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CHAPTER III

RESEARCH METHODOLOGY

III.1. Research Design

This research embraced Quasi-Experimental research that aimed to test an idea, (or practice or procedure) to determine whether the independent variable influenced the outcome or the dependent variable (Cresswell:2008). An experiment is the quantitative approach that provides the greatest degree of control over the research procedures (Gay:2000). In this research, quasi-experimental design was used with nonequivalent control group design which was appropriate to this research in order to find out the significant effect of storytelling on the Students' listening and speaking skills at State Islamic Senior High School (MAN 1) Pekanbaru.

Two classes were used in this research; one class as the experimental group being treated using storytelling and another one as a control group also being taught by using storytelling strategy. For both experimental and control groups, a pre-test and a post-test were administered to the students. The pre-test was administered at the beginning of the teaching and learning in order to identify the students' listening ability. Then, the experimental group was given a treatment by using storytelling in order to identify their speaking skills. During the treatment, the writer was accompanied by an observer. Both groups were given a post-test at the end of the teaching learning process in order to determine the effect of storytelling on students listening and speaking skill. The model of the research design is illustrated as follows (Cresswell: 2008):

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Table III.1.
The Research Design

Group	Pre-test	Treatment	Post-test
Experimental group	Test 1	X	Test 2
Control Group	Test 1	X	Test 2

III.2. The Population and the Sample of the Research

III.2.1. Population

The population of this research was the ten grade students of State Islamic Senior High School (MAN 1) Pekanbaru in the academic year 2016/2017. It consisted of eleven classes and the number of students of XMIA 1-5 are 147, XIIS 1-4: 107, XAGAMA: 30 students and XBAHASA: 32 students. The total number of the X10 grade students of State Islamic Senior High School (MAN 1) Pekanbaru was 316 students as can be seen in the table below:

Table III.2.
The Total Population of the ten grade students of State Islamic Senior High School (MAN 1) Pekanbaru

No	Class	Number of Students
1	XMIA 1	29
2	XMIA 2	30
3	XMIA 3	31
4	XMIA 4	32
5	XMIA 5	25
6	XIIS 1	26
7	XIIS 2	28
8	XIIS 3	28
9	XIIS 4	25
10	XAGAMA	30
11	XBAHASA	32
Total		316

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III.2.2. Sample

Sampling is the process of selecting a number of individuals for a study in such a way that the individuals represent the larger group from which they are selected. The purpose of sampling is to gain information about the population by using the sample (Gay, 2000: 123). The sample of this research was taken by cluster sampling technique. Two classes were taken as the sample of the research. According to Gay (2000: 129) cluster sampling is sampling in which groups, not individuals are randomly selected. It is a technique in which clusters of participants represent the population identified and included in the sample. The writer chose class XMIA 1 as the experimental group and XMIA 2 as the control group by using lottery.

**Table III.3.
The Total Sample of the Research**

No	Class	Male	Female	Total
1	XMIA 1	16	13	29
2	XMIA 2	18	12	30
	Total			59

III.3. Data Collection Technique

In order to gather the data, the following techniques were used:

1. Test

A test was administered to find out the effect of storytelling strategies on the students' ability in listening and speaking of X10 grade of State Islamic Senior High School (MAN 1) Pekanbaru. The test was given two stages. First was a pre-test which was done before the treatment. Second was a post-test which was given after the treatment. Both tests were in the form of objective test (multiple choice).

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In this stage, the writer used an Audio for students to listen to the story and when they finished listening to it, they had to answer the questions taken from the text.

Multiple choice technique is a technique that is designed by using four options of choice and the students only choose one correct answer based on the question.

There were passages to be read each of which consisted of 5 questions. So, there were 25 questions in the listening test. The questions were related to the components of listening comprehension: The classification of the students' scores for the listening tests is shown below:

**Tables III.3.1.
The Blue print of listening test ability by using Storytelling descriptive text**

No	Theme	Question (Multiple-Choice)
1	The legend story of the prophet Musa	1. The prophet Musa was born in the time of whom? a. King Abdullah Aziz b. Muawiyah c. King Fir'un d. Usman bin Affan
State Islamic University of Sultan Syarif Kasim Riau		2. What is the reason of his mother to put him in a water proof box and placed the box in the River Nile ? a. because his mother is not him at all b. because his mother made some mistakes and was afraid of punishment of Fir'un c. because his mother did not have much money to carry him at all d. because Fir'un knew that this son would be his enemy when he grew up
		3. The wife of prophet Musa is a daughter of whom? a. Prophet Shu'aib (AS). b. Prophet Harun (AS). c. Prophet Adam (AS). d. Prophet Isa (AS).
		4. When Prophet Musa went to the fire inside the mountain, suddenly he heard the voice saying " O Musa", in your opinion who called Prophet Musa? a. Jibril b. Zatan

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No	Theme	Question (Multiple-Choice)
		c. Allah S.W.T d. Nothing
		5. Why did his wife Aasiya keep prophet Musa? a. because she really loved this son b. because Fir'un loved this son c. because she did not have children d. because Fir'un wanted this son to be a new king after he died
2	The legend story of the prophet Muhammad	6. When was the Prophet Muhammad born? a. on early 12 Ra biul' Alwal b. on 14 Muharram c. on 25 Zul-Hijjah d. on 30 Muharram

**Table III.3.2.
The Classification of Students' Scores**

Number	Score	Classification
1	81 – 100	Excellent
2	61 – 80	Good
3	41 – 60	Mediocre
4	21 – 40	Poor
5	0 – 20	Very Poor

(Harris, 1986)

2. Second Instrumentation: Pre-test and post-test

There were a pre-test and a post-test. The pre-test consisted of 5 questions and the post-test consisted of 5 items. The test was used to determine the students' speaking ability. The pretest was used to determine the students' speaking ability before the treatment and the post-test was conducted to know the students' speaking ability after the treatment.

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Table III.3.3.
The Blue Print of Speaking Test

No	Theme	Questions
1	The Storytelling	1. What is the topic of the storytelling
		2. What are the main characters of the storytelling?
		3. How are students able to tell the storytelling happen?
		4. How are students able to convey the ideas of the storytelling?
		5. Why students are able to retell the storytelling with their own words?

Adam and Frith (1979: 35-8) gives a wide explanation that is summarized into five factors that must be paid attention criteria speaking ability.

Table III.3.4.
The Indicators of Speaking Ability

No	The aspect evaluated	Score	Criteria
1	Accent	1	Pronunciation frequently unintelligible.
		2	Frequent gross errors and a very heavy accent make understanding difficult, require frequent repetition.
		3	“Foreign accent” requires concentrated Listening, and mispronunciations lead to occasional misunderstanding and apparent errors in grammar or vocabulary.
		4	Marked “foreign accent” and occasional mispronunciations which do not interface with understanding.
		5	No conspicuous mispronunciations, but would not be taken for a native speaker.
		6	Native pronunciations, with no trace of “foreign accent”.
	Grammar	1	Grammar almost entirely inaccurate phrases.
		2	Constant errors showing control of very few major patterns and frequently preventing communication.
		3	Frequent errors showing some major patterns uncontrolled and causing

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		4	occasional irritation and misunderstanding. Occasional errors showing imperfect control of some patterns but no weakness that causes misunderstanding.
		5	Few errors, with no patterns of failure.
		6	No more than two errors during the interview
	Vocabulary	1	Vocabulary inadequate for even the simplest conversation.
		2	Vocabulary limited to basic personal and survival areas (time, food, transportation, family, etc.)
		3	Choice of words sometimes inaccurate, limitations of vocabulary prevent discussion of some common professional and social topics.
		4	Professional vocabulary adequate to discuss special interests; general vocabulary permits discussion of any non-technical subject with some circumlocutions.
		5	Professional vocabulary broad and precise; general vocabulary adequate to cope with complex practical problems and varied social situations.
		6	Vocabulary apparently as accurate and extensive as that of an educated native speaker.
4	Fluency	1	Speech is so halting and fragmentary that conversation is virtually impossible.
		2	Speech is very slow and uneven except for short or routine sentences.
		3	Speech is frequently hesitant and jerky; sentences may be left uncompleted.
		4	Speech is occasionally hesitant, with some unevenness caused by rephrasing and groping for words.
		5	Speech is effortless and smooth, but perceptibly non-native in speech and evenness.
		6	Speech on all professional and general topics as effortless and smooth as a native speaker's.
5	Comprehension	1	Understands too little for the simplest type of conversation.
		2	Understands only slow, very simple speech

		on common social and touristic topics; requires constant repetition and rephrasing.
	3	Understands careful, somewhat simplified speech when engaged in a dialogue, but may require considerable repetition and rephrasing.
	4	Understands quite well normal educated speech when engaged in a dialogue, but requires occasional repetition or rephrasing.
	5	Understands everything in normal educated conversation except for very colloquial or low-frequency items, or exceptionally rapid or slurred speech.
	6	Understands everything in both formal and colloquial speech to be expected of an educated native speaker.

III.4. Validity and Reliability of Instrument Test

To obtain the data from the participants, the writer made a try-out in listening comprehension test to determine the validity and reliability of the instruments and then analyzing the reliability and validity SPSS 20 was used.

1. Reliability

Brown, (2003) says that reliability has to do with accuracy of measurement. This kind of accuracy is reflected in obtaining of similar results when measurement is repeated on a different occasion or with different instruments or by different persons. Brown states that the characteristic of reliability is sometimes termed consistency. The following table shows the level of internal consistency of Cronbach Alpha.

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Table III.4
A commonly accepted rule of thumb for describing internal consistency by using cronbach alpha

Cronbach Alpha	Internal Consistency
.9	Excellent
.9 > .8	Good
.8 > .7	Acceptable
.7 > .6	Questionable
.6 > .5	Poor
.5 >	Unacceptable

To obtain the reliability of the test given, SPSS 20 program was used to find out whether or not the test was reliable.

Table III. 5
Cronbach Alpha Table

Reliability Statistics

Cronbach's Alpha	N of Items
.777	25

The above table shows that the value of cronbach's alpha is 0.777. It means that the items are reliable in which the value of internal consistency is $.8 > .777 > .7$, so the reliability of test is **acceptable**.

2. Validity

Creswell stated that validity is the individual's scores of an instrument that makes sense, meaningful, enables the researcher to draw good conclusions from the sample being studied to the population (Creswell 2008:169). It means that validity is the extent to which inferences made from assessment results are appropriate, meaningful, and useful in terms of the purpose of the assessment.

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To analyze the validity of data, SPSS 20 program was employed.

The following table is the criteria of items validity.

Table III.6
The criteria of items validity

R	Interpretation
$0,80 < r \leq 1,00$	Very High
$0,60 < r \leq 0,79$	High
$0,40 < r \leq 0,59$	Average
$0,20 < r \leq 0,39$	Low
$0,00 < r \leq 0,19$	Very Low

Table III. 7
The analysis of try-out of listening comprehension validity

Item	R	Interpretation of Validity	Status
1	1.00	Very high	Valid
2	0.95	Very high	Valid
3	0.90	Very high	Valid
4	0.95	Very high	Valid
5	0.90	Very high	Valid
6	0.70	High	Valid
7	0.75	High	Valid
8	0.70	High	Valid
9	0.55	Average	Invalid
10	0.45	Average	Invalid
11	0.75	High	Invalid
12	0.85	Very high	Valid
13	0.10	Very low	Invalid
14	0.90	Very high	Valid
15	0.90	Very high	Valid
16	0.70	High	Valid
17	0.90	Very high	Valid
18	0.70	High	Valid
19	0.05	Very low	Invalid
20	0.80	Very high	Valid
21	0.85	Very high	Valid
22	0.45	Average	Invalid
23	0.90	Very high	Valid
24	0.75	High	Valid
25	0.70	High	Valid

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Based on the try out results of the test instrument validity towards the 25 items, it was discovered that 21 of the items are valid. It means that the instrument could be used in this research.

III.5 Data Analysis Technique

To find out the significant effect of Storytelling on students' listening and speaking ability of the X10 grade of MAN 1, Pekanbaru. A scoring guide was chosen as the criteria of scoring representing the basic aspects of listening and speaking. The writer used simple regression using SPSS.

The scores of the pre-test and the post-test of the experimental and the control groups were analyzed statistically using both descriptive and inferential statistics. In this research, the following formulas were used:

III.5.1. Independent sample t-test

To find out if there was a the significant difference or there was no significant difference between two or more variables the researcher applied Independent Sample t_{test} . Gay (2000) added that the t-test for independent sample was used to determine whether there was probably a significant difference between the means of two independent samples. Independent sample t-test was used to find out the results of the experimental class. They were as follows:

- a. To find out whether there was a significant difference of students listening skill before the treatment by using Storytelling Strategy for experimental class and control class.

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- b. To find out whether there was a significant difference of students' speaking skill after the treatment by using Storytelling Strategy for experimental class and control class.
- c. To analyze the final-test scores of the experimental group and the control group, the following formula was used:

$$t = \frac{M_X - M_Y}{\sqrt{\frac{SD_X^2}{N_1 - 1} + \frac{SD_Y^2}{N_2 - 1}}}$$

Where:

t = The value of comparing two means

M_X = Mean of the score in the pre-test

M_Y = Mean of the score in the post-test

SD_X = Standard deviation of the experimental group

SD_Y = Standard deviation of the control group

N_1 = Number of the sample in the pre-test

N_2 = Number of the sample in the post-test

1 = the constant number

The t-table has the function to see if there is a significant difference among the mean of the score of both experimental and control group. The t-obtained value is consulted with the value of t-table at the degree of freedom (df) = $(N_1 + N_2) - 2$ which is hypothesized.

H_a : $t_o > t\text{-table}$

H_o : $t_o < t\text{-table}$

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Ha was accept if $t_o > t\text{-table}$ or there was effect after the treatment
 Storytelling on students' listening and speaking.

III.5.2. Non-independent or Paired Sample t-Test

Paired Sample t-Test is known also as Non-independent sample t-test. Gay (2000: 488) states that t-test for non-independent samples is used to compare groups that are formed by some type of matching or to compare a single group's performance on a pre- test and a post-test or on two different treatments. In this time, the writer used it to find out whether there was a significant effect before and after using Storytelling on students' listening and speaking ability using the pre-test and post-test scores of the control class.

They are as follows:

1. To find out whether there was a significant difference of students listening and speaking ability before the treatment by using storytelling strategy.
2. To find out whether there was a significant difference of students listening and speaking ability after the treatment by using storytelling strategy.
3. To analyze the post-test scores of the experimental group and the control group, the following the formula of paired-sample t-test was used:

$$t = \frac{\bar{D}}{\frac{\sqrt{\sum D^2 - \frac{(\sum D)^2}{N}}}{N(N-1)}}$$

D: Gain Score (D=X2-X1)

The t-table has the function to see if there was a significant difference of the mean scores of both pretest and posttest. The t-obtained value was consulted

with the value of t-table at the degree of freedom (df)N-1 which was statistically hypothesized:

$$H_0: t_0 < t\text{-table}$$

$$H_a: t_0 > t\text{-table}$$

H_0 was accepted if $t_0 < t\text{-table}$ or there was no significant effect after using Storytelling on students' listening and speaking ability.

H_a was accepted if $t_0 > t\text{-table}$ or there was a significant effect after using Storytelling on students' listening and speaking ability.

Afterward, it was important to find the coefficient effect of T-test by using the following formula:

$$r^2 = \frac{t^2}{t^2 + n - 1}$$

$$kp = r^2 \times 100\%$$

Where:

Kp : Coefficient effect

r^2 : Coefficient

Then to find out the effect size of T-test the following formula was applied:

$$\tilde{\eta}^2 = \frac{t^2}{t^2 + n - 1}$$

$$\text{eta squared} = \tilde{\eta}^2 \times 100\%$$

Where:

eta squared : Coefficient effect

$\tilde{\eta}^2$: Coefficient

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