CHAPTER III

RESEARCH METHODOLOGY

This chapter will cover the methodology of the research which has been briefly discussed in the first chapter in more specifically. A number of significant points that will be discussed in this chapter involve the formulation of the problem, the research design, research hypothesis, the subjects of the research, the procedures for data collections or the research instruments including the try out of validity and reliability of the research instrument, the research procedures, and the procedures for data analysis.

3.1 The Formulation of Problem

As briefly discussed in the previous chapter, this research was conducted to investigate several issues related to the teaching of English speaking skill in the beginning level by using the Innovative Total Physical Response. Therefore, there are two variables involved in this research, namely:

The use of Total Physical Response as the independent variable, and Students' speaking skill as the dependent variable.

In more detail, the research conducted was aimed to observe the following problems:
1. Does the use of Total Physical Response result in effective language teaching to improve the sixth grade students' speaking skill of SDN 2 Plumbon in Cirebon Regency?
2. How are the sixth grade students' attitudes of SDN 2 Plumbon-Cirebon toward the use of Total Physical Response in the instructional process?

3.2 The Research Method

The method used for conducting this research was a quasi-experimental research method. The quasi-experimental model used in the research was the one group pre-test post-test design as proposed by Arikunto (1990: 279). The research was carried out for the purposes to examine the effectiveness of Total Physical Response and students' attitudes toward the use of Total Physical Response applied in the instructional process. Therefore, the data from the pre-test and post-test would be compared for the t-test calculation to investigate the effectiveness of Total Physical Response application in this research. The research was also directly committed by the researcher in order to bring about the immediate change as well as to improve the teaching and learning process in the place where the research took place. The scheme of the quasi-experimental model as proposed by Arikunto (1990: 279) can be seen as follow:

$$O_1 \qquad x \qquad O_2$$

In this research, the researcher investigated the effectiveness of the use of Total Physical Response toward students' speaking skill. Thus, the researcher carried out a number of instructions by using Total Physical Response inside the classroom, then observed their effects on students' speaking skill. Per instructional process that lasted for around 60-70 minutes were packed in a number of creatively, innovatively, and variously formulated learning process, or it was considered as an intervention. This research was focused on the implementation of various activities/techniques for students in each instructional process conducted. Because the various techniques became the emphasis for this research, this research involved the use of *certain kind of story tellings, singing songs and dancings, games, as well as demonstrations* for each

intervention. Each of those various activities was intentionally formulated as creative as possible in order to achieve the success of the intended instructional goals.

The research conducted involved a sequence of five interventions/treatments so as to attain the expected improvement on students' speaking skill. In general, each treatment of the research was carried out through undergoing a number of procedures, namely: firstly, formulating plan to improve what was already happening, secondly, applying the plan and examining the effects in the context in which it happened, finally reflecting to the process critically, then moving to develop plan for the next intervention/treatment. The research was carried out for around two months.

The quantitative analysis of the test scores was undertaken in the research, however an interpretative discussion of the effects also committed to inform what aspects of the students' speaking ability that could be improved and developed by Total Physical Response applied in this research.

3.3 The Research Hypothesis

Basically research is considered to be the systematic and organized way to testing the research hypothesis in order to find answer for the formulated problems. Hence, testing hypothesis is viewed as the significant part of the research. It is in line with the statement of Margono (1997: 94) cited in Zuriah (2001: 201) claiming that the crucial part of the inferential research is testing the hypothesis. The hypothesis that is tried to be tested here is called as null hypothesis (Ho). Therefore, the formulation of hypothesis for this research is stated below:

"The use of Total Physical Response does not result in effective English teaching to improve the sixth grade students' speaking skill in SDN 2 Plumbon Cirebon."

It proposed that there would be no significant differences of students' speaking skill before and after the interventions were conducted.

3.4 The Subjects of the Research

The subjects involved in this research were drawn from the purposive sampling. It was done based on the consideration of the crucial usefulness that would be acquired by the subjects in the institution where the research took place, as well as the significance of the knowledge and understanding of the discussed problem that would be earned from this study. In this research, particular people, objects, and situations were chosen in order to gain the data for the purpose of the conducted study. The sixth grade students of an elementary school in Cirebon Regency were intentionally selected in this research, namely the sixth grade students of SDN 2 Plumbon-Cirebon. It was based on the consideration emerging after conducting the preliminary observation indicating that there was the significant imbalance between the length of their learning experiences with their existing knowledge they obtained all along. According to the results obtained from the preliminary observation, it could be assumed that even though they had undertaken two year of English learning experiences, they still did not have oral competence as well as confidence to speak the target language so that it led to the idea of committing immediate efforts for bringing about improvements to them. That is why the reason of carrying out this research, it was intended to bring about immediate change for improvement, namely it was aimed to build skill and confidence to speak English for the sixth grade students of elementary school where the research took place. The population of the research is the upper beginners, exactly all sixth grade students of elementary schools in Cirebon Regency. The samples of the study were the sixth grade students of elementary school at the SDN II Plumbon - Cirebon.

The number of the subjects involved in the study was twenty five students. The subjects of the study were in average of the similar ages which were around eleven until twelve year old.

3.5 Data Collection

The data for the analysis were collected through several ways, namely observation, test, and questionnaire. The following descriptions are going to discuss the instruments used in the research.

3.5.1   The research Instruments

3.5.1.1 Test

A. Pre-Test

The pre-test was undergone in form of interview or oral-test with the subjects of this research. As claimed by Hingle and Linington (1997), there are two sorts of oral test, namely informal interview as well as a set of guided answer to question about pictures. The second type of oral test above was committed. The subjects were involved in an interview to test their speaking ability through a set of pictures as the media. The test was conducted with the assistance of an examiner. When conducting the pre-test, the students were not informed that they were going to have pre-test before it was done so that they just felt that it was just a sort of introduction and free conversation about shown pictures.

B. Post-Test

The procedures of conducting the post-test were similar as the pre-test. The samples were included in an oral-test with their answers were guided by a set of pictures. The post-test was carried out to examine the progress of students' speaking skill.

3.5.1.2 Questionnaire

The questionnaires were distributed to attain the data analysis concerning with students' attitudes toward the use of Total Physical Response in classroom process. The questionnaires handed out contained a set of ten simple questions which required students to give their opinions or agreements in form of yes/no questions.

3.5.1.3 Observation

The research conducted two sorts of observations. The first type was the observation on what was already happening in the institution where the research was carried out. From this observation the researcher acquired the general pictures about the conditions of the students including their existing knowledge before carrying out the research, and the teaching-learning process of the place in which this study was carried out. Therefore, what was going to implement in classroom or the plans to improve what was already happening could be formulated.

The second type was the observations on the process of teaching-learning activities applied in classroom based on the plans having been formulated before. The results of this observation were examined to analyze and observe the effects of the interventions on the classroom process and to reflect critically on the process conducted to ensure that the students' progress could be well-observed so as to ensure that Total Physical Response of this research was effective in the each instruction conducted. Therefore, it was going to be used as the bases for doing the next instruction. Hence, the teaching-learning processes conducted were recorded and video taped. The recordings were carried out as careful as possible without interrupting the instructional process itself.

3.5.1.4 Interview

The interviews were undertaken for collecting the data to observe the general pictures of students' conditions in the preliminary stage of the research. Moreover, the interviews were also done to gain the feedbacks, suggestions, as well as contributed ideas from the other parties directly related to the research, like teacher and students itself. In addition, informal interviews with a small number of students after each intervention were also done to examine what activity they liked best among the various activities of Total Physical Response presented in class.

3.5.2   Trying out the Test and the Analysis of the Try Out

Validity, reliability, and practicality are the indications of a good test. Thus, the try out was committed to test the test's validity and reliability. The test was tested to another class of the same grade with the subjects of this research from different school in Cirebon Regency.

3.5.2.1 Validity of The Test

A test is called to be valid if the test can measure what we intend to measure. The test is considered to get the content validity if it can represent the area which needs to be measured and appropriate with the objectives of the measurement. The test items having been distributed in this research are considered to have *the content-related validity* because the test items and the procedures of conducting the test are appropriate with the purpose of committing the test. That statement was supported by declaration of Furchan (2004: 297&308) which claimed that the investigation for the content-related validity was considered as an intra-test analysis which was conducted by drawing the appropriateness between the content of the test with the process

carried out to answer the test questions, so it was better to prove that the test was free from any factors that were not related to the objectives of the test.

Therefore, the test having been distributed in this research was counted to have the content-related validity because of the appropriateness among the three factors, namely the content of the test items, the procedure of conducting the test, and the objective of the test. The test conducted was intended to measure speaking skill of students in the upper beginning level, exactly sixth grade students, in term of measuring students' ability to employ simple instructions or commands in English as intended in the indicator of speaking teaching for elementary students in the School-Based Curriculum (In Indonesian it is called as Kurrikulum Tingkat Satuan Pendidikan (KTSP)). Hence, the test was carried out in form of oral-test to test students' speaking competence, especially to assess their opinions and understanding about the pictures which required them to employ simple speech act like commands. Thus, the instrument distributed covered the material that surely should be possessed by the students of upper beginning level such as giving simple instructions and saying item names. The procedures of conducting the test as follow: Firstly, the students were called one by one to come forward to the interview. Secondly, each student was provided a set of pictures which required them to answer a number of questions related to the pictures served. It was conducted with the assistance of an examiner. Besides having the content-related evidence of research instrument, *the construct validity* was also computed. The assessments of students' speaking skill were based on the criteria proposed by Sapani (1990: 12-16) cited in Rahmawati (2003). The following paragraphs provide the criteria used for assessing students' speaking skill.

A. Criteria for Pronunciation Assessment

5= Phonemically accurate, clear pronunciation throughout and correct.

4= Occasional phonemic errors, but generally comprehensible and nearly perfect.

3= There are several errors in pronunciation, but it is generally accepted.

2= Many phonemic errors so that it is very difficult to perceive meaning.

1= Incomprehensible and many words mispronounced and not correct or not perfect.

B. Criteria for Vocabulary Assessment

5= The words are selected and have variation, they are relevant with the situations, conditions, and listeners' status so that the meaning makes sense.

4= The words are generally relevant with the situation and have variation enough , but there sometime appears inappropriate words which do not change the meaning of the utterance.

3= The words have already been relevant with the topics and situation; However, they do not have variation yet.

2= There are still lots of words used inappropriately.

1= Poor and irrelevant words; they do not fit the utterance meaning related to the given topics and situation.

C. Criteria for Grammar Assessment

5= no errors of morphology or syntax

4= There are generally accurate structures, occasional slight errors.

3= There are only some errors of structure, but it does not change the whole meaning. Generally it is still accepted.

2= There are little bit errors of basic structure, but some phrases are rendered correctly.

1= Virtually no correct structures or no response.

D. Criteria for Fluency Assessment

5= The speaker speaks naturally and continuously. Any pauses correspond to those that might be made by a native speaker.

4= The speaker generally speaks naturally and continuously, but there are sometime pauses at natural points in the utterance.

3= There are some pauses, but speaker manages to rephrase and continue.

2= It runs less continuously, pauses are often happened.

1= There are long pauses, utterances left unfinished, or no response.

The Test of Validity

A test can be considered as valid if the test can really reflect the results of the conducted test. To measure the validity of the test instrument, the analysis of the correlation of a variable on an item with the total scores of that variable on all the items was committed. Then, the significance of each test item were computed to obtain the t_{obt}, if the t_{obt} has a higher value than the critical value (t_{value}), the test item was claimed to be valid.

The Validity of test items was computed through a number of steps like follow:

1. Compute the coefficient correlation of each of the total items by using Product Moment Pearson Formula.

$$r_{XY} = \frac{N\sum XY - (\sum X)(\sum Y)}{\sqrt{[N\sum X^2 - (\sum X)^2][N\sum Y^2 - (\sum Y^2)]}}$$

r_{XY} = coefficient correlation between x and y

∑X= the sum of each test item

∑Y= the sum of all the test items of the samples

N= the number of the samples

(Arikunto(2002: 146))

2. Discover the significance of the test item by calculating the t_{obt} of the test items, as follow:

$$t_{obt} = \frac{r\sqrt{n-2}}{\sqrt{1-r^2}}$$

n = the number of samples

(Sugiyono(2002: 215))

3. Find the critical value of t (t_{value}), df=n-2

4. Deciding the validity of the item

If t_{obt} is positive: $t_{obt} > t_{value}$, the item tested is Valid.

If t_{obt} is negative: $t_{obt} < t_{value}$, the item tested is Invalid.

The following table provides the results of all the test item computations for pronunciation, vocabulary, grammar, and fluency.

Table 3.1 THE VALIDITY STATUS OF ALL TEST ITEMS

PRONUNCIATION				
The validity status of pronunciation:				
NUMBER OF TEST ITEM	r_{obt}	t_{obt}	t_{value}	STATUS
1	0.94	12.6	2.074	Valid
2	0.96	15	2.074	Valid
3	0.73	4.96	2.074	Valid

4	0.50	2.7	2.074	Valid

VOCABULARY

The validity status of vocabulary test items:

NUMBER OF TEST ITEM	r_{obt}	t_{obt}	t_{value}	STATUS
1	0.73	4.96	2.074	Valid
2	0.66	4.13	2.074	Valid
3	0.68	4.37	2.074	Valid
4	0.90	9.59	2.074	Valid

GRAMMAR

The validity status of grammar test items:

NUMBER OF TEST ITEM	r_{obt}	t_{obt}	t_{value}	STATUS
1	0.97	18.2	2.074	Valid
2	0.67	4.24	2.074	Valid
3	0.91	10.68	2.074	Valid
4	0.67	4.24	2.074	Valid

FLUENCY

The validity status of fluency test items:

NUMBER OF TEST ITEM	r_{obt}	t_{obt}	t_{value}	STATUS
1	0.93	12.11	2.074	Valid
2	0.60	3.53	2.074	Valid
3	0.79	5.98	2.074	Valid
4	0.56	3.17	2.074	Valid

3.5.2.2 Reliability of The Test

The indication of a good test is that the test is counted to be **reliable**. The reliability of the test explains how far the accuracy and consistency of the test if the test is tested to the same subjects. The higher the reliability coefficient the higher the consistency will be. The coefficient reliability of the test having been committed in this study was calculated by using Split-Half

Technique proposed by Furchan (2004:321-322). The procedures of reliability calculation are described below:

a. The number of the test items was divided into two splits: the odd(X) and even(Y) test numbers.

b. The correlation of total score of each number is calculated by using Pearson Correlation Formula to gain the half-part reliability of the test items.

$$r_{\frac{1}{2}XY} = \frac{N\sum XY - \left(\sum X\right)\left(\sum Y\right)}{\sqrt{\left[N\sum X^2 - \left(\sum X\right)^2\right]\left[N\sum Y^2 - \left(\sum Y^2\right)\right]}}$$

(Kranzler&Moursund (1999: 56)

N = the number of subjects

$\sum X$= the sum of the odd numbers of the test

$\sum Y$= the sum of the even numbers of the test

c. The reliability of the half-part test items were put into reliability calculation formula so that the reliability of the whole test could be estimated, namely by the formulation proposed by Spearman-Brown as provided below:

$$r_{XY} = \frac{2\left(r_{\frac{1}{2}}\right)}{1 \div r_{\frac{1}{2}}}$$

(Furchan (2004:320))

d. After computing the reliability of the whole test the result will be interpreted based on the criteria as stated below:

0.00-0.20 : Low

0.21-0.40 : Moderate

0.41-0.70   : High

Above 0.70: Very High

The following table consists of the results for reliability calculations of the whole test items.

Table 3.2 THE RELIABILITY OF THE TEST

TEST RELIABILITY FOR:	$r_{\frac{1}{2}XY}$	r_{XY}	STATUS
Pronunciation	0.99	0.99	Reliable
Vocabulary	0.99	0.99	Reliable
Grammar	0.99	0.99	Reliable
Fluency	0.99	0.99	Reliable

$r_{\frac{1}{2}XY}$ = coefficient correlation between the odd and the even test numbers indicating

the half reliability of the test

r_{XY} = coefficient correlation for the whole reliability of the test

Based on the Computation of test reliability, the coefficient correlation between the odd and even test numbers for pronunciation, vocabulary, grammar, and fluency test are 0.99. It means that the items tested for the subjects are considered to have a very high reliability.

3.5.2.3 Practicality

Practicality is one of the criteria of a good test besides validity and reliability. As declared by Harris(1969: 21-23), there are three factors for a test considered to be practical, namely ease economy, ease administration and scoring, as well as ease interpretation.

3.6 The Procedures of the Research

To obtain the data for the analysis the research was committed through a number of steps as follow:

A. Preliminary survey in some elementary schools in Cirebon Regency to select and determine an elementary school for carrying out the research, and another elementary school in Cirebon Regency to trying out the validity and reliability of the test items

B. Trying out the validity and reliability of the test items

C. Conducting data analysis to examine the validity and reliability of the test items

D. Committing preliminary observation in the institution of the conducted research

E. Administering pre-test

F. Carrying out a sequence of interventions/treatments

G. Administering the post-test

Briefly the intervention could be depicted in the following table:

Table 3.3   *The Research Stages*

Stage I	4th August 2007	Preliminary Observation
Stage 2	4th August 2007	Pre-test
Stage 3	18th August 2007	Intervention 1 covering: a. 1st Planning b. 1st Action c. 1st Reflection

Stage 4	27th August 2007	Intervention 2 covering:
		a. 2nd Planning
		b. 2nd Action
		c. 2nd Reflection
Stage 5	1st September 2007	Intervention 3 covering:
		a. 3rd Planning
		b. 3rd Action
		c. 3rd Reflection
Stage 6	5th September 2007	Intervention 4 covering:
		a. 4th Planning
		b. 4th Action
		c. 4th Reflection
Stage 7	7th September 2007	Intervention 5 covering:
		a. 5th Planning
		b. 5th Action
		c. 5th Reflection
Stage 8	8th September 2007	Post-test

H. Data Analysis to observe the findings and make discussions of the results

I. Drawing conclusions from the committed research and proposing   suggestions

3.7 Data Analysis

The data having been collected from the tests, observations, questionnaires, as well as interviews would be used for doing analysis, making synthesis, observing the effects, and making conclusion.

3.7.1 The Analysis of the Test

The results of the pre-test and post-test would be analyzed to examine whether the use of Total Physical Response was effective for teaching speaking skill. The calculation of t-test was conducted. The Procedures for calculating t-test are as follow:

1. Propose the Hypothesis

    Ho: Total Physical Response does not result in effective language teaching to improve the sixth grade students' speaking skill in SDN 2 Plumbon-Cirebon.

2. Select the Level of Significance

    The level of significance selected in this research is the .05 level of significance, α= .05.

3. Compute t_{obt}

    The formula used for computing t_{obt} as proposed by Kranzler and Moursund (1999: 98) is stated below:

$$t_{obt} = \frac{MD}{\sqrt{\dfrac{n \sum D^2 - \left(\sum D\right)^2}{n(n-1)}}}$$

MD= the mean of difference

∑D= the sum of D (differences) column between pre-test and posttest

$\sum D^2$= the sum of D^2 column

n = the number of pairs of scores.

3 Find t_{crit} , df = n-1 at the .05 level of significance.

4 Decide whether to Reject Ho

If $t_{obt} \geq t_{crit}$, Ho can be rejected.

If $t_{obt} < t_{crit}$, Ho can not be rejected.

3.7.2 The Analysis of the Questionnaire

The data from the distributed questionnaires will be committed to observe students'
attitudes toward the use of Total Physical Response. Therefore, students' attitudes toward the use
of Total Physical Response can be provided as well as interpreted. The interpretation will be
based on the percentage of the frequency of students' answers. The formula used for calculating
the percentage of students' answers cited in Karina (2007) is presented below:

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

P= Percentage

F= Frequency

N= The number of respondents

100= constant

The following description is the criteria of percentage categories for the interpretation as
proposed by Ningrat (2000: 33).

1-25% = a 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 the students

3.7.3   The Analysis of the interview

The informal interviews with a small number of students will be analyzed to assure whether or not they liked the instructional process carried out and to observe what activity they liked best among the various innovative activities provided in class.

3.7.4   The Analysis of the Observation Data

The analysis of the observation was just conducted to investigate whether or not the techniques used in the process of instruction had been carried out properly and to ensure that each instruction having been done could be effective to bring about progress on the students' speaking ability so that it could be used as the bases for what to do in the next round intervention to achieve the more improvement on the students' speaking ability.