CHAPTER III

RESEARCH METHOD

A. The Design of the Research

The research design referred to the conceptual structure within which research had been conducted. This was important because it facilitated the research to be as efficient as possible yielding maximal information. This research was an experimental research. Creswell stated that there are three kinds of experimental design; true, quasi and factorial experimental research. According to Creswell (2008: 294) an experimental research design is the traditional approach to conducting quantitative research. Creswell (2008: 295) also stated that experiment is testing an idea to determine whether it influences an outcome or dependent variable. This research used quasi-experimental design because the technique sampling that was used was cluster random sampling not Random Assignment which purposed not disturbing the learning process that was running at school Thus, this research used experimental and control groups. Therefore, there were two variables of this research namely independent variable or variable X as the use of Bottom-up technique and dependent variable or variable Y as the students' listening comprehension.

In conducting the research, two classes of the tenth grade students at Vocational High School Ibnu Taimiyah participated in the research. The first class was experimental group that was treated by using Bottom-up technique and the second class was control group that was not treated by using Bottom-up technique.

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There were two kinds of test that were given in this research. Pre-test was given before the treatment and post-test which given after the treatment. So, the design of this research could be described as follows:

Table III.1
The Research Design

Group	Pre-test	Treatment	Post-test
Experimental	O1	X	O_2
Control	O3	-	O4

Note:

X = Treatment

O1 = Pre-test

O2 = Post-test

B. The Location and Time of the Research

The research was conducted at Vocational High School Ibnu Taimiyah on July until August 2016.

C. The Subject and Object of the Research

1. The Subject of the Research

The subject of the research was the tenth grade at Vocational High School Ibnu Taimiyah.

2. The Object of the Research

The object of the research was the effect of using Bottom-up technique on students' listening comprehension.

D. The Population and the Sample of the Research

The population of this research was the tenth grade students at Vocational High School Ibnu Taimiyah. There were five classes which consisted of AK, ADP, TKJ class, Multimedia class and Perhotelan class. The number of the tenth grade students at Vocational High School Ibnu Taimiyah was 151 students.

Table III.2
The Total Population of the Tenth Grade Students at Vocational High School Ibnu Taimiyah

No	Class	Male	Female	Total
1	AK	12	17	29
2	SK	4	25	29
3	PH	19	10	29
4	MM	9	11	20
5	TKJ	25	7	32
Total		69	70	139

Based on the total population above, the writer took sample by using cluster random sampling. Gay (2000: 394) said that cluster sampling randomly selects groups, not individuals. Therefore, the writer had selected two groups of students to be the samples of this research. They were the students of X AK as the experimental group and X SK as the control group.

Here the writer used the cards. The total card was based on how many classes of tenth grade students at Vocational High School Ibnu Taimiyah Pekanbaru were. It means, there were five cards used and each card was written the name of classes. The writer mixed and chose randomly one card as sample.

Table III.3
The Sample of the Research

No	Class	Male	Female	Total
1	AK	12	17	29
2	SK	4	25	29
	Total	16	42	58

E. Technique of Collecting Data

In this research, the writer used observation and test to collect the data. The observation was done in purposing of getting the data about the implementation Bottom up Technique on students' listening comprehension. Then, the observational list can be seen in the table below:

Table III.4
The Observational List of Using Bottom up Technique in Listening Comprehension

No.	Indicators of Using Bottom up Technique	Alternative Answers	
		Yes	No
1.	The students are asked to listen for specific details.		
2.	The students are asked to recognize cognates.		
3.	The students are asked to recognize word-order patterns.		
	Total		
	Percentage		

Therefore, the English teacher observed the writer for four meetings in experimental class. It could be described in the tables presenting frequency distribution of each observation. Furthermore, the writer used the following formula to get the percentage of the observation (Sudijono, 2007: 43) :

$$P = \frac{F}{N} \text{ X } 100\%$$

Where : P   : Percentage

F   : Frequency of the score

N   : Number of Case

Then, the test was used to find out the students' listening comprehension. The test that was given was multiple choice questions. The writer used multiple choice questions because the learning goal of listening listening comprehension at Vocational High School Ibnu Taimiyah Pekanbaru was identifying the meaning of dialogue from tape recorder. Besides that, it also helped the writer to assessed the students' score easily. The data of this research were the score of the students' listening comprehension obtained by using test. As stated by Brown (2007: 3) test means that a method of measuring of a person's ability, knowledge or performance in given domain. In this research, test was divided into two ways that is pre-test at the beginning of the research or before the treatment. Whereas, post-test was given at the end of the research or after the treatment conducted.

Before doing pre-test and post-test in experimental and control class, the questions were given to the class chosen as try-out class in order to check whether the test was valid and reliable or not in the questions that were used as instrument.

The blueprint that was used in test could be seen as follows:

Table III.5
Blueprint of Listening Comprehension Test

No	Indicators	Item Number Before Pre-test	Item Number After Post-test
1	The students' ability to interpret words and expressions used in expressing preference.	1, 2, 3, 4, 5	1, 2, 3, 4, 5
2	The students' ability to interpret the expressions of condityonal type 1	6, 7, 8, 9, 10	6, 7, 8, 9, 10
3	The students' ability to interpret words and expressions used to talk about capabilities	11, 12, 13, 14, 15	11, 12, 13, 14, 15
4	The students' ability to interpret words and expressions used in asking and giving direction	16, 17, 18, 19, 20	16, 17, 18, 19, 20

F. Validity and Reliability

The quality of instrument is very crucial. It should be valid and reliable. Thus, the writer used a number of procedures to measure the instrument use.

1. Validity

Cohen (2005: 105) defined that Validity is an important key to effective research. If a piece of research is invalid then it is worthless. Validity is thus a requirement for both quantitative and qualitative/naturalistic research. Whilst earlier versions of validity were based on the view that it was essentially a demonstration that a particular instrument in fact measures what it purposes to measure. It means that to measure students' ability needs the validity.

Every test, whether it is a short, informal class room test, or a public examination should be as valid as the test constructor can make it, the instrument of the test must aims at providing a true measure of the

participation skill in which it is intended to measure. The instrument of the test is valid if the instrument used can measure the thing will be measured.

According to Hughes (1989: 22), "a test said to be valid if it measures accurately what it is intended to measure". The purpose of try out was to obtain validity and reliability of the test. It was determined by finding the difficulty level of each item. Historically, validity was defined as the extent to which an instrument measured what it claimed to measure. The test given to students was considered not too difficult or too easy, often showing the low reliability. Item difficulty was determined as the proportion of correct responses. This is held pertinent to the index difficulty, it was generally expressed as the percentage of the students who answered the questions correctly. According to Arikunto (2006: 208) the formula of each item difficulty is as follows

$$p = \frac{B}{JS}$$

Note:

P: index of difficulty of facility

B: the number of correct answers

JS: the number of examiners of students

The standard level of difficulty used is > 0.30 and < 0.70. It means that the item will be accepted if the level of difficulty is between 0.30-0.70 and it is not accepted if the level of difficulty is below 0.30 (difficulty) and over 0.70 (easy). Then, the proportion correct is represented by "p ", whereas the proportion incorrect is represented by "q ".

The result of the validity in the questions that were used in try-out were analyzed by using SPSS version 16 and the data can be seen as follows:

Table III.6
Students' Ability to Interpret the Expression of Preferences.

Variable	The ability to interpret the expression of preferences					N
No item	1	2	3	4	5	
Correct	13	20	17	19	16	29
P	0,45	0.69	0.59	0.66	0.55	
Q	0,55	0.31	0.41	0.34	0.45	

Based on the table III.4 above, the proportion of correct answer for item number 1 shows the proportion of correct 0.45, item number 2 shows the proportion of correct 0.69, item number 3 shows the proportion of correct 0.59, item number 4 shows the proportion of correct 0.66, item number 5 shows the proportion of correct 0.55. Based on the standard level of difficulty $P > 0.30$ and < 0.70, it is pointed out that item difficulties in average of each items number for the using of preference's expressions are valid.

Table III.7
Students' Ability to Interpret the Expression of Conditional Type 1.

Variable	The ability to interpret the expression of conditional type 1					N
No item	6	7	8	9	10	
Correct	17	16	15	16	17	29
P	0.59	0.55	0.52	0.55	0.59	
Q	0.41	0.45	0.48	0.45	0.41	

Based on the table III.5 above, the proportion of correct answer for item number 6 shows the proportion of correct 0.59, item number 7 shows the

proportion of correct 0.55, item number 8 shows the proportion of correct 0.52, item number 9 shows the proportion of correct 0.55, item number 10 shows the proportion of correct 0.59. Based on the standard level of difficulty $P > 0.30$ and < 0.70, it is pointed out that item difficulties in average of each items number for the using of conditional type 1 are valid.

Table III.8
Students' ability to Interpret the expression of capabilities.

Variable	The ability to interpret the expression of capabilities					N
No item	11	12	13	14	15	
Correct	15	13	13	14	15	29
P	0,52	0.45	0.45	0.48	0.52	
Q	0,48	0.55	0.55	0.52	0.48	

Based on the table III.6 above, the proportion of correct answer for item number 11 shows the proportion of correct 0.52, item number 12 shows the proportion of correct 0.45, item number 13 shows the proportion of correct 0.45, item number 14 shows the proportion of correct 0.48, item number 15 shows the proportion of correct 0.52. Based on the standard level of difficulty $P > 0.30$ and < 0.70, it is pointed out that item difficulties in average of each items number for the using of capabilities' expression are valid.

Table III.9
**Students' Ability to Interpret the Expression of Asking and Giving
Direction.**

Variable	The Ability to Interpret the Expression of Asking and Giving Direction					N
No item	16	17	18	19	20	
Correct	16	15	15	14	16	29
P	0.55	0.52	0.52	0.48	0.55	
Q	0.45	0.48	0.48	0.52	0.45	

Based on the table III.7 above, the proportion of correct answer for item number 16 shows the proportion of correct 0.55, item number 17 shows the proportion of correct 0.52, item number 18 shows the proportion of correct 0.52, item number 19 shows the proportion of correct 0.48, item number 20 shows the proportion of correct 0.55. Based on the standard level of difficulty $P > 0.30$ and < 0.70, it is pointed out that item difficulties in average of each items number for the using of asking and giving direction's expressions are valid.

Based on the result of the data that were were analyzed by using SPSS version 17, it can be concluded that the all items are valid.

2. Reliability

Reliability is the next step that is done in determining whether the questions are reliable or not after validity test.

Brown (2000: 20) defined that a test can be reliable if you give the same test to the same students or match students on two different occasions, the test should yield similar results. Then, Gay and Air Asian (2000: 169) also

defined that reliability is the degree to which a test consistently measures whatever it is measuring. Thus, it is reflected in the obtaining how far the test is able to measure the same subject on different occasions indicating the similar result.

Heaton (1988: 78) stated that the reliability of the test was considered as follows:

1. 0.0-0.20   = reliability is low
2. 0.21-0.40   = reliability is sufficient
3. 0.41-0.70   = reliability is high
4. 0.71-1.0   = reliability is very high

To obtain the reliability of the test given, the writer used SPSS 17 to find out whether the test is reliable or not and the formula that is used is that Cronbach's Alpha. The result of the data can be seen as follows.

Tabel III.10
Case Processing Summary

		N	%
Cases	Valid	29	100.0
	Excluded[a]	0	0.0
	Total	29	100.0

a. Listwise deletion based on all variables in the procedure.

Table III.11
Reliability Statistics

Cronbach's Alpha	N of Items
0.656	2

From the table III.10 above, it can be seen that the value of Cronbach' Alpha is 0.656. From Heaton level above, it can be said that reliability was accepted which was $0.41<0.656<0.70$ or higher than 0.41 and lower than 0.70. It also can be stated that reliability is high and the all items are realible to be used in test.

G. Technique of Data Analysis

1. Normality and Homogenity

Before analyzing the data by using t-test formula, the writer had to find out the normality test of the data. The normality test of the data was analyzed by using Kolmogorov-Smirnove technique with SPSS 16 version.

Analysis:

H_o: population with normal distribution

H_a : population with not normal distribution

If the probability > 0.05 H_o was accepted

If the probability < 0.05 H_o was rejected

Then, the writer also had to find out the homogeneity of the test. To analyze the homogeneity was by comparing sig. in Based on trimmed mean with 0.05.

Analysis:

Sig. > 0.05 the data is homogenous

Sig. < 0.05 the data is not homogenous

2. Analysis Data of Independent Sample T- test

In analyzing the data, the writer used the score both pre-test and post-test of the students from experimental and control classes. In order to find out whether there is a significant effect of using Bottom up technique on students' listening comprehension or not in dialogue text, the data were analyzed by using Independent sample t-test. In taking the conclusion, the writer concluded by comparing t-observed with significant value.

Analysis:

H_o: sig. (2 tailed) < significant value

H_a: sig. (2 tailed) > significant value

- H_o is accepted if sig. (2 tailed) < significant value or there is no significant effect of using bottom up technique on students' listening comprehension at the tenth grade students of Vocational High School Ibnu Taimiyah Pekanbaru.

- H_a is accepted if sig. (2 tailed) > significant value or there is a significant effect of using bottom up technique on students' listening comprehension at the tenth grade students of Vocational High School Ibnu Taimiyah Pekanbaru.

To identify the level effect of using bottom up technique on students' listening comprehension of the tenth grade of Vocational High School Ibnu Taimiyah Pekanbaru, it was calculated by using eta squared formula and the guidelines from Cohen as follows:

Eta Square (η^2)

$$\eta^2 = \frac{t^2}{t^2 + (n_1 + n_2 - 2)}$$

Where: t : value of t test

N1 : number of students of first group

N2 : number of students of second group

Then, according to Cohen (1988 in pallant, 2005:209). The

guidlines for interpreting the value of eta sequare are as follow:

Table III. 12
Effect Size Guidelines

0.01= Small Effect
0.06= Moderate Effect
0.14 = Large Effect