

## Chapter III

### Research Methodology

This chapter describes the methodology used in this study including research problems, research design, research procedures, participant, data collection and data analysis.

#### 3.1 Research Problem

The study was conducted to investigate the use of contextual video in listening practice at a junior high school in Bandung. The problem to be investigated was formulated into two research questions as follows:

1. Does contextual video improve the students' listening ability?
2. What are the students' responses toward the use of contextual video in listening practice?

#### 3.2 Research Design

This study used a quantitative method and applied a quasi-experimental design with non-equivalent control group pre-test and post test. According to McMillan and Schumacher (1989), quasi experimental design is a design that approximates the true experimental type with no random assignment of subject.

There were two groups involved in this study. The first is experimental class which is given the treatment by implementing contextual video, and the

second one is control class which is given no treatment (McMilan and Schumacher, 1989).

Both groups took pre-test and post-test to measure the effectiveness of the treatment given and the t-test formula was applied to determine whether there is a significant difference between the experimental and control groups' means on the dependent variable (Collidge, 2000). The design of the study can be seen as follows:

$$\frac{G_1 : T_1 \times T_2}{G_2 : T_1 \times T_2}$$

Where:

$G_1$  : Experimental group

$G_2$  : Control group

$T_1$  : Pre-test

$T_2$  : Post-test

$\times$  : Treatment

### 3.3 Research Hypothesis

According to Collidge (2000), hypothesis is an educated guess about some states of affairs. This study tested two hypotheses. The first is null Hypothesis ( $H_0$ ) which states that there is no significant difference in total mean score between experimental group and control group (Kranzler and Moursund, 1999). The notation of null hypothesis is as follows:

$$H_0: \mu_1 = \mu_2$$

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$H_0$ : Null hypothesis

$\mu_1$ : Control group

$\mu_2$ : Experimental group

The second hypothesis is alternative hypothesis ( $H_a$ ) which states that there is significant difference in total mean score between experimental and control groups (Kranzler and Moursund, 1999). The notation of alternative hypothesis is as follows:

$$H_a: \mu_1 \neq \mu_2$$

$H_a$ : Alternative hypothesis

$\mu_1$ : Control group

$\mu_2$ : Experimental group

### 3.4 Data Collection

#### 3.4.1 Participants

The term participants covered population and sample of this study. According to McMillan and Schumacher (1989), population is the sample consisting of individuals selected from a larger group of person, and sample is smaller groups selected from the population (Coolidge, 2000).

The population of this study was the eighth grade students of junior high schools in Bandung, whereas the sample of the study was class 8D as the experimental class consisting of 38 students and class 8A as the control class consisting of 38 students.

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### 3.4.2 Instrument

Research instruments are the tools used to measure something that we observe in order to obtain the data and answer the research problems (Sugiono, 2011). The instruments that were used in this study are pre-test, post-test, and questionnaire.

#### 3.4.2.1 Pre-test and post-test

The pre-test was conducted in the beginning of the study before the treatment was given to the experimental group. The purpose of conducting pre-test is to find out the students' initial ability. A listening test was used in pre-test as the instrument of this study. It consisted of 16 multiple choice questions (started from question no. 1 until questions no. 16), 2 true and false questions (Started from questions no.17 until no.18), and 5 matching English expression questions (started from questions no. 19 until questions no.23).

The questions of multiple choices were categorized into explicit and implicit questions. The explicit questions have clear and obvious answer that can be listened directly from the video when listening practice. The example of explicit question is able on question no. 9 in pre-test and no.10 in post-test, the question was related to offering help expression and the students can hear the answer directly from the conversation they listen. The other one was implicit questions. In implicit questions, the answer is not directly stated in the conversation. The example of implicit questions is able on the question no. 3 in pre-test and no. 2 in post-test and it was related to asking information expression,

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the questions was “How long will Martin be in vacation?” the answer of the questions didn’t stated directly on the conversation. The correct answer for the question is ‘one week’.

Post-test was conducted after the treatment given to the experimental group. The mean score of post-test would be compared with the mean score of pre-test to find out the effectiveness of contextual video usage in improving students’ listening ability. The items that were used in the post-test were basically the same with those used in pre-test.

The detail of the multiple choices questions can be seen in the following table:

**Table 1**  
**Material Content of Multiple Choices Questions**

No	Number of Questions		Learning Material
	Pre-test	Post-test	
1	1,2,6,9	13, 16, 1, 10	Offering service expression
2	3, 4, 5, 7, 8, 10, 11, 14, 15	2, 6, 3, 12, 4, 5, 7, 8, 9	Asking for Information
3	13	14	Giving Service expression
4	12, 16	15, 11	Asking Service Expression

However, the pilot-test had to be administered before conducting pre-test and post-test to the experimental and control group in order to find out whether the instruments are appropriate to be used in pre-test and post-test by discovering the value of validity, index of difficulty, reliability, and discrimination index. The pilot test was conducted in another class that does not belong to the control and experimental group.

### 3.4.2.2 Questionnaire

According to Arikunto (2006), a questionnaire is a written test used to gain the information from the respondent. There are two types of questionnaire, namely closed questionnaire and open questionnaire. In closed questionnaire, a number of possible answers of questions are given by the researcher, so that the respondents only choose one of them. In open questionnaire, the respondents have a freedom to answer the question based on their own words or opinions. The advantage of using questionnaire is that the test can be given to a large number of people in the same time, while the disadvantages are the unclear or ambiguous questions cannot be clarified, and the respondents have no chance to expand or react verbally to particular questions (Conoley and Kramer, 1989)

This study used closed questionnaire and it was distributed in the experimental group only after both control and experimental groups finished their post-test. The questionnaire was conducted to find out the students' responses toward the use of contextual video in listening. It consisted of 12 questions covering advantages and disadvantages of using video that were related to the students' English knowledge and students' psychology. The detail of the instrument can be seen in Appendix B.



### **3.5 Research Procedures**

There were several steps in conducting this study covering organizing teaching procedures, organizing the research instrument, testing the instrument, conducting pilot-test, administering pre-test, applying treatments, administering post-test, and distributing questionnaire.

#### **3.5.1 Organizing Teaching Procedure**

The first step was organizing the teaching procedures and preparing the appropriate teaching materials for both experimental and control groups that would be implemented during the treatment session. In this study, five teaching materials were designed for at least five meetings, and the procedure of teaching experimental class was taught by using contextual video, whereas the control class was taught by using conventional method.

#### **3.5.2 Organizing Research Instrument**

The second step was organizing the research instruments including pre-test, post-test, and questionnaire. Pre-test and pos-test were given to both experimental and control groups before and after the treatment was given, and the questionnaire was distributed to the experimental group only.

There were 23 questions in pre-test and post test that consisted of 16 multiple choice questions, 2 true false questions and 5 questions of matching the English expressions with their meanings. All questions in pre-test and post-test

were designed based on the curriculum of junior high school and appropriate with the purposes of this study and the level of the students' English ability.

### **3.5.3 Conducting Pilot-test**

Before the instrument were applied in pre-test and post-test, it has to be tested in try-out session or pilot-test to find out the validity, reliability, difficulty index and the discrimination index.

The try out session was conducted in another class that does not belong to the experimental and control group, but the class was still in the same level with the experimental and control groups. In this study, the try-out session was applied in class 8H, whereas pre-test and post-test was conducted in 8A as control class and 8D as experimental class.

### **3.5.4 Administering Pre-test and post-test**

The pre-test was conducted in the beginning before the treatment session is applied. The purpose of pre test is to find out the students' initial ability.

Post-test was conducted after the treatment session finish. The purpose of conducting post-test is to find out whether or not the contextual video is effective to be used in teaching listening.



### 3.5.5 Conducting Treatments

In this study, two classes were selected as the experimental group (class 8D) in which the treatments of using contextual video was implemented and control group (class 8A) that was taught by conventional method.

There were five contextual videos used for the treatment sessions, and those videos contain four types of English expressions for junior high school students of eighth grade such as asking and giving information, asking and giving help, asking and giving opinion, asking and giving direction, ordering and offering something. The schedule of treatments can be seen in the following table.

**Table 2**  
**Schedule of the Treatment**

NO	Experimental Group		Control Group	
	Date	Material	Date	Material
1	7 Februari 2012	Pre-test	8 February 2012	Pre-test
2	21 Februari 2012	Asking Information	22 February 2012	Asking and giving help
3	28 Februari 2012	Asking Directions	29 February 2012	Asking Information
4	6 Maret 2012	Asking & Giving a Service	7 March 2012	Asking & Giving a Service
5	20 Maret 2012	Asking &	21 March 2012	Asking &

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		Giving Opinion		Giving Opinion
6	27 Maret 2012	Ordering & Offering	28 March 2012	Ordering and offering
7	3 April 2012	Post-test	4 April 2012	Post-test

In applying contextual video, there were three stages of teaching activities, namely pre-listening activities, while-listening activities and post-listening activities. In pre-listening activities, the students were asked about some questions related their experience and knowledge about asking help and information in the public place, e.g. ‘have you been traveling by public transportation such as plane or travel car to some place?’ ‘How do you book the ticket for your traveling?’ ‘What kind of information do you give to the travel agent?’

In while-activities, the students were asked to read all of questions for 5-7 minutes before the listening practice began. It was conducted to make sure that the students understand all the questions given and have no difficult vocabularies that they don’t understand about the meaning. After the students finished reading the questions and have no anything to be asked for more explanation, the students in experimental class began to listen the contextual video with the screen and the students in control class without the screen. The contextual video was played for 3 times in each class in order to give the students a chance for checking and making sure their answers were correct before collected it in front of the class.

In post-activities, the teacher doing some relaxing discussions with the students by asking about the students’ feeling after doing listening practice and

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asked about the difficulties that students had during listening practice, then asked which question that the students felt as the hardest one. At the end, the teacher gave some feedback to the students and let the students know about the next material before closing the activities.

### **3.5.6 Distributing Questionnaire**

After conducting post-test, the next step was administering the questionnaire to the experimental group only to find out the students' responses toward the use of contextual video in listening. This study uses closed questionnaire. It consists of twelve questions that cover the advantages and disadvantages of using contextual video.

## **3.6 Data Analysis**

The term of data analysis covered scoring technique, data analysis of pilot test, data analysis of pre-test and post-test and data analysis of questionnaire.

### **3.6.1 Scoring Technique**

Since this study employed multiple choice questions, the scoring technique of the questions used the formula with no punishment. The formula without punishment is a formula that has no minus system of scores to the students' answers which are incorrect (Arikunto, 2006). The formula of scoring technique is stated as follows:

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$$S = R$$

S= Score

R= Right

### 3.6.2 Data Analysis of Pilot-test.

Data analysis of pilot-test covered the data analysis of validity, reliability, level of difficulty and discrimination index.

#### 3.6.2.1 Validity

Validity refers to appropriateness, meaningfulness, correctness and usefulness of the inferences that a researcher makes (Fraenkel & Wallen, 1990: 147). The purpose of conducting validity test is to see whether the test is valid or not to be used in pre-test and post-test.

*Pearson's Product Moment* was applied to test the validity. The data can be calculated use *Bivariate-Correlation* in SPSS 14 for windows or calculated use *anna-test* programs. The result of *r* coefficient correlation is consulted to the critical table of *r Product Moment*. If the value of *r*-obtained is bigger than *r* critical value with alpha 0.05, the correlation is significant and it can be said that the item is valid (Arikunto 2003: 75)

#### 3.6.2.2 Reliability Test

According to Crocker and Algina (1986:105), reliability refers to some assurances or a desired consistency when a result of the test can be replicated if

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the same individuals are tested again under similar circumstance. It is a consistency of the scores obtained or answers from one administration of an instrument to another and from one set items to another ( Fraenkel and Wallen, 1990: 133).

This study used the formula of Cronbach's alpha through SPSS 14 for windows to compute all items in estimating reliability test. The result of the coefficient of reliability is interpreted with the following categorization:

**Table 3**  
**Category of Coefficient Correlation (Reliability)**

<b>Coefficient Correlation</b>	<b>Interpretation</b>
0.0 – 0.20	Low
0.20 – 0.40	Moderate
0.40 – 0.70	High
0.70 – 1.00	Very High

(Arikunto, 2006)

### 3.6.2.3 Index of Difficulty Level

According to Flucher and Davidson (2007:102), index of difficulty is the numbers of correctly-answered items. It shows how easy or difficult the items in the test (Heaton, 1988). The items should not be too easy or too difficult for the population, the items with facility value around 0.5 are considered to be ideal, with acceptable range from around 0.30 to 0.70 (Henning, as cited in Flucher and Davidson, 2007:102)

The formula of difficulty index or facility value is as follow:

$$FV = \frac{R}{N}$$

(Heaton, 1988)

Where:

FV = Facility or index difficulty

R = the number of correct answer

N = the number of students taking the test

**Table 4**

**Table of Index Difficulty**

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

(Arikunto, 2006)

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#### 3.6.2.4 Discrimination Index

Discrimination index is the individual items test to discriminate the higher ability and lower ability of the students (Flutcher and Dvidson, 2007: 103). It is used to indicate how far a single test items can differentiate the upper group from the lower group of the sample (Arikunto, 2006). According to Henning (1987), the items with value of 0.25 or greater are considered acceptable. The formula of Discrimination index is written as follow:

$$r_{pbi} = \frac{\bar{x}_p - \bar{x}_q}{S_x} \sqrt{pq}$$

Where:

$r_{pbi}$  = point biserial correlation

$\bar{x}_p$  = mean score on the test for those who get the item incorrect

$\bar{x}_q$  = mean score on the test for those who get the item incorrect

$s_x$  = Standard deviation of the test scores

$p$  = the proportion of test takers who get the item correct (facility value)

$q$  = the proportion of test takes who get the item incorrect.

The result of discrimination index is interpreted by consulting to the table of criteria of discrimination index, as follows:

**Table 5**

**Criteria of Discrimination Index**

<b>Discrimination Index</b>	<b>Interpretation</b>
<b>&lt; 0.25</b>	<b>Not Acceptable</b>
<b>&lt; 0.25</b>	<b>Acceptable</b>

(Henning , 1987)

**Table 6**

**Criteria of Discrimination Index**

<b>Discrimination Index</b>	<b>Interpretation</b>
0.00 – 0.20	<b>Poor</b>
0.20 – 0.40	<b>Moderate</b>
0.40 – 0.70	<b>Good</b>
0.70 – 1.00	<b>Excellent</b>

(Arikunto, 2006)

### **3.6.3 Data Analysis on pre-test and Post-test**

The analysis of data on pre-test was conducted to find out the students' initial ability, whereas the data collected from post-test was analyzed to find out the difference of mean score between post-test and pre-test. If there is a significant difference between mean score in pre-test and post-test after the treatment given, in which mean score in post-test are higher than mean score in the pre-test, it can be assumed that contextual video is effective to be used in teaching listening, and

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null hypothesis can be rejected. Vice versa, if there is no significant difference between mean score in pre-test and post-test after the treatment given, it can be assumed that contextual video are not effective to be used in teaching listening and null hypothesis is retain.

In analyzing the significant difference of mean score between pre-test and post-test, there were several tests should be conducted such as normal distribution test, homogeneity variance, and independent t-test. The details of those tests are described below.

#### **3.6.3.1 Normal Distribution Test**

The analysis of normal distribution was conducted to find out whether the distribution of scores in experimental and control groups are normal or not. To calculate the test, Kolomogorov-Smirnov in SPSS 14 for windows is used. The score data was Normal if the  $p$  value (Asymp. Sig) is bigger than significance alpha level at 0.05.

#### **3.6.3.2 Homogeneity of Variance**

Test of variance homogeneity was conducted to find out whether the variances of experimental and control group are homogeneous or not (Uyanto: 2009). The data can be calculated by using Levene's test formula in SPSS 14 for windows, if the significance value is bigger than the significance alpha level at 0.05 means the data variances of experimental and control groups are equal and homogeneous.

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### **3.6.3.3 Independent t-Test for pre-test and post-test**

This independent t-test was used to analyze the significance difference between experimental and control groups' means in pre-test and post-test. The test was calculated by using statistician computation in SPSS 14 for windows. If  $t$  formula > critical value of 0.05 it indicates mean's score of the experimental and control group are different, and the null hypothesis can be rejected if the different is significant.

### **3.6.3.4 Paired t-Test**

This paired t-test was used to analyze the effectiveness of using contextual video by comparing means score on pre-test and post-test. Paired t-test was calculated by SPSS 14 for windows. If  $t$ -obtained is bigger than  $t$ -critical value at level 0.05, it means the contextual video is effective.

### **3.6.3.5 Effect Size**

Effect size test was conducted to find out the level of effect of the treatments given after the calculation of t-test is done. The purpose of the test is to determine how significant the impact of the treatment to the experimental group's score is. According to Collidge (2000: 151), effect size refers to the effect of the influence of independent variable upon the dependent variable. The formula of effect size can be seen as follow:

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

Where:

r = effect size

t =  $t_{obt}$  or t value from the calculation of independent t test

df =  $N_1 + N_2 - 2$  (degree of freedom)

The value of effect size will be interpreted to the following scale:

**Table 7**  
**Scale of Effect Size**

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

(Coolidge, 2000: 151)

#### 3.6.4 Data Analysis of Questionnaires

The questionnaire was distributed to answer the problem about students' responses toward the use of contextual video in listening. The data gathered were analyzed by scaling. The result would be presented in percentage and described using qualitative method. The result of questionnaire is put on percentage below:

$$\rho = \frac{fo}{n} \times 100\%$$

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Where:

P = Percentage

$f_o$  = Frequency of observed

n = number of sample



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### 3.7 Clarification of terms

Several terms that need to be clarified in this study are as follows:

1. Listening ability:

Listening ability is an ability or skill of paying attention to and trying to get meaning from something we here (Underwood, 1989)

2. Contextual video

In this study the terms of contextual video is a video that has particular theme which is suitable for the learning material and also has particular place, situation, and vocabularies that can help the students in understanding the meaning of every sentence in the conversation on video. Video itself means an electronic storage of moving image, such as film, video tape, VCD and DVD. The contextual video used in this study is a video taken from [www.youtube.com](http://www.youtube.com) that has a context and suitable with learning course material for junior high school students;

3. Improve

The word 'improve' means make a significant improvement or something better (Oxford learners pocket dictionary). The word improve in this term is to make the students' listening ability increase or improve significantly.

4. Use

The word use means a method or manner of employing or applying something (<http://www.meriam-webster.com/dictionary/use>). In this term, the meaning of use is a method of applying contextual video that is taken from <http://www.youtube.com> to improve student's listening ability.

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