon.

Table 3.1
Population of Second Semester Students IKIP-PGRI Pontianak
English Education Study Program

No.	Class	Number of Students
1	A (Morning)	34 students
2	B (Morning)	32 students
3	A (Afternoon)	32 students
4	B (Afternoon)	32 students

2. Sample

Sample is section of Total and characteristics possessed by that population. Downs (2016) states that the sample is the group that was be the source of the information obtained. Sampling procedure used in this research is a non-probability technique purposive sampling. According to Sugiyono (2019) technique Purposive sampling is a technique for determining samples with consideration certain. The consideration used is that the sample was taken from students who were learning speaking English using the Telegram Bot application. Sugiyono (2019) also stated that a reasonable sample size in research is between 30 and 500. Therefore, in this research the researcher took one class of 32 students as the research sample. Before the researcher chose a class, the researcher contacted the class leader of each class and then looked at the situation and conditions to see whether the class met the criteria and had experienced real events or phenomena and became the sample in this research. In this research, one sample was taken. The sampled taken in this research were the students of B Afternoon Class Second Semester English Language Education Study Program at IKIP-PGRI Pontianak.

C. Technique of Data Collection

According to Sugiyono (2017:194) data collection techniques can conducted by interviews, observation, documentation and a combination of the three techniques. The technique used in this research is an indirect communication technique. Indirect communication techniques in the form

of online questionnaires as a tool for collecting data with closed-ended questionnaire to find out the students perceptions of the use of Telegram Bot in learning speaking in English. Online questionnaire facilitate students to fill out instruments by accessing through Google form.

D. Tool of Data Collection

In this research, researcher was used online questionnaire as a tool that used to collect data.

Questionnaire, according to Sugiyono (2019) questionnaire is a data collection technique that is carried out by providing a set of questions or written statements to respondents to answer. Questionnaire can usually be given by indirect questions or online questionnaire. In this research, the researcher used online questionnaire as a tool for collecting data with closed-ended questionnaire to obtain information about students perception of the use of Telegram Bot in learning speaking in English. The following questions were adopted from Ngonidzashe (2013), Chueinta (2017), Altam (2020), Sharma (2019), and Purnama Hudawis (2021) the questionnaire was be written by researcher using Indonesian language to avoid student misunderstandings when answering the questionnaire.

The researcher prepared a set of questionnaire based about the operational definition of Telegram. Items adapted from journals mentioned above but only a few modified for this research. That questionnaire aims to determine the general interests, experience, and motivation of students and attitudes in using Telegram Bot as a medium for learning English for purposes communication in class. Questionnaire held in the final semester Participants were asked more specific questions relating to the use of Telegram in English learning inside and outside class. In this research, the questionnaire was be invalid if it is not checked for validity first. Therefore, in this research, before distributing this questionnaire to respondents, the researcher first tested the validity of the questionnaire. With the aim of

knowing whether it is valid or not, the researcher was give this questionnaire to lecturers.

The list of questions used by the researcher was made by theory related to the title of this study and arranged with simple sentences to be understood by respondents. The questionnaire was checked by Mr. Muhammad Iqbal Ripo Putra, M.Pd, and validated by Dr. Aunurrahman, M.Pd. As lecturers of English Education Study Program at IKIP PGRI Pontianak.

Table 3.2
The Blueprint of Closed-ended Questionnaire

Aspect	Indicators	Item Number	Total Item
Internal	Experience	1-8	8
	Interest	9-12	4
	Motivation	13-15	3

Source from Hudawis (2021)

E. Validity and Reliability

Before the questionnaire was used to collect the data, it had tried out to measure the validity and reliability of the questionnaire.

1. Validity

Validity is a measure that indicates the level of validity or accuracy of an instrument. To ensure that the questionnaire is valid, it was necessary for the researcher to measure the validity of the questionnaire before it was distributed. As stated by Ary *et al.*, (2010) attention should be given to the validity of interviews and questionnaires, that is, whether they are really measuring what they are supposed to measure. In the other word, validity indicates to the accuracy of an instrument. In this research, the researcher used content validity.

According to Brown (2000: 8 in Royan Arif Al Ikhsan (2022: 33)) states that to demonstrate content validity, testers investigated the degree to which a test is a representative sample of the content of whatever

objectives or specifications the test was originally designed to measure. It means that content validity is that the content of the instrument should be included all of aspects that are going to be measure. In this step, the researcher asked the lecturer (validator) from IKIP PGRI Pontianak in English Education Study Program to test the content validity of the questionnaire. The result of the content validity was valid and the questionnaire can be used.

Below is the formula used to find the validity of an instrument using Ms. Excel. The Pearson Correlation Formula (Product Moment) is to correlate the item score with the total score, the total score is the sum of 1 variable. The validity test uses the product moment correlation formula, where the significance level of r table is 0.05 with a two-tailed test with the conclusion that if $r_{\text{count}} \geq r_{\text{table}}$ then it is valid and if $r_{\text{count}} \leq r_{\text{table}}$ then it is invalid. Below is a summary of validity results and the Pearson correlation formula (product moment):

Table 3.3
The Summary of Validity Results

Summary of Validity Results			
Items	rXy	rTable	Interpretation
1	0.451	0.349	Valid
2	0.679	0.349	Valid
3	0.723	0.349	Valid
4	0.575	0.349	Valid
5	0.518	0.349	Valid
6	0.789	0.349	Valid
7	0.709	0.349	Valid
8	0.776	0.349	Valid
9	0.739	0.349	Valid
10	0.395	0.349	Valid
11	0.611	0.349	Valid
12	0.797	0.349	Valid
13	0.724	0.349	Valid
14	0.729	0.349	Valid
15	0.589	0.349	Valid

Pearson correlation formula (product moment):

$$r_{xy} = \frac{n(\sum X_i Y_i) - (\sum X_i)(\sum Y_i)}{\sqrt{(n(\sum X_i^2) - (\sum X_i)^2)(n(\sum Y_i^2) - (\sum Y_i)^2)}}$$

Description:

- n = Number of data pairs X and Y
- $\sum x_i$ = Total number of variables X
- $\sum y_i$ = Total number of variables Y
- $\sum x_i^2$ = Square of the total number of variables X
- $\sum y_i^2$ = Square of the total number of variables Y
- $\sum x_i y_i$ = Multiplication Results of the Total Number of Variables X and Variable Y

2. Reliability

Reliability is a measuring instrument of the degree of consistency with which it measures whatever it is measuring Ary *at al.*, (2010). In other word, reliability is concerned with how consistently you are measuring whatever you are measuring. In this research, the researcher used Ms. Excel to find out the reliability of the questionnaire. The category of reliability can be seen in table 3.4.

Table 3.4
The Category of Reliability

Reliability	Category
$r_{11} > 0.90$	Perfect Reliability
0.70 – 0.90	High Reliability
0.50 – 0.70	Moderate Reliability
$r_{11} < 0.50$	Low Reliability

Hilton and Brownlow, (2004 in Maria Susi Suriyanti, (2017:30))

The reliability of the instrument was tested with Cronbach Alpha on Ms. Excel. In this research, the researcher took the students experience questionnaire as the items for reliability and the researcher got the result was 0,903 by using Cronbach Alpha on Ms. Excel.

Hereafter, the result of the reliability was interpreted as the category of reliability in the table 3.3 based on the table, it can be concluded that the questionnaire was perfect reliability because 0,903 is higher than 0,90. Here the formula of Cronbach Alpha was used to found the reliability in Ms. Excel as below:

$$r_{11} = \frac{k}{k-1} \left(1 - \frac{\sum \sigma_b^2}{\sigma_t^2} \right)$$

Description:

r_{11} = Instrument Reliability

K = Item of Questions

$\sum \sigma_b^2$ = Total of Item Variance

σ_t^2 = Total of Variance

F. The Technique of Data Analysis

In this research, the researcher used quantitative data. To analyze the data obtained and answer research questions researcher implemented descriptive statistics analysis. That way, the researcher presents information about how the procedure is used for each group of data. From the response of that Google Form, the researcher download the result of responses in a new spreadsheet. The raw data from Google form was be edited by transforming text data into number data and display into table. Then, the researcher recount validity and reliability to make sure it is valid and reliable to be analyzed as primary data. To manage data analysis for quantitative data, researcher use descriptive statistics analysis. Based on the adjustment of the data collection tool, the researcher was processed the data by applying calculating technique of likert scale. The researcher was complete the analysis with four steps as follows:

1. Score Determination

In this research, the researcher analyzed the data quantitative with descriptive statistics analysis. The researcher was apply likert scaling

technique approach. The Likert scale (a summary rating scale) evaluates attitudes about a topic by asking respondents to indicate whether they strongly agree, agree, disagree, or strongly disagree with each of a sequence of statements regarding the issue Ary *et al.*, 2010: 210. Researcher was grade sample responses on a scale from positive to negative. Researcher use scale of strongly agree, agree, disagree, and strongly disagree. The Likert scale specific score of this research were describing as follows:

Table 3.5 Score of Likert Scale Positive Response

Scale	Score
Strongly Agree (Sangat Setuju)	4
Agree (Setuju)	3
Disagree (Tidak Setuju)	2
Strongly Disagree (Sangat Tidak Setuju)	1

Taken from Ary et al., (2010)

2. Determination Ideal Score

Rating scale and complete answers are calculated with optimal scores. For each scale, the researcher counted thirty two responses (n=32) to produce the highest and lowest total scores. The analysis requires the following formula to calculate the optimal score for each item:

$$\text{Ideal Score} = \text{Likert Score} \times \text{Number of Respondents}$$

Taken from Sugiyono, (2018: 137)

Table 3.6 The Formula of Ideal Score

Ideal Score	Scale
4 x 30 = 120	Strongly Agree
3 x 30 = 90	Agree
2 x 30 = 60	Disagree
1 x 30 = 30	Strongly Disagree

Taken from Sugiyono, (2018 : 137)

The maximum (Y) and minimum (X) scores are displayed in the above table. That the maximum score is 120 and the lowest score is 30, respectively. The researcher was made use of both ratings for the

analysis of the following phase. Based on the total of the ideal scores on each scale, the researcher was calculate the questionnaire's results. In order to get the appropriate score for each item, researcher was utilize a method adapted from Sugiyono (2018: 138).

3. Rating Scale

To locate the result section of the data questionnaire, the rating scale is required. Based on the respondents response, the rating scale divides the data into four Likert scales. The rating scale for this research is typically described as follow:

Strongly Disagree	Agree	Disagree	Strongly Disagree
0	30	60	90
			120

Adopted from Sugiyono, (2018: 13)

Table 3.7 Rating Scale

Rating	Scale
91-120	Strongly Agree
61-90	Agree
31-60	Disagree
0-30	Strongly Disagree

4. Frequency and Percentage Measurements

To calculate the score scale of each specification strategy, the researcher was analyze the data into proportions. To calculate the scores of the four main categories, the researcher averaged all item scores in each category, the average score is then transform into a percentage. The following formula is taken from Sugiyono (2018: 137):

$$p = \frac{\text{Total Score}}{Y} \times 100\%$$

Where:

P = Percentage

Y = Maximum of likert score

G. Research Procedures

To achieve good research objectives, researchers have carried out the following steps:

First, research is prepared for a questionnaire that was be given to students via a Google form link to collect data. Next, the researcher was inform the class leader of class B students in the afternoon second semester of the English language education study program at IKIP PGRI Pontianak and the researcher was explain clearly via WhatsApp the aim of the researcher in answering the questionnaire and the sample criteria. Next, researchers was distribute questionnaires to students using Google forms.

Questionnaire link is available <https://forms.gle/AxueBL1KjNUpEp6f9> this process takes approximately 2 weeks to complete. If all the data has been taken from class B afternoon students, the researcher was analyze the data using Ms. Excel. The final step in conducting this research was to write down the results of students perceptions of the use of Telegram Bots in learning to speak English.