CHAPTER III

RESEARCH METHOD

In this chapter the researcher presents research design, population and sample, research instrument, validity and reliability testing, normality and homogeneity testing, data collecting method, and data analysis.

A. Research Design

To understand the meaning of research is truly necessary, because it is impossible to come to the points of research without it. According to Soekanto (1986) a research, especially in the empirical science, in general, aims to discover, develop, or test the truth of knowledge (Tanzeh 2009:12). It means that a research is conducted to get answers of certain questions or to get solutions of the problems.

Considering the purposes of the research and research problem, this research was conducted in pre-experimental using quantitative approach with one group pretest – posttest design to identify the effectiveness of using Board Game toward students' speaking proficiency of the first graders at MAN 2 Tulungagung in academic year 2015/2016.

Experimental research is a scientific investigation in which the researcher manipulates one or more independent variables, controls any other relevant variables, and observes the effect of the manipulations on the dependent variables (Ary, 2010:265). In this study the experimental research was done in the class by taking students as population.

An experimental design is the general plan for carrying out a study with an active independent variable. The design is important because it determines the

study's internal validity, which is the ability to reach valid conclusions about the effect of the experimental treatment on the dependent variable.

Ary, (2002:22) states "quantitative research uses objective measurement and statistical analysis of numeric data to understand and explain phenomena". There are two kinds of pre experimental designs; they are one-group pretest–posttest design and static group comparison (Ary 2010: 303). The one-group pretest- posttest usually involves three steps: (1) administering a pretest measuring the dependent variable; (2) applying the experimental treatment *X* to the subjects; and (3) administering a posttest, again measuring the dependent variable. The second is static group comparison which uses two or more preexisting or intact (static) groups, only one of which is exposed to the experimental treatment. Although this design uses two groups for comparison, it is flawed because the subjects are not randomly assigned to the groups and no pretest is used.

This study was classified as pre-experimental design because it provided little or no control of extraneous variables. The researcher used one-group pretest–posttest design.

Table 3.1 A diagram of One-Group Pretest-Posttest design

Sample	Pre-Test	Treatment	Post-Test
First grader (X- IIS 3)	X_1	Speaking Board Game	X_2

From the table above, it can be explained that the procedures of conducting experimental research design in this study consisted of pre-test (X_1), treatment, and post-test (X_2). Firstly, the researcher conducted pre-test to know how far the students' ability in speaking before they were given a treatment. Then, the researcher gave a treatment to the students through Board Game.

Finally, the researcher conducted post-test to measure the students' achievement in speaking after they were taught by using Board Game.

B. Population, Sampling, and Sample

According to Ary (2010:148) "a population is defined as all members of any well-defined class of people, events, or subjects". Based on the statement, population is the whole of subject in the research. The populations of this research were all of the first grader students MAN 2 Tulungagung in the academic year 2015/2016, which consisted of eleven classes with 415 students.

Sampling is the process of selecting a number individual for a study in such a way that the individual represent the larger group from which they were selected Gay (1992). According to Ary (2010:148) a sample is portion of population. From the statement can be said that sample is part of population that is being studied. In this research the researcher did not involve all of the students to be a sample because it was a big number. In consequence, the researcher took X- IIS 3 as the sample in this study which consisted of 40 students with 15 boys and 25 girls.

In taking the sample, the researcher used purposive sampling technique and X- IIS 3 was taken because among other classes the students of X - IIS 3 is more homogeneity. The meaning of more homogeneity in this study is the students have similar score when they got test especially in speaking test. It was proved by the researcher when interviewed the English teacher and showed the students' score which the range of students' score closer each other. Therefore the researcher knew the students' speaking ability of the whole class.

C. Research Instrument

Instrument is one of significant steps in conducting a research. The instrument used in this study is test speaking. In getting the data about the students' achievement, the researcher used the instrument of test. In this research, the researcher used achievement test. The tests here are about speaking test. These tests used for collecting the data of students' achievement in their speaking before and after being taught by using Board Game.

a) Pre-test

The pre-test was conducted before the students were given treatment by using Board Game to get students' speaking score. Pre-test was conducted on April 15th 2016. The test was in the form of oral test. In pre-test the researcher asked the students to tell their daily journal in the form of recount. The students were given 3- 5 minutes to tell their daily journal. The score was taken based on the scoring rubric which consists of content of the story, fluency, vocabulary and grammatical structure.

b) Post-test

The post-test was given after conducted treatment by using Board Game. It was conducted on May 14th 2016. The post-test was done to get students' speaking score after giving treatment. The test was in the form of oral test. In this case the researcher asked the students to tell a story in the form of narrative by their own word in English. It may be fable or folktale. The students were given 3- 5 minutes to tell their daily journal. The score was taken based on

the scoring rubric which consists of content of the story, fluency, vocabulary and grammatical structure.

The test as the instrument in this study was developed as follow:

Table 3.2 The test development

Basic Competence	Indicator	Evaluation	Activity
4.7 Arrange the text in the form of oral and written to tell the activity in the past and consider with the social function, rhetorical pattern, and language used.	• The students able to identify the meaning of the story told by the teacher. • The students able to do short monologue in the form of both recount and narrative.	Oral test	• Tell the daily journal in the form of recount. • Tell a story in the form of narrative.

In this research, the researcher conducted the tryout of the test. The purposes of trying out the instrument, in this study were to know whether or not the instruction was clear and to convince that the students were familiar with the story. Thus, the test that has been designed was to represent the sample of testers. Try out test was administered to another group beside experimental and control group on April 13th 2016. According to Gay in Sukardi (2003), control is an effort on the part of researcher to remove the influence of any variable other than the independent variable that affect performance on a dependent variable (Syamsuddin 2006: 151).

The criterion of success of the students speaking ability adapted from O'Malley (1996) and modified as follow:

Table 3.3 Analytic oral language scoring rubric

Criteria	Weight	Exemplary 4	Accomplished 3	Developing 2	Beginning 1
Content	35 %	The content is clear, related to the aspect that must be informed (daily journal) in the form of recount and speak with high confidence.	The content is fairly clear, related to the aspect that must be informed (daily journal) in the form of recount and speak with high confidence.	The content is fairly clear, related to the aspect which must be informed incompletely and looks unconfident.	The content is unclear, can't tell the appropriate aspect, and looks nervous.
Fluency	30%	Speech on all professional and general topics as effortless and smooth as a native speaker's.	Speech is effortless and smooth but perceptibly non-native in speech and evenness.	Speech is frequently hesitant, sentence may be left incomplete.	Speech is very slow and uneven except for short sentences.
Vocabulary	20%	Effective choice of words and use of idioms and word forms.	Adequate choice of words but some misuse of vocabulary, idioms, and word forms.	Limited range, confused use of words, idioms, and word forms.	Very limited range, very poor knowledge of words, idioms, and word forms.
Grammar	15%	No more than three errors during telling the students' daily journal.	Few errors with no patters of failure.	Frequent errors showing some major patterns uncontrolled and causing occasional misunderstanding.	Grammar almost entirely inaccurate phrases.

There are limitations of total score here to categories students' skill, the maximum total score of speaking was 4 and the minimum total score was 1.0. Passing score was score that have to be reached by students in order to pass the test. The score can be categorized in the table below:

Table 3.4 Standard performance

No	Grade	Level	Range of score
1	A	Excellent	3.5 – 4.0
2	B	Very good	3.0 – 3.4
3	C	Good	2.5 – 2.9
4	D	Fair	2.0 – 2.4
5	E	Poor	1.0 – 1.9

To pass the activity, at least the students have to gain C (good) with the range score 2.5 – 2.9.

D. Variable and Data

a) Variable

Variable is one of key terms in the research. According to Charles, variable can be classified into its characteristics and its function in a research (Latief 2012: 11). There were two variables in this research. Those were independent and dependent variables.

The independent variable was the major variable to be investigated. The independent variable is the element that the researcher believes may in some way relate to, or influence, the dependent variable (Keith: 23). This variable was selected, manipulated, and measured by the researcher. Thus the independent variable of this research was Board Game.

Meanwhile the dependent variable was the variable that observed and measured in order to know the effect of independent variable. (Keith: 23) states that dependent variable is the major variable that will be measured or observed to determine how, and if, it is affected by the presence of the

independent variable. In this study the dependent variable was students' ability in speaking skill.

b) Data

Data are kinds of information gotten from the subject in the research. The data in this research were a quantitative data. In this study, the data were collected in the form of students' score in speaking both pretest and posttest.

E. Validity and Reliability Testing

According to Ary (2010: 224) quantitative research always depends on measurement. Ary states there are two very important concepts that researchers must understand when they use measuring instruments are *validity* and *reliability*. Researchers must be concerned about the validity and reliability of the scores derived from instruments used in a study and must include this information in the research report.

a) Validity Testing

Validity is the most important consideration in developing and evaluating measuring instruments Ary (2010: 225). Historically, validity was defined as the extent to which an instrument measured what it must be measured. The focus of recent views of validity is not on the instrument itself but on the interpretation and meaning of the scores derived from the instrument.

In this study, the researcher used content validity and construct validity to know the validity of the instrument which used to collect the data. Here are the explanation of content validity and construct validity:

1) Content validity

Test was said to have content validity if its contents constitutes a representative sample of the language skills, structure etc. that being tested. Ary, et al (2010:226) stated that to have a content validity, the instruments are representative of some defined universe or domain of content. In addition, the test will have content validity if it includes a proper sample of the structure or content which is relevant with the purpose of the test. It means that the items of the test must really test the domain that was speaking skill.

In order to judge whether the test has content validity, it need a specification of the skills or structure which being tested. A comparison of test specification and test content is the basis for judgment for content validity. The researcher made this test based on the course objectives in the syllabus of second years. Therefore, this test is valid in term of content validity.

The content validity of this research was the content of instruction in testing speaking that was the instruction to tell story in the form of recount and narrative. It can be seen on appendix 3.

2) Construct validity

A test can be said to have construct validity if it can be demonstrated that it measures just the ability which is supposed to measure. Brown (2004: 25) quoted by Ida mentioned that a construct is any theory, hypothesis, or model that attempts to explain observed phenomena in our universe of perception.

The instrument up to standard of construct validity if the test is appropriate with the construct aspect or components of the instrument will be measured. The instrument is called valid from the construct based on the testing

objective and the test item. Testing objective here is to test students' ability in speaking, that's why the researcher gives an instrument in the form of oral test. To calculate the students' result, the researcher used analytical scoring rubric that includes four aspect of speaking evaluation. They are consists of content of the story, fluency, vocabulary and grammatical structure.

b) Reliability Testing

Ary (2010: 236) stated the reliability of a measuring instrument is the degree of consistency with which it measures whatever it is measuring. This quality is essential in any kind of measurement.

In this research, the researcher used inter-rater reliability to get the data. Here the researcher used the same speaking scoring rubric to score the same speaking test twice. The computation of this reliability used *IBM SPSS Statistics 16* with *reliability analysis*.

According to triton in Sujianto (2009) the value of cronbach's alpha can be interpreted as follow:

- If the *alpha cronbach* score 0.00-0.20 means less reliable
- If the *alpha cronbach* score 0.21-0.40 means rather reliable
- If the *alpha cronbach* score 0.41-0.60 means enough reliable
- If the *alpha cronbach* score 0.61-0.80 means reliable
- If the *alpha cronbach* score 0.81-1.00 means very reliable

In this research, the researcher used Alpha Cronbach Reliability Coefficient in SPSS 16.0 to analyze the data as follow:

Table 3.5
Reliability Statistics

Cronbach's Alpha	N of Items
.821	2

Based on the table above, the value of alpha is 0.821. It means that the correlation of score 1 and score 2 is strong, because the value is between 0.80 – 1.000. The value indicated the correlation close 1. From the evidence, it was found that this test is very reliable.

F. Normality and Homoginity Testing

a) Normality Testing

Normality testing is conducted to know whether the data set is well-modeled by a normal distribution or not. In this research, the researcher used *One-Sample Kolmogorov-Smirnov test in IBM SPSS Statistics 16* with the value of significance (α) = 0.05 as the computation of normality testing. Testing of data normality is conducted by the rules as follow:

- If the value of significance > 0.05 the data is in normal distribution.

- If the value of significance < 0.05 the data is not in normal distribution.

The analysis was as follow:

Testing data from pre-test and post-tets score using SPSS 16.00.

Table 3.6 The result of normality testing

One-Sample Kolmogorov-Smirnov Test

		VAR00001
N		40
Normal Parameters	Mean	2.1837
	Std. Deviation	.38393
Most Extreme Differences	Absolute	.213
	Positive	.121
	Negative	-.213
Kolmogorov-Smirnov Z		1.350
Asymp. Sig. (2-tailed)		.052

Based table above it was known that the significance significance level of Kolmogorov- Smirnov test is 1.358. The significant value was 1.358 and it was bigger that 0.05 (1.358> 0.05). It means that the test is normal.

b) Homogeneity Testing

Homogeneity testing is intended to know whether the data gotten from the sample has a homogeneous variance or not. To know the homogeneity of the data, the researcher conducted a computation of homogeneity testing by using *IBM SPSS Statistics 16* is *Test of Homogenity of Variance* by the value of significance = 0.05.

The hypothesis of homogeneity testing stated as follow:

H_0: the variances before and after given the treatment are same.

Ha: the variances before and after given the treatment are different.

The result of homogeneity testing showed the data of population have different variance, because the value of significance is 5.832 > 0.05.

G. Data Collecting Methods

Method of collecting data deals with how the researcher got the data. The data of this research were collected by using administering tests. There were two kinds of test that were administered in this research, those are pre-test and post-test.

In this research, the researcher used achievement test. Achievement test measure what a person has learnt (achieved) during a course of instruction Allison (1999: 80).

> Hughes goes on to argue that:
>
> to base test content on course objectives is much to be preferred: it will provide more accurate information about individual and group achievement, and it is likely to provide a more beneficial backwash effect on teaching.
>
> Hughes (1989:11)

Here the researcher used oral speaking test to measure the students' speaking ability before and after taught by using Board Game.

There are procedures of conducted the research:

a. Introduction step

1) Consultation with the curriculum deputy of MAN 2 Tulungagung and the English teacher about time in conducted research, population and sample which will be subject of research.
2) Arrangement of lesson plan and the scenario of learning.
3) Making of research instrument test as perform to measure the effectiveness of Board Game media.

4) Conducted validity and reliability of test.
5) Analyzed the result of test to know the validity and reliability of instrument to use as research instrument.

b. The implementation step of research

1) Conducted the pretest to measure the students' speaking ability before they were given treatment.
2) Conducted the treatment, that was by applied the board game to the students. The treatment was conducted in four times.
3) Conducted posttest to measure how the students' speaking ability increased after the treatment applied.

c. The last step of research

1) Processed the data of pretest and posttest.
2) Analyzed the result of data.
3) Gave a conclusion of the research based on the data tabulation.

H. Data Analysis

In this research, the researcher used quantitative analysis technique by using statistical analysis. The quantitative data of this research analyzed using statistical computation. The data collected (data result) was processed by comparing with pretest and posttest to see whether there will be significant difference after given treatment. To know the significant difference on the student's score before (pretest) and after (posttest) being taught by using Board Game media, the researcher used paired sample T- test at SPSS 16.0 for windows.