CHAPTER III

RESEARCH METHOD

A.   Research Methodology

In this research, the researcher will conducted the experiment because it is considered as one of the appropriated way to resolve a question about language teaching learning. In this point, the approach used by researcher is quantitative. It is quantitative because the data will be gained are numeric and will be analyzed by using statistical computation. It emphasizes the systematic measurement and quantification of variables, statistical analysis of the quantitative data, and the use of mathematical models.[1] While the method employed is through experimental research in which its purpose is to search or compare the certain treatment toward other within controlled condition.[2]

This kind of experiment is true experimental design in form of pretest-posttest control group design. Here, there are two groups which have been chosen randomly (R). Both two groups are given pretest to know the first condition whether or not there is a difference of competence level between them. The

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[1]. Donna M. Johnson, *Approach to Research Second Language Learning*, (London: Longman, 1992), p.34.

[2]. Sugiyono, *Metodologi Penelitian Pendidikan, (Pendekatan Kuantitatif, Kualitatif, dan R&D)*, (Bandung: Alfabeta, 2007), 3 rd Ed, p. 107.

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pretest result is said well if there is no significant difference. After giving pretest, the experimental group is given a certain treatment (X) while the control one is not.[3] Here, the treatment refers to the teaching by means of Jeopardy Game technique. The design can be figured out as follow.

B.   Population and Sample

According to Sukardi, population is all members of well define class of people, events and objects. Population can be divided into two kinds, target population and access population. Target population is population that has been planned in the research planning. And Access population is population that can be accessed when the researcher determine the number of population.[4]The population of this study is all of the tenth grade students of MAN Pemalang in the academic year of 2013/2014 have ten classes.

Sample is some of chosen population using certain procedure so that can be expected the represent its population. Population is formulated as the whole groups of people or

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[3] . Sugiyono, *Metodologi Penelitian Pendidikan, (Pendekatan Kuantitatif, Kualitatif, dan R&D)*, (Bandung: Alfabeta, 2007), 3 rd Ed, p. 112.

[4]. Sukardi, *Metodologi* Penelitian *Pendidikan*, (Yogyakarta: Bumi Aksara ,2010), p.53-54

object that have been formulated clearly.[5] Sampling is the process done to choose and take sample correctly from population so that can be used as valid representative to the population.[6] In this research, the researcher takes the object of research using random sampling and confirmation with the English teacher to establish sample of classes. In it, the objects are regarded that each of them has the equal chance to be chosen as the sample.[7] The population in this research is all students of tenth grade of MAN Pemalang in academic year of 2013/2014. The samples are two classes chosen from the whole classes where one class will be experimental group and one class will be the control group.

C.   Research Setting

This research will be conducted with the tenth grade students of MAN Pemalang on the first semester in the academic year of 2013/2014 for about 1 month. It will be started at August up to September 2013 in MAN Pemalang.

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[5] Arief Furchan, *Pengantar Penelitian dalam Pendidikan,* (Yogyakarta: Pustaka Pelajar, 2007), 3rd ed, p. 193.

[6]. Sugiarto, et al, *Teknik Sampling*, (Jakarta: Gramedia Pustaka Utama, 2003), 2nd ed, p.4

[7]. Suharsimi Arikunto, *Prosedur Penelitian: Suatu Pendekatan Praktik*, (Jakarta: PT. Rineka Cipta, 2006), p. 134.

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D.   Variables and indicators

Variable refers to the object of research that becomes research focus. There are two variables in this research.

1. Independent variable

It refers to the teaching simple past tense use a Joepardy game media. Its indicators are as follows:

a. Class presentation

In this phase, the students' attentions become one important element that should be done by the students while the teacher gives the explanation.

b. Team work

In this phase, the cooperation ability of the students in team in explaining the given material is needed where they should help to one another for getting understanding to reach the team success.

c. Games or Tournaments

In this phase, personal ability of each member of each team is required because each of students has to compete to get the individual score which will contribute to the team success.

2. Dependent variable

It refers to the achievement of the students. The indicators can be seen in every phase in teaching learning process using Joepardy game.

a. Student's performance while class discussion.
b. Students are able to write simple past tense to make sentences.
c. Students are able to comprehend the material of simple past tense.
d. Student's are able to use and difference between regular and irragular verb in sentences.

In this study, researcher will use pretest-posttest control group design. Two groups are employed in this design; one group, the experimental group, receives a treatment (X) while the second group, does not. Both groups are given a pretest and a posttest.

The pretest-posttest control group design can be diagrammed as shown below:

$$- \quad R \quad O_1 \quad\quad X \quad\quad O_2$$
$$- \quad R \quad O_3 \quad\quad\quad\quad O_4$$
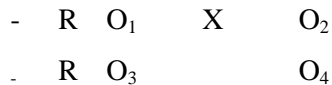
In which: O_1 = Pretest value of experimental group

O_2 = Posttest value of experimental group

O_3 = Pretest value of control group

O_4= Posttest value of control group

X = Treatment

R = Random sample

As can be seen from the diagram, two groups are employed in this design; one group the experimental group, receives a treatment (X) while the second group, the control group does not. (The assignment of Ss to both groups is accomplished on a random basis).[8]

E.   Data Collection Technique

In gaining the data, the researcher attempts to employ these following methods.

1. Documentation

It refers to the archival data that helps the researcher to collect the needed data. The researcher will function the document related to the object research such as; students name list and their English score in previous time. It will help the researcher in doing the experiment. Students' name list and score will be used in determining the team for the

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[8]. Bruce W. Tuckman, *Conducting Educational Research*, (USA: Harcourt Brace Jovanovich, 1978), p. 131-132

experiment. In this case, the data will be gained by the help of the English teacher.

2. Test

It is a set of questions and exercises used to measure the achievement or capability of the individual or group.[9] In this research, the post-test will be given to the students as participant after being taught and will be given to both groups, either experiment group or control one. It is aimed to assess their achievement on the grammar mastery. The test which is used to assess will be examined in advance to know the validity, reliability, degree of test difficulty, and degree of question distinction.

2. a. The Validity

Validity is a measurement which shows validity of the instrument.[10] Validity is the most important variable in judging the quality of a measurement of an instrument before we use. Validity is counted by using product moment correlation formula:

$$R_{xy} = \frac{N\Sigma XY - \Sigma(X)\,\Sigma(Y)}{\sqrt{\left\{N\Sigma X^2 - (\Sigma X)^2\right\}\left\{N\Sigma X^2 - (\Sigma Y)^2\right\}}}$$

[9]. Sugiarto, et al, *Teknik Sampling*, (Jakarta: Gramedia Pustaka Utama, 2003), 2nd ed, p. 158.

[10]. Sugiarto, et al, *Teknik Sampling*, (Jakarta: Gramedia Pustaka Utama, 2003), p. 168

R_{xy} = The correlation coefficient between X variable and Y variable

N = The number of the students

X = The number of each item score

Y = The number of total score

Calculation result of r_{xy} is compared with r_{table} of product moment by 5% degree of significance. If r_{xy} is higher than r_{table} , the item of question is valid.[11]

2. b. Reliability

Reliability refers to the consistency of test score, if it measured twice or more because each research can be possibly wrong.[12]alpha formula is used to know reliability of test is K-R. 20.

$$r_{11} = \left[\frac{n}{n-1} \right] \left[\frac{S - \Sigma pq}{S^2} \right]$$

Where:

r_{11} = The reliability coefficient of items

[11] . Zainal Arifin, *Evaluasi Instructional: Prinsip- Teknik- Prosedur*, (Bandung: PT Remaja Rosdakarya, 1990), p. 116

[12] . Suharsimi Arikunto, *Dasar-Dasar Evaluasi Pendidikan*, (Jakarta: PT Bumi Aksara, 2007), Ed. Rev. p.86

n   = The number of items in the test

p   = The proportion of students who give the right answer

q   = The proportion of students who give the wrong answer

S^2 = The standard deviation of the test

Calculation result of r_{11} is compared with r_{table} of product moment by 5% degree of significance. If r_{11} is higher than t_{table} , the item of question is reliable.[13]

3. b. Degree of test difficulty

A good question is a question that is not really difficult and not really easy. Formula for degree of test difficulty is.

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

Where:

P = The difficulty's index

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[13] Suharsimi Arikunto, *Dasar-Dasar Evaluasi Pendidikan*, (Jakarta: PT Bumi Aksara, 2007), ed rev, p. 100.

B = The number of students who has right answer

JS = The number of students.[14]

The criteria are:

P = $0,00 \leq P \leq 0,30$ Difficult question

P = $0,30 \leq P \leq 0,70$ Sufficient

P = $0,70 \leq P \leq 1,00$ Easy

3. Observation

It refers to the activity of giving total concern to research object by the sense. In this research, the concern of research will be paid on the teaching learning process and will make filed note as well. In conducting the observation, the researcher will use the observation guideline to make it more systematic containing list of activity or happening which might happen.[15] In this case, it can be about the condition of class and students, and the obstacles appear during the teaching learning process or during the experiment.

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[14] Suharsimi Arikunto, *Dasar-Dasar Evaluasi Pendidikan*, (Jakarta: PT Bumi Aksara, 2007), p. 207-208

[15] Sugiarto, et al, *Teknik Sampling*, (Jakarta: Gramedia Pustaka Utama, 2003), 2nd ed, p. 157.

F.   Data Analysis Technique

1. Normality Test

It is used to know the normality of the data that is going to be analyzed whether both groups have normal distribution or not.

Chi square is used here[16]

$$\chi^2 = \Sigma \frac{(O_i - E_i)^2}{E_i}$$

Notice:

χ^2 : chi square

O_i : frequency from observation

E_i : expected frequency

Calculation result of χ^2 is compared with x table by 5% degree of significance. If χ^2 is lower than x table so the distribution list is normal.

2. Homogeneity Test

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[16] Sujana, *Metode Statistika*, (Bandung: Tarsito, 1996), p. 273.

Is used to know whether experimental group and control group, that are decided, come from population that has relatively same variant or not. The formula is:[17]

$$F = \frac{Vb}{Vk}$$

Notice:

Vb : bigger varian

Vk : smaller varian

The hypotheses in homogeneity test are:

Ho : homogeny variant: $\sigma_1^2 = \sigma_2^2$

Ha : non homogeny variant: $\sigma_1^2 \neq \sigma_2^2$

If calculation result of F is lower than F table by 5% degree of significance so HO is accepted, it means both groups have same variant.

3. Test of the average

Is used to examine average whether experimental and control group that has been decided having significant

$$\sigma_1^2 = \sigma_2^2$$

[17]. Sujana, *Metode Statistika*, (Bandung: Tarsito, 1996), p. 250.

different average from the mark grammar in previous time before the treatment.

(has same variant), the formula is:[18]

$$t = \frac{\overline{X_1} - \overline{X_2}}{s\sqrt{\frac{1}{n_1} + \frac{1}{n_2}}}$$

$$S^2 = \frac{(n_1 - 1)S_1^2 + (n_2 - 1)S_2^2}{n_{1+}n_2 - 2}$$

$\overline{X_1}$: average of experimental group

$\overline{X_2}$: average of control group

N1 : number of experimental group

N2 : number of control group

S_1^2 : standard deviation of experimental group

S_2^2 : standard deviation of both groups

If $\sigma_1^2 \neq \sigma_2^2$ (has no some variant), the formula is:

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[18]. Sujana, *Metode Statistika*, (Bandung: Tarsito, 1996), p.239

$$t^1 = \frac{\overline{X} - \overline{X_2}}{\sqrt{\dfrac{S_1^2}{n_1} + \dfrac{S_1^2}{n_2}}}$$

The hypotheses are:

$Ho : \mu_1 = \mu_2$

$Ha : \mu_1 > \mu_2$

μ_1 : average data of experimental group

μ_2 : average data of control group

Ho is accepted if calculation result of t is lower than $t_1 - \alpha$. Degree of freedom for data t is (n1 + n2-2) with probability $1 - \alpha$. IF Ho is refused and Ha is accepted, so the average of first group is better than the second one.

4. Test of Research Result

To examine the hypothesis that have been stated, these following steps are used.

a. normality test

The steps are same with the steps on data analysis technique.

b. Homogeneity test

The steps are same with the steps on data analysis technique.

c. Hypothesis test

The steps are same with the steps on data analysis technique that is to prove the researcher hypothesis about the difference of students' achievement on the grammar mastery between the students taught using Joepardy Game from those taught using non-Joepardy game. Here, the t-test formula is used.

Having constructed and administered the questionnaires, the researcher will collate and interpret the response of the students concerning to the use of Joepardy game media by calculating the mean, median, modus or any other result and it then will be described in descriptive explanation as obvious as possible.

In addition, the result of observation will also be analyzed in a descriptive way to give some further result on investigating the students' responses and their attitudes.

G. Instrument

To get the accurate data in this study, the researcher selects the instruments that will be appropriate for the problem statement, there are: Arikunto said that test is questions or exercises and other tools which used to measure skill, intelligence knowledge, and ability that had by individual or group. This research obtained from the students score of pre-test and post-test.

1. Try out

Before the test was used an instrument to collect the data, it had been tried out first to the students in another class. It is to analyze validity, reliability, difficulty level and also the discrimination power of each item. The try out was given to X.10 a of the students of test MAN Pemalang. The writer prepared 42 items as the instrument of the test. From 42 test items of tryout, some items were chosen as the instrument of the testwhile some others were left out.

2. Pre-test

Before the teacher teaches new material by using joepardy, the teacher gave a test to the students. Try out will be given to the experimental group and control group with same test. The researcher treated each group with different teaching model. The experimental group will be taught by using joepardy in facilitating students understanding of

simple past tense. The control group was taught without joepardy.

3. Post-test

> To get the data, the writer gave a post-test to experiment group and control group in order to know the ability of the students after they are taught by using song and the students who are taught without song as media to facilitating students understanding of simple past tense. Finally the scored obtained from the post-test will be analyzed.

> A standards technique should be used to show that result of research are reliable to measure the writing test. To establish the validity of data, the researcher is using the scoring element of writing and using more than one score.

> Pre-test was given in the experimental group and control group. At the end of experiment, the writer also will give them a post-test. To measure the difference between pre-test and post-test of experimental group and control group, the writer will use independent t-test formula as follows:

$$t = \dfrac{Mx - My}{\sqrt{\left[\dfrac{\sum x^2 + \sum y^2}{Nx + Ny - 2}\right]\left[\dfrac{1}{Nx} + \dfrac{1}{Ny}\right]}}$$

Where :

t   : t-test

Mx : the mean of the experimental group

My   : the mean of the control group

$\sum x^2$: the standard deviation of the experimental group

$\sum y^2$: the standard deviation of the control group

Nx : the number of the students of the experimental group

Ny : the number of the students of the control group

To calculate the t-test, the mean has to be calculated first. The mean could be calculated by using the formula as follow :

$$Mx = \dfrac{\sum X}{N} \qquad\qquad My = \dfrac{\sum Y}{N}$$

Where :

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Mx/y = the mean of the pre test or post test of experiment or control group

$$\sum X/Y = \text{the quantity of scores}$$

N = the number of students

Then, we have to find the Zx^2 and Zy^2, the formula are follow :

$$Zx^2 = Zx^2 - \frac{\left(\sum x\right)^2}{N}$$

$$\sum y^2 = \sum Y_2 - \frac{\left(\sum y\right)^2}{N} \text{ [19]}$$

After this, apply the result in to formula and the last the researcher will test the significance with the formula above. Where :

– If to < t_t (t – observation result is lower than t of table in phase in certain significance, for example 5%) → not significance

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[19] Suharsimi Arikunto, *Dasar-Dasar Evaluasi Pendidikan*, (Jakarta: PT Bumi Aksara, 2007), p.311-312

− If $t_o \geq t_t$ (t − observation result is higher than t of table in phase of certain significance, for example 5%) → significance.[20]

After the researcher get result from this formula the researcher will get the answer about the effectiveness using joepardy game to facilitate student' understanding of simple past tense.

H. PROCEDURE AND TIME LINE

The writer does research by title "The Effectiveness of Using Joepardy Game in Teaching Simple Past Tense (An Experimental Study at The Tenth Grade of MAN Pemalang in The Academic Year 2013/2014).

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[20] Karnadi Hasan, *Modul Dasar-Dasar Statistika Terapan*, (Fakultas Tarbiyah IAIN Walisongo Semarang, 2006), p. 17

Table 3
List of time of the study

No.	Task	What to prepare	Date
1.	Preliminary visit (meet the administration officer)	-	Saturday, 14th September 2013
2.	Contacted the headmaster	Research permission letter	Saturday, 14th September 2013
3.	Contacted the English teacher to ask data of data of students' as participants	-	Monday, 16th September 2013
4.	Gave pre-test	Pre-test worksheet	Tuesday, 17th September 2013
5.	Gave treatment	Lesson plan, handbook, worksheets,	1. Thursday, 19th September

		and observation checklist.	2013
			2. Saturday, 21th September 2013
			3.Thursday, 26th September 2013
6.	Gave post-test	Post-test worksheet, and recorder	Saturday, 28th September 2013

1. Preliminary Visit

The researcher visited the school to get information about the students and teacher as participants. To gain the information, the researcher asked the administration officer whether the school possibly become the setting of research or not by describing the researcher's intention and ask for information about setting and participants.

2. Contact the Headmaster

Having got the information about setting and participant, the researcher did the second visit to meet the headmaster of the school by giving the permission letter.

3. Contact the English Teacher

After receiving research permission from the headmaster of the school, the researcher met the English teacher and asked for the data of students and negotiated what the class should become the participants that were the control and experimental group.

4. Give Pre-test

In this session, the researcher gave the pre-test of English Simple Past Tense. Both experimental and control group were given this kind of test. This test was to ensure that both two groups were the same in grammar proficiency. In addition, the results or score of the test were used to determine the students' groups.

5. Give the Treatment

In this session, the experimental group was given the treatment and taught by researcher as the experimenter by means of Jeopardy Game method while the control group was taught by the same teacher and material but was different in teaching method that was by means of non-Jeopardy GameSnowball Throwing method. The students

received the treatment three times in which the three different items of English simple past tense. During the treatment, the observation was also conducted.

6. Give Post-test

Having administered the treatment for three times, the post-test was given to both groups to test their understanding on English Simple Past Tense.