

CHAPTER III

METHODOLOGY

A. Research Design

This is a comparative as well as a quantitative research. This research compares two or more variables. In this research, the writer studies two appealing results of using different learning approach at Language Development Center . “The quantitative research is a process to find the data in form of number and a tool to find information related to the objective of the research” (Margono, 2010). According to Subagyo that:

“Penelitian dengan pendekatan kuantitatif menekankan analisisnya pada data-data numerical (angka) yang diolah dengan metode statistika. Pada dasarnya pendekatan kuantitatif dilakukan pada penelitian inferensial (dalam rangka pengujian hipotesis) dan menyandarkan kesimpulan hasilnya pada suatu probabilitas kesalahn penolakan hipotesis nihil. Dengan metode kuantitatif akan diperoleh signifikansi perbedaan kelompok atau signifikansi hubungan antar variable yang diteliti.” (Sobagyo, 2004. p. 5)

Based on the statement above, quantitative research focuses on numerical data which is analyzed using statistic method. Quantitative approach basically is used for testing hypothesis and concludes the result to know the answer by using this approach, the difference or the relation between the variables will be gotten. In doing so, the writer intends to use quantitative research, and use comparative method to complete this study.

B. Research Setting

This research has conducted for 2 months, at Language Development Center. It is located on Ahmad Yani Street Km 4.5 East Banjarmasin. The writer takes this place as the location for this research because Language Development Center at State Islamic University of Antasari, focuses on the language. It can be seen from the language teaching such as Arabic and English. There is 92 English class divided into group A with 20 classes , B with 19 classes , B+ with 52 classes, So, the writer very interested in doing research in that place. These groups distributed based on the students' result of placement test. Group A is the high level, Group B is moderate level, and Group B+ is remedial class. While the writer only focus in group B Language Development Center because the students in group B are at moderate level in terms of ingestion and mastery of the material. This is the reason for the consideration that research can be generalized to students who are characteristic in general, i.e. students with moderate ability.

C. Population and Sample of the Research

In quantitative research, the writer needs to establish the population and sample. To get better understanding about the population and sample of this research, both will be discussed here.

1. Population of The Research

The population of this research is group B in Language Development Center. The total amount of group B in Language Development Center is 416 students which

consists of 19 classes as can be seen in the following table.

Table 3.1 Description of the Population Group B in Language Development Center
2016/2017

No	Group B	Amount
1	Class 3	22
2	Class 4	22
3	Class 5	21
4	Class 6	22
5	Class 7	23
6	Class 8	22
7	Class 9	22
8	Class 10	21
9	Class 11	21
10	Class 12	22
11	Class 13	22
12	Class 14	22
13	Class 15	21
14	Class 16	22
15	Class 17	23
16	Class 18	22
17	Class 19	22
18	Class 20	21

19	Class 21	23
	Total Amount	416

2. Sample of Research

According to Sudijono (2014, p. 28) sample is the technique to collect the data to examine a small portion of the whole element which is the object of research. In this study, the writer uses purposive sampling to get the participants as the sample of this study. This technique is done by determining the specific criteria or considerations specific characteristics of the sample or subjects of the research (Rahmadi, 2001, p. 59). There are two ways in selecting sample. First, if the population is less 100, all population can be sampled. Second, if the population is more than 100, the writer can take 10%-15% or 20-25% from all population as a sample (Arikunto, 2006, p.51). Based on the explanation above, the writer determined from 416 students, only 88 students from group B class (12, 15, 19, and 21) were taken to be the sample. The writer does not choose another class, because the writer found learning inductively and deductively at the class 12, 15, 19, and 20. It was divided into two groups, a group who learned inductively and a group who learned deductively. The description of the sample of this study can be seen clearly in the table below.

Table 3.2 Description of the Sample Group B in Language Development Center
2016/2017

No	Group B	Amount
1	Class 12 (inductive class)	22
2	Class 15 (deductive class)	21
3	Class 19 inductive class)	22
4	Class 21 (deductive class)	23
	Total	88

D. Research Instruments

The instruments used in this study were observation, written test, and documentation. All of them will be explained as follows:

1. Observation

Observation technique was used to find out wheatear the classes use learning approach with inductive and deductive. Observation used in this research was direct observation. Direct observation was conducted by the writer with a means of directly jumped into the field.

2. Written Test

The written test was used to collect the data for the student's grammar ability. The writer examined the students by giving 25 items in choosing answer test. The right answers were marked 4 and wrong answer were marked 0. If the students answer all items correctly, they will get score 100 that is the highest score. The

questions of the tests were taken from lesson materials of group B in Language Development Center 2016/2017.

In addition, Sugiyono (2012, p. 122) says that a good instrument (test or non-test) must be valid and reliable. Therefore, the test of validity and reliability had to be done in order to test the test items whether they were valid and reliable or not before collecting the data.

a. Validity Test

Validity test was conducted to get the valid questions given for the test. Sugiyono (2012, 121) says that a valid instrument means a measuring instrument which is used to get valid data. To measure the validity of the test items were measured with the formula below:

$$r_{xy} = \frac{N\sum XY - (\sum X)(\sum Y)}{\sqrt{\{N\sum X^2 - (\sum X)^2\} \{N\sum Y^2 - (\sum Y)^2\}}}$$

Explanations:

r_{xy} : the correlation of product moment

N : number of respondents

X : number of test items

Y : the total of the students' score (Arikunto, 2012, p. 85)

If the Sig shows < 0.05, it means the item is valid. From 40 questions given in tryout, there were 25 questions which were valid, while there were 15 questions

which were invalid. The writer only used the 25 valid questions for this test. Table below shows the question numbers which were valid and invalid.

Table 3.3 the Result of Validity Test

No	Item	Question Number
1	Valid	1, 2, 6, 7, 8, 10, 12,13, 15, 18, 19, 20, 22, 24, 25, 26, 29, 32, 33, 34, 35, 36, 38, 39, 40.
2	Invalid	3, 4, 5, 9, 11, 14, 16, 17, 21, 23, 27, 28, 30, 31, 37.

b. Reliability

Sugiyono (2012, p. 121) explains that a reliable instrument is an instrument used to measure the equality of the same data after measuring in many times. It was measured with the formula of Croncbach's alpha below:

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

Explanations:

r_{11} : the reliability of the items

$\sum \sigma_i^2$: Number of various score in each item

σ_t^2 : Total of various score

If $r_{11} \geq r_{tabel}$, it can be stated that the test item is reliable. Whereas if

$r_{11} < r_{tabel}$, it can be stated that the test item is not reliable.

3. Documentation

This technique was used to look for data on matters in the form of a note, transcript, books, newspapers, magazines, inscriptions, minutes of meetings, agenda, etc. (Arikunto, 2002: p.206). This method aims to find out the results of the research obtained from the students in Language Development Center at Antasari State Islamic University in learning approach deductively and inductively learning approach on grammar.

E. Data Processing Procedure

To process the data, the write has done some steps as follows:

1. Editing

This technique is used to examine all the collected data to make certain whether the data have already completed or not.

2. Coding

The writer makes certain codes on all collected data to classify them into each certain category.

3. Tabulating

The writer tabulates all the collected data based on frequency to compute each certain answer by using the formula as follows:

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

Explanations:

P : Percentage

F : The frequency of answer from respondents for each item

N : Number of respondents

4. Data Interpretation

After counting up all the aspects, it is known that highest score is 100 points and the lowest score is 0. The total maximum expected score (MES) of all questions is 100 points.

In classifying the score, the writer used the measurement of students' achievement suggested by Haris (1969) as cited in Nufus (2016, p.35), as follows:

Table 3.4 Interpretation of the Students' Achievement

Students' Achievement	
Test Score	Class Performance
80-100	Excellent
70-79	Good
60-69	Fair
50-59	Low
0-49	Very Low

F. Data Analysis Procedure

To analyze the data of this study, the writer used the “t” or “t” test formula.

Furthermore, Sudjana (2006, p. 56) explain,

Independen sampel t-test merupakan analisis statistik yang merupakan analisis statistik yang dapat digunakan untuk menguji hipotesis komparatif, khususnya perbedaan rata-rata dua kelompok sampel yang tidak saling berhubungan. Tujuan independen sampel t-test adalah mengetahui signifikan atau setidaknya perbedaan rata-rata antara dua kelompok sampel.

There are 7 steps to process the data until the answer will be gotten, including:

1. After doing the test and each sample has been scored, the writer counts the mean of each graduate by using the following formula:

- a) Mean of learning Inductive group B of Language Development Center

$$M = \frac{\sum x}{N}$$

Explanations:

M : mean from variable x

Ex : accumulative score of variety

N : Number of respondents

- b) Mean of learning deductive group B of Language Development Center

$$M = \frac{\sum y}{N}$$

Explanations:

- M : mean from variable y
- Ex : accumulative score of variety
- N : Number of respondents

2. The writer counts standard deviation of each major by using formula:

- a) Standard deviation of learning Inductive group B of Language Development Center

$$SD_1 = \sqrt{\frac{\sum x^2}{(N-1)}}$$

Explanations:

SD₁ : standard deviation of learning Inductive group B of Language Development Center

$\sum x^2$: Accumulative of the quadrant of deviation learning deductive group B of Language Development Center

- b) Standard deviation of learning deductive group B of Language Development Center

$$SD_2 = \sqrt{\frac{\sum y^2}{(N-1)}}$$

Explanations:

SD₁ : standard deviation of learning deductive group B of Language Development Center

$\sum y^2$: Accumulative of the quadrant of deviation of of learning deductive group B of Language Development Center

3. The writer counts standard error of mean from each major by using formula:

- a) Standard error of mean from of learning inductive group B of Language

Development Center

$$SE m_1 = \frac{SD}{\sqrt{N-1}}$$

Explanations:

$SE m_1$: Standard error of mean from male student

1 : value of constant

- b) Standard error of mean from of learning deductive group B of Language

Development Center

$$SE m_2 = \frac{SD}{\sqrt{N-1}}$$

Explanations:

$SE m_2$: Standard error of mean from learning deductive group B of Language Development Center

1 : value of constant

4. The writer counts standard error from both samples by using formula:

$$SE_{M_1 - M_2} = \sqrt{SE_{M_1}^2 + SE_{M_2}^2}$$

Explanations:

$SE_{M_1 - M_2}$: standard error for comparative mean of learning inductive and learning deductive group B of Language Development Center

$SE_{M_1}^2$: Quadrant result of standard error of mean of learning inductive group B of Language Development Center

$SE M_2^2$: Quadrant result of standard error of mean learning deductive group B of Language Development Center

5. Giving interpretation for “t” with consulting **t table**

a. Looking for Degree of Freedom

$$df/db : (N_1 + N_2) - 2$$

Explanations:

df/db : Degree of Freedom

N_1 : Number of Subject of learning inductive group B of Language Development Center

N_2 : Number of Subject learning deductive group B of Language Development Center

2 : Value of degree of freedom for variables

b. Consulting score of “df/db” with “t table”

t table : Value of critic “t”

❖ In significant degrees t table 5%

❖ In significant degrees t table 1%

6. The writer makes a conclusion.

a. If **t count** > **t table** = H_0 (Zero Hypothesis) will be rejected and H_a (Alternative Hypothesis) will be accepted.

b. If **t count** < **t table** = H_0 (Zero Hypothesis) will be accepted and H_a (Alternative Hypothesis) will be rejected.

Explanations:

M : Average number of mean

Σx : Total of score

N : Total of sample

SD : Standard of deviation

SEm : Standard error of mean

$SEm1 - m2$: Standard error of both samples

t : Student' "t" test score