CHAPTER III

METHODOLOGY

This chapter describes the procedures of the study in order to investigate the answer to the research question previously stated in Chapter One. It covers research methodology, research design, variables, hypothesis, clarification of the key terms, data collection, population and sample, research instruments, research procedure and data analysis.

3.1 Research Method

This study was conducted to find out the effectiveness of teaching listening using sequences of pictures. The method used in this study was experimental method. Experimental method is a research to determine the effect of treatment (Frankael & Wallen, 1990).Two classes were employed in this study. One class was the experimental class (8-A) which was applied with the treatment of sequences of pictures and another class was the control class (8-C) that did not get any treatment (using conventional teaching method).

3.1.1 Research Design

This study used quasi-experimental design, the pre-test, post-test, and non-equivalent group design. Hatch and Farhady (1982) state that the pre-test, post-test, and non-equivalent group design are often used in classroom experiments when experimental and control groups are such naturally assembled groups as intact classes which may be similar. The treatment was given to the experimental group to find out students' ability in listening after the treatment.

The formula of quasi-experimental design is described as follows:

Table 3.1

Experimental Design

Sample	Pre-test	Treatment	Post-test
Experimental Group	X1e	T	X2e
Control Group	X1c	0	X2c

Notes

X1e : Students' listening achievement of experimental group in pre-test

X1c : Students' listening achievement of control group in pre-test

X2e : Students' listening achievement of experimental group in post-test

X2c : Students' listening achievement of control group in post-test

T : Treatment using sequences of pictures

From the table above, it can be seen that both classes were given pre-test in the beginning of the study. Afterwards, the experimental group was given the treatment. After the treatment, the post-test was given to both groups. This was to find out whether the students who were treated by using sequences of pictures could achieve higher score than those who were taught by using a conventional method.

3.1.2 Variables

There were two variables in this study. The first variable was independent variable and the second was dependent variable. In this study, the sequence of pictures as the teaching strategy was the independent variable and became the major variable to be investigated, while the variable that was influenced by independent variable was the students' listening skill.

3.2 Hyphotesis

Hypothesis is a tentative statement about the outcome of the research (Hatch & Farhady, 1982).Sugiyono (2009) also states hypothesis as a tentative answer of the research problem. This study begins with null Hypothesis (H_o) where both classes were conducted; experimental and control classes were similar. Coolidge (2000) states that the hypothesis of this study was appropriate to be stated as follows:

$$H_{0:}\ \mu_1 = \mu_2$$

H_0: null hypothesis

μ_1: control group

μ_2: experimental group

It means that there is no difference listening skill between experimental group (class using sequences of pictures in learning listening) and control group (class using conventional method in learning listening). By using null hypothesis, every possibility of the study can be shown. If the hypothesis is rejected, it can be concluded that experiment works. Meanwhile, if the hypothesis is accepted, the experiment does not work. Therefore, the null hypothesis in this study is the sequences of pictures which are not effective in improving students' listening skill.

3.3 Clarification of the Key Terms

Some terms need to be clarified in order to comprehend the notions underlying title of this study. Some terms are clarified as follows: (1) *Use*, in this study, the meaning of use is a method or applying sequences of pictures in teaching listening; (2) *Sequences of pictures*, in this study sequence of pictures can be tools or media to stimulate students in learning listening. The sequences of pictures are taken from british council, tale toons and *Youtube;* (3) *Listening*, refers to a process which involves meaningful interactive activity for an overall understanding of the spoken language (O'Malley and Chamot, 1989)

3.4 Research Participants and Setting

Arikunto (1998) argues that population as the whole subject in the research field. The population of the study was the second grade students at one of junior high schools in Bandung.

Sugiyono (2009) states that purposive sampling is a technique used with certain consideration. According to Surakmad (1989), the research study may use at least minimum 15% of the population if the population is more than 100 persons.

There were two classes employed as the sample of this study. First class was 8-A, consisting of 36 students. It was the experimental group in which the use of sequences of pictures was implemented. The second class was 8-C, consisting of 36 students and took part as the control group in this study. Therefore, this class did not get any treatments.

3.5 Research Instruments

According to Sugiyono (2009), research instrument is the tool used to measure something that we observe. To obtain the data for answering the research questions, two kinds of instrument were used; (1) Pre-Test and Post-Test were used to answer the research question about the effectiveness in using sequences of

pictures in teaching listening, (2) Questionnaire was used to find out the responses of the students towards the use of sequences of pictures in teaching listening. Both instruments are elaborated in the next sections.

3.5.1 Test

a. Pre-test

The pre-test was conducted in the first meeting for 40 minutes. This test was aimed at discovering the students' ability were equal in listening.

b. Post-test

The post-test was conducted in the last meeting for 40 minutes. The test items of the post-test were not the same as the pre-test but the level of difficulty was similar. The aim of the post-test was to find out the differences between two groups after the treatment was given.

The questions of the test then cover the following details:

Table 3.2

The Competencies and Indicators of Item of Listening Test

Standard Competence	Basic Competence	Indicator	Number of item in listening test
Mendengarkan 8. Memahami makna dalam percakapan transaksional dan interpersonal pendek sederhana untuk berinteraksi dengan lingkungan sekitar.	8.2 Merespon makna yang terdapat dalam monolog pendek sederhana secara akurat, lancar, dan berterima untuk berinteraksi dengan lingkungan sekitar dalam teks berbentuk	Mengidentifikasi urutan peristiwa dalam cerita narrative yang didengar.	10, 17, 25, 37, 45, 50
		Mengidentifikasi karakteristik tokoh dalam cerita narrative yang didengar	1,3, 7, 12, 15, 18, 22, 27, 28, 29, 31, 33, 39, 42
		Mengidentifikasi tempat / setting dalam cerita narrative yang didengar.	11, 13, 14, 30, 32, 46, 48

	narrative.	Mengidentifikasi kejadian dalam cerita narrative yang didengar	2, 4, 5, 6, 8, 9, 16, 19, 20, 21, 23, 24, 26, 34, 35, 36, 38, 40, 41, 43, 44, 47, 49

3.5.2 Questionnaire

The questionnaires were aimed at finding out students' responses towards the use of sequences in teaching listening. The questionnaires were distributed in the last meeting after students finished their post-test.

This study used both of questionnaires, open-ended and close questionnaires. The close questionnaire was aimed at finding out the students' responses towards sequences of pictures usage in teaching listening. The open questionnaire was aimed at finding out difficulties the students had in listening and the advantages teaching listening by using sequences of pictures. The questionnaires can be seen at Appendix E.

3.6 Data Collection

In this study, there were several steps in taking the data required. The following steps were: preparing the lesson plan, preparing the teaching material, administering pilot-test, teaching phase (including pre-test, teaching program and post-test), administering questionnaires.

3.6.1 Preparing the Lesson Plans

There were some lesson plans to implement during the treatment sessions. Those lesson plans were designed for six meetings. It was important for teacher to design a lesson plan, in line with Harmer (2001) who states the lesson plan is used as guidance for teaching and learning process and help teacher identify the aims and anticipate potential problems of the teaching program. Lesson plan for both group can be seen in Appendix A.

3.6.2 Teaching Materials

There were six sequences of pictures shown in this study. Those sequences of pictures were“ Little Red Riding Hood”, “The Jack and The Beanstalk”, “ The Monkey and Crocodile”, “ The Shoe Maker and The Elves”, “ The Moon and Monkey” , and “Princes and The Dragon”. Fantasy, the type of narrative text, was chosen as the listening material because as stated in junior high school curriculum it is one of the text that should be taught. The teaching materials can be seen in Appendix A.

3.6.3 Administering Pilot-test

Arikunto (1993) argues that to measure the relevance of the instrument the try-out of the research instrument is necessary administered to find out the validity

and reliability level of the instrument. According to Brown (1988), he states that the test items should be tried out in terms of its validity and reliability, before conducting pre-test and post-test. The instruments are tried out to the sample from the same population but not included in the research sample. In this study, try out was conducted on January 10, 2012.It was conducted in class 8-B at one of junior high schools in Bandung. The test consisted of 50 questions with four options for each number.

After scoring the result of the pilot test, the analysis to find out the validity, reliability, level of difficulty and discrimination level of the instrument were carried out. All of them were used to decide which item that was appropriate to be used in arranging instruments for this study. The example of pilot-test can be seen in Appendix B.

3.6.4 The Teaching Phase in Both Experimental and Control Groups

In this study there were three phases used in both experimental and control groups, they were conducting pre-test, a teaching program, and conducting post-test. The three phases will be elaborated in the subsequent section.

3.6.4.1 Conducting Pre-Test

The pre-test was given to experimental and control groups after its validity and reliability had been measured. Pre-test was conducted before the treatment in January 11, 2012 for both experimental and control group.It consisted of 15

questions with four options for each number. Time allocation for doing the test was 40 minutes. The example of pre-test can be seen in Appendix C.

3.6.4.2 A Teaching Program in Both Experimental and Control Group

The researcher performed as a teacher in both experimental and control groups. In the experimental group, the teaching material and procedures were highly related to the implementation of sequences of pictures in listening. Meanwhile in the control group, conventional listening materials and teaching procedures were applied.

There were several steps used in teaching listening using sequences of pictures as stated by author (Miller and Pennycuff , 2008 ; Halleck, 2007; O'Brien, 2009; Lado, 1961) in both experimental and control groups. In each meeting the researcher performed as a teacher and classroom activities can be described below.

The first step was story telling activity. Miller and Pennycuff (2008) state that storytelling is an effective strategy that can increase students' competencies in all areas. This, as Halleck (2007) says, in a storytelling event, the words are not memorized, but are recreated through spontaneous, energetic performance, assisted by audience participation and interaction. In the story telling activityconducted by teacher, the students got explaination of what is in the pictureand the sequences of pictures were shown to the students. This was applied in the experimental group. The sequences of pictures can be seen in Appendix A.

The second step was to arrange jumbled sentences. O'Brien (2009) states that a jumbled sentence question requires students to put the text in the correct order. This question type is useful for language learning because teachers can provide sentences for students to translate. Regarding this, Riazi and Mir (2002) argue, sentences combining or jumbled sentences exercises can help the students go into a meaning negotiation process in order to produce coherent and meaningful texts. In this activity the teacher read the story to the students. After the students listened to the story, the teacher asked the students to work in pairs to arrange the jumbled sentences based on the story they had heard. Narrative texts was chosen as the listening material.The narrative texts are fairy tales and fables. By doing this activity, the students learnt how to work in group. This, as Cameron (2001:5) argues, students construct knowledge through other people. The students' worksheet can be seen in Appendix A.

The last activity was individual exercise consisting of multiple choice questions. The teacherused multiple choices exercise form in listening activity for both experimental and control groups. This, as Cohen and Hughes (1994, 2003) suggest, multiple choice tests were chosen because in multiple choice test scoring could be perfectly reliable and Lado (1961) addsthat it could provide the most satisfactory technique for testing auditory comprehension. The multiple choice exercise can be seen in Appendix A.

The schedule for experimental and control groups are described in the following table.

Table 3.3

SCHEDULE OF STUDY

No	EXPERIMENTAL GROUP		CONTROL GROUP	
	Date	**Material/Theme**	**Date**	**Material/Theme**
1	Januari 11, 2012	Pre-Test (Appendix C)	Januari 11, 2012	Pre-Test (Appendix C)
2	Januari 16, 2012	Little Red Riding Hood (using sequences of pictures) (Appendix A)	Januari 16, 2012	Little Red Riding Hood (Appendix A)
3	Januari 18, 2012	Jack and the beanstalk (using sequences of pictures) (Appendix A)	Januari 18, 2012	Jack and the beanstalk (Appendix A)
4	January 23, 2012	The monkey and the crocodile (using sequences of pictures) (Appendix A)	January 23, 2012	The monkey and the crocodile (Appendix A)

5	January 25, 2012	The shoe maker and the elves (using sequences of pictures) (Appendix A)	January 25, 2012	The shoe maker and the elves (Appendix A)
6	January 30, 2012	The moon and the monkeys (using sequences of pictures) (Appendix A)	January 30, 2012	The moon and the monkeys (Appendix A)
7	February 1 , 2012	Princess and the dragon (using sequences of pictures) (Appendix A)	February 1, 2012	Princess and the dragon (Appendix A)
8	February 6, 2012	Post-test (Appendix D) Questionnaire (Appendix E)	February 6, 2012	Post-test (Appendix D)

The topics were chosen based on the curriculum. There were two meetings in a week; every meeting lasted for 40 minutes. In conclusion, the treatments were only conducted in 6 meetings.

3.6.4.3 Conducting Post-test

Post-test was conducted to both groups at the end of the treatments in order to find out the result of the whole treatments whether there are any differences between experimental and control group after the treatment. The test was conducted on February 6, 2012. The example of post-test can be seen in Appendix D.

3.6.5 Conducting Questionnaire

Questionnaires were distributed to experimental group at the end of the treatments to find out students' responses towards the use of sequences of picture in teaching listening. This study used open-ended and close questionnaires. Arikunto (2007) says that an open-ended questionnaire is a questionnaire where the respondents are given freedom to express their opinion without being given certain limitation. Nasution (1982) states that close questionnaire consists of several questions or statements with certain answers as the options and the respondents only check the answers according to their opinions. The questionnaires consisted of 5 open questions and 10 close questions which were written in Bahasa Indonesia in order to enable the students to answer and express their ideas easily. The questionnaires can be seen in Appendix E.

3.7 Data Analysis

3.7.1 Data Analysis on Pilot Test

The data from the pilot test were analyzed to measure the validity, reliability, level of difficulty, and discrimination of the instrument.

3.7.1.1 Analyzing Validity

The instrument validity was examined by item analysis. Therefore the process of calculation was named as validity index. To calculate the validity of each item, this study used Anates.

Then, the index validity of each item was interpreted with the following criteria:

Table 3.4

r Coefficient Correlation (Validity)

Raw score	Interpretation
0.8 – 1.0	Very high
0.6 – 0.8	High
0.4 – 0.6	Moderate
0.2 – 0.4	Low
0.0 – 0.2	Very Low

(Arikunto, 2006)

3.7.1.2 Analyzing Reliability

Hatch & Farhady (1982) state that reliability is the extent to which a test procedure reveal a consistent result when administered under similar condition. The process was computed by Anates.

The reliability of each item was interpreted with the following criteria:

Table 3.5

Category of Coefficient Correlation of Reliability

Coefficient Correlation	Interpretation

0.0 – 0.20	Low
0.20 – 0.40	Moderate
0.40 – 0.70	High
0.70 – 1.00	Very High

(Arikunto, 2006)

3.7.1.3 Analyzing Difficulty Level

Difficulty level was used to measure how far the test items were relevant with the participants' ability was aimed at investigating whether it was too easy or too difficult for the participants. Heaton (cited in Kaosar 2011), states that in order to find out how easy or difficult certain items established in the test are. It can be analyzed using item difficulty index or facility value.

Therefore, the items with facility value around 0.500 were considered to be ideal, with an acceptable range around 0.250 to 0.750 (Fulcher & Davidson, 2007, cited in Zatnikasari, 2008).

Table 3.6

Index of Difficulty

Index of Difficulty	Interpretation
0.00 – 0.30	Difficult
0.30 – 0.70	Moderate
0.70 – 1.00	Easy

(Arikunto, 2006)

3.7.1.4 Analyzing Discrimination Index

Arikunto (2006) suggests that discrimination index is used to indicate how far a single test item can distinguish the upper group from the lower group of the class.

Table 3.7
Criteria of Discrimination Index

Discrimination Index	Interpretation
00.00 – 0.20	Poor
0.20 – 0.40	Moderate
0.40 – 0.70	Good
0.70 – 1.00	Excellent

(Arikunto, 2006)

3.7.2 Data Analysis on Pre-test and Post-test

The pre-test was given to the experimental and control groups in the same procedures while the post-test was given at the end of the experimental and control groups. A hypothesis was started at the alpha level at 0.05. The data were collected through pre-test and post-test computed one by one using IBM SPSS Statistics 19.0 for Windows.

The steps used in analyzing pre-test were normal distribution test, homogeneity variance, and independent t-test. The data will be presented in Chapter 4. The details of statistical procedures are as follows:

3.7.2.1 Normal Distribution Test

Normal distribution was calculated before t-test. This test was aimed at measuring whether the distribution of pre-test and post-test scores were normal or not.

The statistical calculation of normality test used Kolmogorov-Smirnov by following four steps below:

1. setting the hypothesis, H_0= the scores between experimental and control groups which normally distributed
2. setting the level of significance (p) at 0.05
3. analyzing the normality distribution by Kolmogorov-Smirnov test
4. comparing scores between test result and level of significant value. If Asymp. Sig>0.05, the null hypothesis is not rejected. It means the sample scores are normally distributed. In contrast, if Asymp. Sig<0.05, the hypothesis is rejected it means the scores are not normal.

3.7.2.2 Homogeneity of Variance

The homogeneity of variance test used Levene test in SPSS Statistics 19.0 for Windows program. The steps were as follows:

1. setting the hypothesis, H_0=data between the two groups are homogenous
2. setting the level of significance (p) at 0.05
3. measuring the homogeneity variance using Levene's test
4. comparing the result of Levene's test and alpha level of significance

If Asymp. Sig. <0.05, the null hypothesis is rejected, it infers that the two groups are not equal. Meanwhile, if Asymp. Sig>0.05, the null hypothesis is accepted, it infers that the variance data of the two groups are equal; the data are homogenous.

3.7.2.3 Independent t-test

The independent t-test was used to analyze the differences between two groups' means. In this study, the independent sample test was calculated by the computation of SPSS Statistics 19.0. The steps were as follows:

1. setting the hypothesis, H_0= there is no significant difference between the students' listening scores in experimental and control groups
2. setting the level of significance (p) at 0.05 with two-tailed of significance
3. calculating t-test scores using SPSS Statistics 19.0
4. comparing t-obtained and t-critical. If t-obtained > t-critical, there is a significant difference between two groups. It means that the null hypothesis is rejected. Meanwhile, if t-obtained < t-critical, there is no

significant difference between the two groups. It means that the null hypothesis is not rejected.

3.7.2.4 Paired t-test

Paired t-test was used to find the differences between pre-test and post-test scores in each of sample groups. In this study, the independent sample test was calculated by using the computation of SPSS Statistics 19.0. The steps were as follows:

1. setting the hypothesis
2. setting the hypothesis, H_0= there is no significant difference between the students' listening scores in pre-test and post-test score.
3. setting the level of significance (p) at 0.05 with two-tailed of significance
4. calculating t-test scores using SPSS Statistics 19.0
5. comparing t-obtained and t-critical. If t-obtained > t-critical, there is a significant difference between the scores before and after treatment. It means that the null hypothesis is rejected. Meanwhile, if t-obtained < t-critical, there is no significant differences between treatment score before and after treatment. It means that the null hypothesis is not rejected.

3.7.3.5 Effect Size

The effect size computation was conducted to check the level of effect of the treatments after t-test by using SPSS Statistics 19.0 from independent t-test of post-test. The effect size was used to determine significance impact of the treatments to the experimental group's scores. Effect size has positive correlation to its value. The larger effect size value is the larger impact of treatment will be (Coolidge, 2000). The formula of effect size is:

$$r = \sqrt{\frac{t^2}{t^2 + df}}$$

Where:

r = effect size

t = t obt or t value from the calculation of independent t test

df = N 1 + N2 – 2 (degree of freedom)

Value of effect size was interpreted by the following scale

Table 3.8
Scale of Effect Size

Effect Size	r value
Small	.100
Medium	.243
Large	.371

(Coolidge, 2000:1)

3.7.4 Data Analysis on Questionnaires

Questionnaires were distributed to the experimental class at the end of the treatment to find out students' responses towards the use sequences of pictures in teaching listening.

This study used both close and open questionnaires. The questionnaires consisted of 5 open questions and 10 close questions. For close questionnaires, they consisted of 10 statements. Each statement had four various alternatives options that should be chosen by the students. The questionnaires can be seen in Appendix E.

The researcher used *Likert scale* with the typical of four-level Likert item format as follows:

1. Strongly disagree (STS: *Sangat Tidak Setuju*)
2. Disagree (TS: *Tidak Setuju*)
3. Agree (S: *Setuju*)
4. Strongly agree (SS: *Sangat Setuju*)

The questionnaires can be analysed through several steps: (a) Evaluating the questionnaires, (b) Classifying the answer of questionnaires, and (c) Describing and intrepeting the data. Moreover, the data from questionnaires will be analyzed through numeral percentage below:

$$p = \frac{F \times 100}{N}$$

Note:

P = Percentage

F = Frequency

N = Response

100 =Constant

The criteria of percentage categories are described as follows:

Table 3.9

Criteria of Percentage of Respondent

Percentage of respondent	Criteria
1-25%	Small number of the students
26-49%	Nearly half of the students
50%	Half of the students
51-75%	More than half of the students
76-99%	Almost all of the students
100%	All of the students

(Indah Rahmawati, 2008 cited in Kaosar, 2011)

3.8 Concluding Remark

This chapter has discussed the methodology of the study. The study was conducted to investigate the result of teaching listening through sequences of picture and students' responses towards the sequences of pictures used in teaching listening. A Quasi-experimental was used as a design in this study. A second

junior high school participated in this study. Data were collected through a pre-test, a post-test, and a questionnaire.