

CHAPTER III

RESEARCH METHODOLOGY

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 Sangarimbun that survey research is research that takes a sample from one population and uses a questionnaire as the main data collection tool.¹ 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.²

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 reinforcement in adult learners to increase speaking ability of Lintasan Imajinasi Bahasa Mahasiswa.

B. Location and Duration of The Research

This research will be conducted in the new members of LIBAM State Islamic Institute of Parepare. This organization is located in Amal Bakti street number 8, Bukit Harapan Soreang regency of Parepare. It will take 1 month for doing this research. Start from pre-observation till analyzing the data that has been collected in

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

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

observation.



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.³Population in this research is the new members of LIBAM state Islamic Institute of Parepare. The membership of new members in LIBAM around 93 members.

2. Sample

The sample technique will used purposive random sampling. Purposive Random Sampling is a method of sampling based on certain previously known considerations. The reason of the researcher choose purposive random sampling because it's suitable of criteria that determined researcher is new members that joins in quarantine and training of trainer who still learners in LIBAM. The distribution of sample as follow:

Table. 3.1 The new members of LIBAM state Islamic Institute of Parepare

No	Genders	Total
1.	Male	16
2.	Female	41
	Total	57

D. Procedure of Collecting Data

To collect the data in qualitative research, there are some ways that can be used. The techniques of collecting data that will be used on this research are:

1. Questionnaire

A questionnaire is a list of questions that must be filled in by the person to be

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

measured (the respondent).⁴ List of questions or statements given in the form of statements or closed questions. Aim to find out the type of reinforcement used in improving the ability of the speaking and dominant where reinforcement that occurred in LIBAM.

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 is questionnaires.

1. 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 or group of people.

Table 3.2 Kisi-Kisi Instrument Speaking

VARIABLE	DIMENSI	INDIKATOR	BUTIR PERTANYAAN
Speaking	Interactional	Skill to start conversation	1, 2, 3, 7
		Practice for speaking	4, 5, 6
Total Pernyataan			

⁴Suharsimi Arikunto, “*Dasar-Dasar Evaluasi Pendidikan*, (Jakarta: Bumi Aksara, 2016), p.42.

Table 3.3 Kisi-Kisi Instrument Reinforcement

VARIABLE	DIMENSI	INDIKATOR	BUTIR PERTANYAAN
Reinforcement	Verbal Reinforcement	Memberikan ucapan yang bermakna	1, 3, 16, 17
	Gestural Reinforcement	Memberikan ekspresi yang menyenangkan	2, 10
	Proximity Reinforcement	Melakukan pendekatan kepada siswa	4, 6, 8, 9, 15
	Contact Reinforcement	Melakukan pendekatan dengan sentuhan	5, 7
	Activity Reinforcement	Memberikan media dalam belajar dan games	11, 12, 13, 14
	Reinforcement Token	Memberikan sebuah hadiah	18, 19, 20
Total Pernyataan			20

F. Technique of data Analysis

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

1. Analysis of Questionnaire

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	Sometimes
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 members' responses to increase their speaking by using reinforcement are as follows:

Table 3.5 The criteria scale according to Arikunto⁵

Score	Criteria
80% - 100%	Very Strong
60% - 80%	Strong
40% - 60%	Undedicated
20% - 40%	Low
0% - 20%	Strongly Low

2. Data Analysis

Data analysis in this study was used the Rasch Model data analysis technique. The main feature of the Rasch model is the expected response probability table designed to solve the following problems. The Rasch model incorporates a method of ordering people (for example, from a sample of school children). According to its capabilities and order items (for example, diagnostic tests through numerical calculations) According to their difficulties. The Rasch principle is to get the

⁵Suharsimi Arikunto, " *Manajemen Penelitian*" (Jakarta: Rineka Cipta, 2010), p. 44

measured value of the interval level. When the level of some attributes increases as the values of the other two attributes increase.⁶

Rasch model analysis is an evaluation model used to evaluate the value of items in an instrument developed according to certain standards. The model can convert raw data into interval data with the same value (from one unit to another). The model can use the same linear scale to measure the interaction between the project and the respondent by showing the analysis of student abilities and the difficulty of the project, and to describe it at the same time.⁷

The Rasch model of the data used is a probability score (P), which compares the correct answer with the number of questions. Then convert the odds score into the system's odds ratio, which is represented by the equation:

$$\text{Odds Ratio} = P / (N - P)$$

P = number of questions answered correctly (total score)

N = total number of questions⁸

Then, enter the logit value (logarithmic odd unit) by entering the logarithmic function. Mathematically, logit is represented by the following equation:

$$\text{Logit} = \text{Log} (P / (N - P))$$

This value is called the logarithm or W score or metric value. The logit value has been scaled and can be used for various analyses. For dichotomy data, the Rasch

⁶Trevor G. Bond, Christine M. Fox, *Applying the Rasch Model*, Third edition published 2015 By Routledge, p.26-27.

⁷Wahyu Hidayat; Sri Mulianah; Mujahidah., "Analysis of The National Character Senior High School Students by Using Rasch Model," in Proceedings of the First International Conference on Religion and Education, 2019, pp. 1–9.

⁸Bambang Sumintono & Wahyu Widhiarso, *Aplikasi Pemodelan Rasch : pada Assesment Pendidikan*, (Cimahi: Trim Komunikata, 2015), P.38.

model combines an algorithm that states the expected result of the probability of the i and n items, which are systematically stated as follows:

$$P_{ni} = (X_{ni} = 1 | \beta_n, \delta_i) = \frac{e^{\beta_n - \delta_i}}{1 + e^{\beta_n - \delta_i}}$$

$P_{ni} = (X_{ni} = 1 | \beta_n, \delta_i)$ is the probability of respondent n in item i to produce the correct answer ($X_{ni} = 1$) with the respondent's ability β_n and the difficulty level of item δ_i . This equation can be simplified by entering a logarithmic function and making it:

$$\text{Log}(P_{ni}(X_{ni} = 1 | \beta_n, \delta_i)) = \beta_n - \delta_i$$

ability of success can be written as the ability of the
difficulty level of the item.

Rasch is very effective to use because it converts raw score data into data at the same interval to produce a measurement scale that is linear, precise, and has units. The unit used is the Logic unit. Rasch modeling can be used to analyze the quality of the questions, determine the level of student ability and the level of difficulty of the questions.

The basic principle that underlies the Rasch model is the probability of the respondent to answer any item correctly based on the difficulty of the item and the respondent's ability.⁹ The following is an analysis with the Rasch model:

a. Item map and Respondent map

For the map, we used to express the path analogy, which contains a lot of basic information. This information is the core of Rasch measurement, but it can be easily collected by focusing on the basic difficulty/ability concepts mentioned in the

⁹Andrich D., Marais I. *Person Proficiency Estimates In The Dichotomous Rasch Model When Random Guessing Is Removed From Difficulty Estimates Of Multiple Choice Items*, Applied Psychological Measurement, 2014 P. 432.

project and interpersonal relationships. Most Rasch software output includes a form of item-person diagram, in which the relationship between human abilities and item difficulty can be easily viewed. Projects (as circles) and people (as squares) are on the same map. The logarithmic scale is an interval-level measurement scale in which all logarithmic units have the same size. The maximum is at the top of the map, and the minimum is at the bottom.

These people's abilities and project difficulty estimates have been log-transformed (and many iterations of the estimation process) and displayed in the computer output along a logarithmic (log dominance unit) scale. The logarithmic scale is an interval scale in which the unit intervals between the locations on the map of the project personnel have the same value or meaning.¹⁰

b. Item Measures and Person Measures

Researchers have used Rasch analysis to assess the response. Initially, it is very important that certain techniques used to understand and use personnel size tables can also be used to understand and use item size tables.¹¹

We can conclude that we reviewed two important questions that were raised for collecting data and explained what they showed. Coding the self-efficacy data to find out which survey items with a total raw score higher than other items are more negative than the compared items (items smaller in size).

¹⁰Trefor G. Bond & Christine M. Fox. *Applying the Rasch Model*. Third edition. (New York: Routledge, 2015). P.57.

¹¹William J. Bhone & Melissa S. Yale. *Rasch Analysis in the Human Sciences*. (Oxford, USA : Springer, 2014). P. 93.