

CHAPTER III

RESEARCH METHODS

A. RESEARCH DESIGN

This study was intended to foster constructivism learning in teaching English by utilizing student worksheet. It was done by taking experiment in the area of the study to see the effect of the experiment. Therefore, this study was an experimental research which can be stated as a way to find a causal relationship (relationship clause) between the two factors that are deliberately caused by the researcher with reduce or set aside other factors that interfere¹.

The researcher took two classes in this study. They were taken as controlled group and experimental group. The controlled group is taught by traditional technique while the experimental is taught by utilizing student worksheet for constructivism learning in teaching English. The research design of pretest and post test control and experimental group can be illustrated as follows:

Table 3.1
Research Design

Group	Pretest	Treatment	Posttest
A	O ₁	X	P ₁
B	O ₂	-	P ₂

Explanation:

A : Experimental group

B : Controlled group

¹ Suharsimi Arikunto, *Prosedur Penelitian Suatu Pendekatan Praktek*, (Jakarta: Bina Aksara, 1987), p.3

- O_1 : pretest given in experimental group
- O_2 : pretest given in controlled group
- X : the treatment where the technique is implemented in experimental group.
- P_1 : post test given treatments in experimental group
- P_2 : post test given treatments in controlled group

Based on the diagram above, there were two classes (groups) which were divided into experimental group (A) and controlled group (B). Both of them did pre test (O_1 and O_2). The pretest was given in order to get to know student prior knowledge before the treatment. Next, the treatment (X) would be applied to the experimental group and posttest (P_1 and P_2) is given to both groups. Post test was applied in order to know students' achievement of the two groups. The score of both groups were compared to see the improvement.

B. HYPOTHESIS

This study is consisted of two hypotheses. they are:

- H_0 : There is no significant improvement in teaching by utilizing student worksheet for constructivism learning in teaching English at the eight grade of SMP Praja Mukti Surabaya.
- H_a : There is a significant improvement in teaching by utilizing student worksheet for constructivism learning in teaching English at the eight grade of SMP Praja Mukti Surabaya.

C. POPULATION AND SAMPLE

1. Population

Population is the group which researcher wanted to generalize in the study. The population in this research is all classes of second grade students at SMP Praja Mukti Surabaya. There are four classes. Every class consists of 35 students. So, the total numbers are 140 students.

2. Sample

Sample is the group of people whom the researcher selects to be in the study. In other word, it is selected part of population to be subjects of research². The data was gotten from part of population by using convenience sampling. Convenience sampling is also called accidental or opportunity sampling. It involves choosing the nearest individuals to serve as respondents and or to those who happen to be available and accessible at that time³. In this study, the samples were students of VIII B and students of VIII F. students of VIII F was chosen as the experimental group while students of VIII B was the controlled group⁴. Each class has 31 students. The total number of the samples are 62 students.

² William, Trochim “*The Research Methods Knowledge Base, 2nd Edition* (Ithaca, N.Y. : Cornell Custom Publishing, 1999).p. 42

³ Cohen luois, *research methods in education*, sixth edition, New York; Routledge, 2007. P. 113

⁴ Both sample groups are Chosen based on teacher’s recommendation.

D. RESEARCH PROCEDURE

To find out the success of this study, there were some considerations to be conducted in this research; Those were preparing student worksheet, preparing Lesson plan, conducting pretest, utilizing student worksheet in teaching process, conducting posttest, analyzing data. Those were conducted through several procedures to gain data in this research. The procedures was described as follow:

1. Preparing student worksheet for constructivism learning

In this step, the researcher developed student worksheet which supports constructivism learning. For the developing worksheet, researcher used Thiagarajan model. It consists of four phase procedure for this research. It covers 4 step procedures which are *define, design, develop, disseminate*⁵. In this research, researcher had limitation for the procedure until *develop* phase. Each phase procedure is explained as follow:

a. *Define* Phase

In this phase, the researcher specified and defined learning policy. There were three steps in this phase. Those are:

1) Prior analysis

In this step, the researcher analyzedd the curriculum to determine the lesson items to be presented in the worksheet; so it presents lesson which indicated students thinking pattern in

⁵ Nieven Nienke, 1999. *Design approach and tools in education and training*, London: Kluwer Academic publisher. page 128

constructing their thought through tasks and learning activity which will be presented in the worksheet. The lessons were presented in unit three. According to content standard of curriculum, the main subject matters in this unit are; (1) responding to speech act in opening, extending and closing phone call, (2) short functional text in the form of phone messages, (3) understanding the use of past continuous tense and (4) identifying the structure of recount text⁶.

2) Concept analysis

In this step, the researcher determined main subject matter to be presented in the worksheet for constructivism learning according to curriculum framework.

3) Task analysis

After analyzing the content of study with the proper lesson, the researcher analyzed the selected task to be arranged in the student worksheet. It was done by concerning constructivist characteristic to support constructivism learning.

4) Formulating the significant of study

In this step, the researcher conversed the result of *concept analysis* and *task analysis* to determine significant of study.

⁶ Badan standard nasional pendidikan, (2006) *standart isi untuk satuan pendidikan dasar dan menengah*, Jakarta, page: 129

b. *Design Phase*

The aim of this phase was to design the student worksheet for constructivism learning. The steps of this phase are:

1) Compiling tasks

This step was directed to compile tasks which leading students thinking pattern in constructing their thought and to provide learning activity for students to practice in the form of the worksheet.

2) Selecting worksheet format

In this step, the researcher analyzed the existing worksheet which was already used by students as reference to the worksheet format.

3) Making prior design

In this step, the researcher made draft of worksheet for constructivism learning. The created worksheet in this step is conceived as draft 1

c. *Develop Phase*

Researcher took some validations to revise student worksheet in this phase. The following information provides explanation about this phase

1) Worksheet validation

The draft 1 which had been created in *design* phase was validated by an expert validator. The validator was a lecture of English teaching department who was capable and had experienced in teaching

English especially in curriculum framework and worksheet development. The Validator was expected to give value through questionnaire toward the worksheet which had been prepared. The questionnaire gave highlight to make feasible worksheet. It contains some criteria of good student worksheet. The criteria include content, language accuracy, and worksheet format⁷.

2) Analysis of student worksheet validation

Researcher revised the worksheet by analyzing the validation questionnaire gotten from validator. It was intended to find the lack of the draft 1 of the worksheet. Researcher rearranged the worksheet according to the validation perception. This process was directed to resulting model of student worksheet for constructivism learning. (The validation analysis was enclosed on the back of the student worksheet in appendix 1)

2. Preparing lesson plan

In this phase, the researcher prepared lesson plan which would be applied in the implementation of this study. To prepare the lesson plan, the researcher needed to consider instructional objective, learning material and instructional strategy to be conducted in the utilizing student worksheet for constructivism learning in teaching English.

⁷ Depdiknas, *panduan pengembangkan bahan ajar*, 2008. P.29

First, the instructional objective was arranged in accordance to the school syllabus and curriculum standard. The researcher analyzed the curriculum framework and school syllabus which is used in the school.

Second, the learning material was arranged to support constructivism learning in teaching English. Children's traditional classroom tools – pencils, note book and text are vital. But for children to assemble and modify their ideas, they are not adequate. In this case, the researcher used picture puzzle, comic strip, role play card. They engage students with the immediacy to their everyday life. All of the material were taken from the student worksheet that had been prepared.

Third, the instructional strategy was arranged by considering the principles of constructivism learning. With these ideas in mind, the researcher used 5E model since the 5E model is an instructional model based on the constructivist approach to learning, which says that learners build or construct new ideas on top of their old ideas⁸. Each of the 5E describes a phase of learning, and each phase begins with the letter "E": Engage, Explore, Explain, Elaborate, and Evaluate. The 5E allows students and teachers to experience common activities, to use and build on prior knowledge and experience, to construct meaning, and to continually assess their understanding of a concept. (1) Engage, This phase of the 5 E model starts the

⁸ Cakir Hasan, *the implementation of constructivism in English language teaching in Turkish learner*, (unpublished, doctoral thesis, Selcuk University, 2006.P 77)

process. An "engage" activity considered the connections between past and present learning experiences. Students should become mentally engaged in the concept, process, or skill to be learned. (2) Explore, This phase provided students with a common base of experiences. They identified and developed concepts, processes, and skills. During this phase, students actively explored their environment or manipulate materials. (3) Explain: This phase helped students to explain the concepts they have been exploring. They had opportunities to verbalize their conceptual understanding or to demonstrate new skills or behaviors. This phase also provided opportunities for teachers to introduce formal terms, definitions, and explanations for concepts, processes, skills, or behaviors. (4) Elaborate: This phase extended students' conceptual understanding and allows them to practice skills and behaviors. Through new experiences, the learners developed deeper and broader understanding of major concepts, obtain more information about areas of interest, and refine their skills. (5) Evaluate: This phase of the 5 model encouraged learners to assess their understanding and abilities and lets teachers evaluate students' understanding of key concepts and skill development.

3. Conducting pretest

Since this study is experimental research, researcher needed to observe student's prior knowledge before the treatment. It was done Pretest by giving pretest at the first meeting. Pretest was made by concerning the content validity. Content validity demands that the test should be constructed as the

content representing of the course and the relationship between the test items and the course of objective is always apparent⁹. To fulfill the content validity, the content of the test was matched with the curriculum provided in the text book that is used in the school. Then, the pretest question sheet was given to the teacher to ask approval (see appendix IV).

4. Utilizing student worksheet for constructivism learning

In this phase, the researcher conducted the treatment to the experimental group. It was done by utilizing student worksheet for constructivism learning in teaching English. The implementation was done in accordance to the lesson plan that had been prepared before (detail content of the module can be seen in enclosure 3).

Due to the bureaucracy problem, the researcher decided to carry out just two subject matters from the unit in the student worksheet to be implemented in the treatment. It is about “grammar focus: understanding the use of past continuous tense and recount text”. They were selected because the subject matter are important and hierarchy subject.

5. Conducting posttest

Posttest was given after the researcher gave the treatment. Same as the pretest, the posttest was made by concerning the content validity. It was done to determine the result of utilizing student worksheet for constructivism

⁹ William, Trochim “*The Research Methods Knowledge Base*, 2nd Edition (Ithaca, N.Y. : Cornell Custom Publishing, 1999).p. 67

learning. The topic for the posttest questions is in accordance to the subject matter that had been implemented (see appendix V).

6. Analyzing data

The last phase of the research procedure in this study was analyzing data. The data was gotten from the result of test and questionnaire. The test was in the form of pretest and posttest. It was used to answer the first research question about whether the utilizing of student worksheet for constructivism learning in teaching English at SMP Praja Mukti Surabaya affect success in English teaching. In this case, the researcher used t -test formula to find out whether the mean differenced between them were significant or not. T- Test was used to measure and compared the differenced of means score between experimental group and controlled group. The second data was gotten from questionnaire. It was used to answer the second research question about what students' response toward the work of utilizing student worksheet for constructivism learning in teaching English at SMP Praja Mukti Surabaya is. The score of students' response was calculated with the every single question and was looked for the percentage by using likert formula. The analyzing data would be described clearly in data analysis technique.

E. DATA COLLECTION TECHNIQUES

To gather the data of the first question, the researcher used the technique below:

1. Test

Test is a method of measuring person ability, knowledge or a performance in a given domain¹⁰. The test was purposed to investigate the work of utilizing student worksheet for constructivism learning. To do this, the researcher needed to measure students' achievement toward controlled group and experimental group by conducting pretest and posttest. It was described as follows:

a. Pre-test

Pretest is a preliminary test administered to determine a student's baseline knowledge or preparedness for an educational experience or course of study¹¹. Data was collected through pretest in both groups in order to measure the students' prior achievement before the treatment. It was given at the first meeting before the researcher gave treatment.

b. Post-test

Posttest is a test given after a lesson or a period of instruction to determine what the students have learned. After the researcher gave the treatment, the posttest was given. The result of the test was scored and calculated. It was compared to the pretest. It was done to determine the result of utilizing student worksheet for constructivism learning.

¹⁰ Louis Cohen, “*Research Method in Education*” (London and New York: Routledge, 2007),p. 414

¹¹ <http://www.thefreedictionary.com>

2. Questionnaire

Questionnaire is a set of questions for gathering information from the subject of study. The questionnaire used in this study was intended to see the students' response toward the utilizing student worksheet for constructivism learning. Students' response questionnaire was purposed for the students. It was given to the students at the end of the lesson to know the student responses toward the worksheet.

F. RESEARCH INSTRUMENTS

Each technique/method that is used to collect the data needs an instrument. According to Arikunto, "*instrumen adalah alat atau fasilitas yang digunakan oleh peneliti dalam mengumpulkan data agar pekerjaannya lebih mudah dan hasilnya lebih baik, dalam arti lebih cermat, lengkap, dan sistematis sehingga lebih mudah diolah*".¹² In short, instrument is a tool which is used by a researcher in using method during conducting the research in order to get the data better. Thus, determining instrument depends on the method used in the research.

1. Instrument for Test

The construction and administration of tests is an essential part of the experimental model of research, where pretest and posttest have to be devised for controlled group and experimental group¹³. In constructing the test the researcher considered some feature that the level difficulty must be the same

¹² Arikunto, Suharsimi. "*Prosedur Penelitian Suatu Pendekatan Praktek*" (Jakarta: Rineka Cipta, 2002), 136.

¹³ Louis Cohen, "*Research Method in Education*" (London and New York: Routledge, 2007),p. 432

in both tests. Also, the researcher considered the relationship between the test items and the course of objective. In administering the pretest and posttest, the researcher needed “question sheet” as the instrument. The questions were prepared in the form of multiple-choice since the multiple-choice is the most common type of objective common items used to test awareness of the features of the language¹⁴.

2. Instrument for Questionnaire

This part was devoted to the description of the questionnaire. The questionnaire instrument the researcher used in this study was “rating scales”. It contains the set of statements for gathering information. Rating scales are very useful for researcher as they build in a degree of sensitivity and differentiation of response while still generating number¹⁵. In this research instrument the researcher administered the questionnaire instrument to get students’ perception towards the utilizing student worksheet for constructivism learning. Students’ response was rated in scale of strongly agree, agree, neutral, disagree, and strongly disagree. Respondents indicate their opinion by ticking or putting mark on that position on the scale which most represent what they feel.

¹⁴ Heaton, J.B, *writing English language tests* (New York: Longman, 1988) P 34

¹⁵ Louis Cohen, p. 325

G. DATA ANALYSIS TECHNIQUES

In data analysis, the researcher analyzed the result of teaching and learning process of this study. There were some kinds of data that must be analyzed. First, the data concerning the effectiveness of this study which was the utilizing student worksheet for constructivism learning in teaching English and data concerning student's response toward this study. Those were described as follows:

1. Analyzing data concerning the effectiveness of the study

To see the effectiveness of the study, whether it affected success or not, the researcher conducted pretest and posttest to collect data. Then, the researcher measured the score differences from pretest and post test of experimental group and controlled group by the statistical calculation. In this study, the researcher used t-test formula to find out whether the mean differenced between them were significant or not. T- Test used to measure and compared the differenced of means score between experimental group and controlled group. The students' scores were analyzed statistically by using a procedure of t – test, with the steps below:

First, the researcher put the scores of the pre test and post test of experimental and controlled groups.

Second, the researcher calculated the mean from overall scores of pre test and post test of both groups. The calculation of the mean used the following formula:

$$MEAN: \sum \frac{fx}{N}$$

Where :

M = mean

$\sum fx$ = total of the test

N = total of the students

Third, after collecting the data of pre test and post test overall score from both of groups, then the researcher calculated of the mean of difference score between the pre test and post test of each group through the formula below:

$$Md = \frac{\sum d}{N}$$

Where:

Md = mean of the different score pre test and post test each groups

$\sum d$ = the total of different score.

N = total of students taking the test.

After collecting the data of pre test and post test from both groups, the researcher analyzed the data through t- test to find out whether the difference of the scores between them was significant or not. Through the following formula:

$$t = \frac{M_x - M_y}{\sqrt{\left[\frac{\sum X^2 - Y^2}{N_x + N_y - 2} \right] \left[\frac{1}{N} + \frac{1}{N} \right]}}$$

Where:

M_x = mean score of experimental group

M_y = mean score of controlled group

$\sum X^2$ = The sum deviation square of native's class

$\sum Y^2$ = The sum deviation square of non-native's class

N = number of students each class

Before calculating the t-value, the researcher used the following formula to find the sum deviation square of each group

$$\sum X^2 = \sum X^2 - \frac{(\sum X)^2}{N}$$

$$\sum Y^2 = \sum Y^2 - \frac{(\sum Y)^2}{N}$$

Where:

X = deviation of posttest and pretest score of each subject in experimental group

Y = deviation of posttest and pretest score of each subject in controlled group

After calculating all of the scores, the researcher calculated the number of degree of freedom by adding the individual of each group, then subtract of two. The formula as follows:

$$df = N_1 + N_2 - 2$$

Where:

df = degree of freedom

N_1 = number of subject in experimental class

N_2 = number of subject in control class

Standard of significant = 0,05

2. Analyzing data concerning students' response toward the study

Students' response questionnaire was arranged based on the Likert scale. It was assessed with the following scale¹⁶:

- a. Strongly Disaggre (SD) = 1
- b. Disaggre (D) = 2

¹⁶ Sugiyono, 2007, Page: 93-95

- c. Neutral (N)= 3
- d. Agree (A) = 4
- e. Strongly Agree (SA) = 5

The score of students' response was calculated with the every single question and was looked for the percentage by using formula as follow:

$$\% SRS = \frac{\sum SRS}{SRS \text{ maksimum}} \times 100\%$$

Information:

$\sum SRS$: the total of students' response score was gotten by calculating $SRS SA + SRS A + SRS N + SRS D + SRS SD$

$SRS \text{ maksimum} = \sum R \times \text{the best score choice} = \sum R \times 5$

After getting percentage of every single statement. Then, students' responses in every single statement was clasified to see the criterion by using likert scale. It was explained as follows¹⁷:

Table 3.2
Criteria of students' response

Percentage	Criterion
0% - 20%	Very weak
21% - 40%	weak
41% - 60%	average
61% - 80%	strong
81 - 100%	very strong

¹⁷ Riduwan, 2010. *Metode dan teknik menyusun tesis*. Bandung; alfabeta

The last step was arranging the category to classify the general response of student toward the implementation of utilizing student worksheet for constructivism learning in teaching English. Those are:

1. If $\geq 50\%$ from general students' response score includes in strong or very strong category. The students' response is positive.
2. If < 50 from general students' response score includes in strong or very strong category. The students' response is negative.