

CHAPTER III

RESEARCH METHODOLOGY

This chapter elaborates the methodology employed in conducting this research. This chapter also describes the research procedure in order to find out the answer from the research questions stated in chapter one. It covers the research design, population and sample, data collection, research procedure, and data analysis.

3.1 Research Design

In order to answer the research questions, this study employed pre-posttest experimental study. It is considered as the most appropriate approach to accomplish the goal of this study due to the nature of the research which is aimed at finding the impact of the implementation of Multiple Intelligence Theory in improving students' speaking skills. In this study, the researcher served as the teacher and facilitator. To achieve the aim of this study, the pretest and posttest were given to take the score of the student's achievement before and after the treatment. Then both of the scores were computed by using t-test to find out if there is significant effectiveness of teachings' speaking skills using MIT activities. The design of this research can be depicted below:

Table 3.1

Research Design

Pretest	Independent Variable	Posttest
O_1	X	O_2

Note:

O_1 : Pretest

X : Treatment

O_2 : Posttest

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3.1.1 Research Hypothesis

Considering the problems mentioned above, the hypothesis were made related to this subject. As this research used quantitative method, the hypothesis were aimed as a preliminary overview of the research. The research that formulates hypothesis is the research in which quantitative method is used, it is the prediction about what the researcher expects to find (Creswell, 2012). Therefore, the hypothesis in this study is formulated as follows:

H_0 (null hypothesis) : There is no difference between students' pretest and posttest scores

3.2 Population and Sample

The population involved in this study was eighth grade students in one junior high school in Bandung. In this study, the sampling technique used was purposive sampling where one class was chosen to represent the entire population based on suggestions and condition in the school. The class taken was VIII-B which consists of 24 students, 15 females and 9 males.

3.3 Data Collection

In the process of collecting the data, there were some steps and instruments used to gain the data in order to reveal the answer of the research questions which could obtain a richer and deeper insight into the phenomenon studied. The research gather the information needed through tests and questionnaires. The first data were from the students' speaking scores. These speaking scores were gained from two speaking tests: pretest and posttest. The tests conducted were achievement tests, which employed to measure the students speaking skills before and after the treatment. The second data were from questionnaires. The questionnaires were employed after all the teaching and learning treatments had finished. The questionnaire was aimed to answer the second research question of this study and it was administered by the researcher only. For further explanation, each technique will be described as follows.

3.3.1 Speaking Test

In this research, speaking test served as the first research instrument consisted of pretest and posttest. The test was scored by two raters; the first one was the researcher herself and the second one was an English teacher. Both of the raters used the same scoring scale. Then, the scores from the two raters combined and the average score was taken as the final score. The possible score gained by students ranks from 0 - 100. Audio recordings were saved and then evaluated in order to assess the students' speaking skill in six aspects- vocabulary, syntax, cohesion, pronunciation, ideational function, and fluency. The students were asked to present a recount text based on the topic chosen by them. The students had ten minutes to prepare and they had two to three minutes to present their story. The instruments can be seen in appendix A.

a. Pretest

The pre test was carried out to identify the learners' initial ability in speaking. Therefore, the students were given a pre-test in the first meeting to find out the students' speaking ability before they got involved in the treatment. It was used to know the background knowledge of the students.

b. Posttest

The posttest was given at the end of the research. It was used to find the students' progress in speaking English; whether they developed their speaking ability or not and to measure how effective the treatment of teaching speaking by the implementation of MIT. The test instrument of the pretest and the posttest was on the same level.

3.3.2 Questionnaires

Questionnaires were conducted in this research in order to ensure and support the data from the previous treatment and seek the students' response toward the implementation of Multiple Intelligences Theory in their class. The questions were given in *Bahasa Indonesia* in order to allow the students to express their options properly and to avoid misunderstanding regarding the questions. The questionnaires were administered at the end of the meeting. The full list of the questions is included

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in the appendix A. However, before formulating the questionnaire, indicators of students' responses had been arranged first. The categorization of each statement is presented in the framework of students' questionnaire as follows:

Table 3.2

Indicators of Students' Questionnaires

No.	Indicators	Number of Items	Total
1.	Students' response to speaking	1, 2, 3	3
2.	Students' response to Multiple Intelligences activities	4, 5, 6	3
3.	Students' response to the implementation of Multiple Intelligences activities in teaching speaking	7, 8, 9, 10	4
Total			10

In order to discover the students' response there were four ranges of Likert scale that covers four dissimilar categories. The close-ended questions applied the Likert scale as the measurement in which the respondents were given even number of choices so that they did not select a middle option. In Likert questions, the respondents were asked to rate a particular issue on a scale that ranges between strongly agree (4), agree (3), disagree (2) to strongly disagree (1). The scale was used to measure people attitudes, opinions and responses. The higher the total score, the more positive is the students' response on the issue being addressed.

Moreover, the close-ended questions will be supported by the open-ended questions. It was conducted in order to let the students answered to the questions which were not limited to a set of options. The students were given five questions related to the implementation of MIT to be answered. The first question dealt with the students' response toward speaking activities in the class. The second, third and fourth questions dealt with the students' response toward the implementation of MIT. And the last questions dealt with the students' response toward the barriers and weaknesses of using MIT in the classroom.

3.4 Research Procedure

In collecting the data, some procedures were employed in this study which covered in the following steps: preparing the lesson plan and material, administering pilot test, administering pretest, conducting the treatment, administering posttest, administering questionnaires and analyzing and interpreting the data.

3.4.1 Preparation

The first preparation was preparing the lesson plan and appropriate material. In the preparing the lesson plan, the researcher focused on speaking skill. The lesson plan was designed to be implemented during treatment session for four meetings. The lesson plans were designed along the following procedures:

1. The researcher studied the 2013 English Curriculum/syllabus, Standard of Competency, Basic Competency (KD), Course Materials, Learning Process/Activities, Assessment/Evaluation, Time Allotment, and Sources of Learning.
2. The researcher selected the Basic Competency (KD) which is relevant to the objective of the study.
3. The researcher designed the lesson plan based on the Scientific Approach framework.

In this study, the material that was employed was recount text in second semester of the academic year 2017/2018 according to the curriculum and the syllabus. The topics of Recount Text was chosen based on students' condition such as knowledge and familiarity. The text for teaching material was taken from textbooks and some internet sources which is in line with the syllabus

The second preparation was organizing instruments of the study consisting of students' pretest, posttest and questionnaire. The pretest and posttest were conducted in order to answer the first research question that investigates the impact of MIT on students' speaking skill. Then, the questionnaire was conducted to answer the second research question which gives the information about the

students' response toward MIT in classroom learning process. The lesson plan is presented in Appendix C.

Before administering pilot test to the students, the instruments were consulted to the validator and the teacher to know the appropriateness of the instruments with students' background knowledge. Moreover, the validators checked whether the statements of the questionnaires were really designed in order to answer the research questions.

3.4.2 Administering the Pilot Test

The pilot test aimed to get the overview of the research subject and the selection of the most appropriate participant for the research. The pretest and posttest were examined to measure the validity and reliability. In this study, the instrument was pilot-tested to students in another class at the same grade. At first, the students were asked to read the instruction contained in the test items to find out whether the instruction was understandable and clear enough. This was conducted to examine the face validity of the test item. Then, since the instruction was found to be clear, the students were asked to do the test. After that, the students' work in the test were examined, to find out whether they had performed the particular language skills areas expected in the test items.

3.4.3 Administering the Pre-test

After the pilot test, the pretest was administered in the beginning of the research before the treatment. The English speaking skills of the students were tested through a speaking task. The task was two to three minutes oral presentations on topic chosen by them. Before the speaking test, the students were given a chance to ask questions. This activity was conducted to measure the students' speaking ability before receiving the treatment.

3.4.4 Administering Treatment

After pre-test, the treatment was conducted in four meetings lasted 2 x 40 minutes for each meeting. The material given in this study was recount text. The material was chosen based on the standard competence of syllabus of grade VIII of Junior

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High School. The topics of Recount Text was chosen based on students' condition such as knowledge and familiarity.

The intelligences used in the treatment were: verbal-linguistic, visual-spatial, logical-mathematical, bodily-kinesthetic, musical, interpersonal and intrapersonal intelligence. However, coming up with assignments to reach all the multiple intelligences can be very time-consuming, so the researcher developed the lesson plan into four meetings where each meeting covered two to three intelligences.

The first treatment began at the second meeting on the second of May, 2018. The lesson's topic was "Holiday". The aim of the lesson was to present and introduce various words related to the topic for the next four meetings. At the beginning of the lesson, several pictures of places were displayed on the PowerPoint to introduce the topic about holiday so the students were able to illustrate the pictures. The next activity was brainstorming, it is an example of a logical-mathematical type of an activity. Then, the students were asked to fill in the word map to answer the questions about activities that people usually do in their vacation and discuss it collaboratively in pairs. After that, the researcher delivered the material about the element of recount such as the definition, function and its generic structure. Thus, in group, the researcher gave a text for the students to be read and identified its generic structure and they also have to answer the questions in a form of mind map then present the result of their discussion in front of the class.

The next lesson was on the fourth of May 2018, the topic was "Birthday". At the beginning of the lesson, the researcher presented riddle and puzzle activities connected with the topic of the lesson because riddles and puzzles are considered as basic elements of the logical-mathematical intelligence. After the warm-up activity, students worked in pairs in order to do the information gap task so the linguistic intelligence was activated. Later, they were asked to make a sentence using simple past tense as many details as possible because they had ten different pictures. The last activity – story telling – was done in groups again so the students could develop their interpersonal intelligences. The students briefly summarized the

story they heard from somebody beforehand. After that they had to design and prepare a series of pictures telling their story. This task enabled the students to use their visual-spatial intelligence.

“My great and bad day” was the topic of the third lesson that took on the seventh of May, 2018. The warm-up activity started with the brainstorming concerning various words that the students remembered. The aim of the game was to remind them of necessary vocabulary by completing the gaps in sentences related to the topic. Then, the students were asked to listen to the song and fill in the blanks with the correct verbs in the form of past tense related to the lyric of the songs. They also sing a long together and pay attention to the correct pronunciation. The last activity was conducting interview in pairs where the students should start a conversation by asking and giving information that they have based on the work sheet given by the researcher.

The last lesson took place on the ninth of May, 2018. Its topic was “Amazing experience” and it was mainly based on developing verbal/linguistic, bodily/kinesthetic, interpersonal and intrapersonal intelligences. First, the students were asked to watch the video and write down character, setting and main idea of the video. Then, they were asked to give opinion based on their identification and retell the story after watching it. After that, the students were asked to make a short story about past experiences or events and then the researcher instructed them to build a role play in pairs based on the story that they had made with rich gestures and expressions. They got handouts with the selected words concerning: people, verbs, places, things, and time expressions. Each groups had to take turn to present their work at the end of the lesson. The schedule of the research are explained below:

Table 3.3

The Schedule of the Research

No	Date	Activities
1.	Fri/ April 20 th , 2018	Pilot test

2.	Mon/ April 30 th , 2018	Pre-Test: Oral presentation of recount text about their experience. (Topic: perfect day, holiday, special event)
3.	Wed/ May 2 ^{sd} , 2018	Treatment 1 Topic: Holiday <ul style="list-style-type: none"> - Brainstorming activities asking the students to write and tell the class what people usually do in their vacation - The teacher explained the definition, function, and the generic structure of recount text - The teacher divided the class into 5 groups and asked the students to identify the generic structure and make a mind mapping
4.	Fri/ May 4 th , 2018	Treatment 2 Topic: Birthday <ul style="list-style-type: none"> - Identifying the vocabulary related to the topic - Identifying the use of simple past tense - In group, the students illustrate the pictures in the text - Arrange the jumbled sentences into right order based on the pictures - Make a sentence in each pictures using simple past tense
5.	Mon/ May 7 th , 2018	Treatment 3 Topic: My Bad & Great Day <ul style="list-style-type: none"> - Identifying the verbs related to the topic

		<ul style="list-style-type: none"> - Listen to the song and fill in the blanks with the correct verbs in the form of past tense - Summarizing the text into a short paragraph - Conducting interviews in pairs
6.	Wed/ May 9 th , 2018	Treatment 4 Topic: Amazing Experience <ul style="list-style-type: none"> - Make a short story about past experiences or events. - Build a role play in groups based on the story they made with rich gestures and expressions
7.	Fri/ May 11 th , 2018	Post-Test: Oral presentation of recount text about their experience. (Topic: party, great or bad day, time when lost something or someone important, time when gave someone a surprise).
8.	Mon/ May 21 st , 2018	Administering questionnaires.

3.4.5 Administering the Post-test

Posttest was conducted after the whole treatments were completed. The purpose of the post-test was to find out whether the treatment could improve students' speaking skills.

3.4.6 Administering Questionnaire

Questionnaire was administered to the students after all of the teaching sessions were completed. Questionnaire was addressed to find out the students' responses toward Multiple Intelligences activities. There were ten close-ended questions and five open-ended questions related to the effectiveness of Multiple Intelligences

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activities to improve the students' the students' speaking skill and their involvement in the classroom.

3.4.7 Analyzing and Interpreting the Data

The researcher analyzed and interpreted the data from speaking test and questionnaires in quantitative approach. Both of the data were analyzed by the researcher using computer programmed of Statistical Product and Service Solution (SPSS) 20.

3.5 Data Analysis

The data from pretest and posttest were analyzed using quantitative analysis. The pretest was purposed to measure the initial score of speaking ability, and the post-test was administered to measure the improvement of students' speaking ability. The scores were calculated by applying the statistical analysis of t-test to examine the differences of pretest and posttest. In addition, the significance of the test was analyzed by using computer programmed of Statistical Product and Service Solution (SPSS) 20 to ensure the research accuracy and objectivity. After calculating the data from pre-test and post-test, the data from questionnaire were analyzed. The data were analyzed based on the frequency of students' answers. The result was then calculated and interpreted into percentage.

3.5.1 Scoring Technique

There are some criteria which were settled to give brief explanation for every score in assessing students' speaking skill which is used in speaking test (pre-test and post-test). The scoring system is proposed by Srikaew (2015). The criteria consist of six components: vocabulary, syntax, cohesion, pronunciation, ideational function and fluency. The score 1–4 indicates very poor, poor, moderate or good performance, respectively.

3.5.2 Pilot Test Data Analysis

Pilot test was investigated to check the validity and reliability of the instruments. The pilot test was administered to another class in the same school and the respondents were 24 students.

The pilot test had been employed before the research was conducted. It was aimed to find out whether the test item possessed face validity and content validity. The result found that this test possessed face validity since all of the students understood the instruction. Meanwhile, the most appropriate role for achieving the content validity for the speaking test was to test the students' speaking performance directly. Therefore, in this test, students are expected to perform spoken monologue. Based on the result, it can be concluded that the test item possessed face validity and content validity. Hence, it can be used in pretest and posttest.

After distributing the questionnaires, the researcher got the students' score for each statements and then calculated the validity for each items by using Pearson Product Moment Correlation in SPSS 20.0. An item is considered as valid if r-count is positive and $r\text{-count} > r\text{-table}$. Meanwhile, if r-count is negative and $r\text{-count} < r\text{-table}$, an item is considered as not valid. It was known that the r-table for this study was 0.404 with the alpha level was set at 0.05. The results found that there were only one item statements failed/ not valid. This is failed because the r obtained $< r$ table. The result of the calculation can be seen in Appendix D.

3.5.2.1 Reliability

After testing the validity, the next test was reliability test. The reliability could be analyzed using Cronbach's Alpha from SPSS 20 for Windows. The test is considered as reliable if the score on Cronbach's Alpha was higher than r-table. The data calculation for the reliability test from SPSS 20 was presented in table 3.5.

Table 3.4

Reliability Statistics

Cronbach's Alpha	N of Items

.854	10
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The table 3.5 shows that the reliability coefficient of the research instrument is 0.854. In the present research, when an item reaches $0.70 \leq r \leq 0.90$, it was categorized as high reliability (Sugiyono, 2011). From the result, it could be concluded that the test was reliable.

3.5.3 Pretest and Posttest Data Analysis

The data analysis of pretest and posttest was employed exactly the same steps as in the pilot data analysis. The data were analyzed quantitatively using t-test and calculated by SPSS (Statistical Product and Service Solution) version 20 for Windows. The result was to examine the influence of Multiple Intelligences Theory in improving students' speaking skill.

There are several conditions that need to be fulfilled in analyzing the result of the research. Those are the normality of data distribution, the calculation of Independent *t* Test and Effect Size.

3.5.3.1 Normality Test of Distribution

Normal distribution test was calculated in order to figure out the appropriateness of statistical analysis techniques, it is important to investigate whether or not the distribution of pre-test and post-test scores in groups were normally distributed. The test was computed by using Shapiro-Wilk test formula in IBM SPSS Statistic 20 for windows. The score from the pretest was analyzed before administering the t-test to find out the normal distribution of two groups. There are four steps in conducting the normal distribution test:

1. Stating alpha level at 0.05 (two tailed t-test) and establishing the hypothesis;
 H_0 : The score of the pretest and posttest are normally distributed
2. Analyzing the scores using the Shapiro-Wilk formula;
3. Comparing score between the result and the level of significant value. If the Asymp Sig. (probability) is more than the level significance (0.05), then the null hypothesis is not rejected, which means the sample score is normally

distributed. In contrast, if Asymp Sig. is less than the level significance (0.05), the hypothesis is rejected, which means the score is not normally distributed.

4. If the posttest data is normally distributed, the computation is continued by using paired sample t-test.

The result of the normality test can be seen in the table below:

Table 3.5

The Result of Normality Test

	Group	Shapiro-Wilk		
		Statistic	df	Sig.
Students_score	Pre-test	.973	24	.731
	Post-test	.950	24	.274

Based on the table 4.1, it can be seen that the significance value of pretest is 0.731 and the significance value of posttest is 0.274. Both pre-test and post-test score were higher than the alpha level of significance (0.05) which means that the null hypothesis (H_0) was not rejected. In other words, the data of pre-test and post-test score were normally distributed.

3.5.3.2 Paired Sample t-test

Paired sample t-test is employed to compare the pretest and posttest score. Pretest data was students score before the treatment was implemented, while posttest data was students score after the treatment was implemented. In this study, paired sample t-test was computed in SPSS 20 for windows. Furthermore, there are several steps conducted, which are:

1. Stating alpha level at 0.05 (two tailed t-test) and establishing the hypothesis;
 H_0 : There is no difference between students' speaking score in pretest and posttest score
2. Computing t-obtained from analyzing the group's score using the paired sample t-test in SPSS 20.0 for Windows

3. After calculating paired sample t-test, the result of t_{obt} is compared to the significance level. If t_{obt} is more than significance level ($t_{obt} > 0.05$), the null hypothesis (H_0) is not rejected which means there is no difference in mean of pretest and posttest score of experimental group. In contrast, if t_{obt} is less than 0.05 ($t_{obt} < 0.05$), the null hypothesis (H_0) is rejected which means that there is difference in mean of pretest and posttest score of experimental group.

3.5.3.3 Effect Size

Effect size is calculated to investigate the level of effect of the treatment given after the calculation of t-test was done. Effect size is a way to determine how significant the impact of the treatment. In this case, if the treatment worked well then there will be a large effect size.

In which:

$$d = \frac{\text{post test average score} - \text{pre test average score}}{\text{standard deviation}}$$

After the value has been obtained, the score will be measured with the following scale:

Table 3.6

The Effect Size Scale

Size	Interpretation
0 - 0.20	Weak effect
0.21 - 0.50	Modest effect
0.51– 1.00	Moderate effect
> 1.00	Strong effect

(Cohen, 2007)

3.5.4 Data Analysis of Questionnaires

In this study, questionnaire was administered to clarify the information and explain the data which focus on the students' responses toward the implementation of Multiple Intelligences Theory. The data from questionnaire were analyzed by some steps: inputting the students' answer; calculating the frequency of students' answer in SPSS 20 for windows; presenting the data into percentages; interpreting the data based on some categories as previously stated.