

III. RESEARCH METHOD

This chapter discusses research design, setting of the research, population and sample, variables, research procedures, data collection technique, and hypothesis testing.

3.1. Research Design

This research investigated about the difference between the result before and after the application of think-pair-share as the technique. Therefore, a quantitative study that applies one-group pretest-posttest is chosen as the design. The research design is outlined as follows:

T1 X T2

Where:

T1 : Pre-Test (a test that is given before the treatment is applied)

X : Treatments (teaching listening through drill technique)

T2 : Post-Test (a test that is given after the treatment is applied)

Hatch and Farady (1982)

The pretest was used to find out the students' preliminary ability and the posttest was used to see whether there was an increase of students' reading achievement after the treatment (X). The pretest, treatment and posttest would be conducted in the experimental class.

The interview was also conducted in this research. The interview was conducted in the form of open questions and formal types. It was conducted toward some representatives of the students as the interviewees, which were chosen from low and high scores based on the mean score of the post-test, in order to find out the problems that the students faced during the application of Think-Pair-Share (TPS) technique.

3.2. Setting of the Research

The research was conducted in SMPN 8 Bandar Lampung. From eight classes of the second year of SMPN 8 Bandar Lampung, there were only two classes that were used. These classes were the tryout class and the experimental class. The experimental class was used for the pretest, treatment, and posttest.

This research was held in the second semester because the material was appropriate with the curriculum. It is written in the syllabus that the second year students have recount text as the topic that they had to learn in this semester.

3.3. Population and Sample

The population of this research was the all second year students of SMPN 8 Bandar Lampung. Each class consists of 34-39 students. There were two classes that were used as the sample where 8 H was the tryout class and 8 F was the experimental class. Both classes were selected randomly through random probability sampling using lottery.

3.4. Research Procedures

In collecting the data, the writer used the following procedures to get the best result of the research:

a) Determining the research problems

The problem of research was to find out whether there was significant difference of students' reading comprehension achievement after applying Think-Pair-Share (TPS) technique in teaching reading and find out the problems that the students faced during the application of Think-Pair-Share (TPS) technique.

b) Determining the research design

The researcher conducted the research by using one group pretest-posttest design and interview.

c) Finding the population and sample

The population of this research was the all second year students of SMPN 8 Bandar Lampung. Two classes were used as the sample. The first class was the try out class and the second class was the experimental class. The classes were selected randomly by using lottery since there was no stratified and priority class.

d) Determining the research instrument

This research used two data collecting technique that were in the form of questions (pretest and posttest) and interview. The students' English textbooks were used as the references in making the questions in order to fulfill the curriculum. The interview was in form of open and formal

questions in order to avoid the students from being reluctant in answering the questions.

e) Administering the try out test

The tryout test was given to the students in order to know the quality of the test. It was administered to find out the test before it would be used, whether the items were good or not in validity, reliability, level of difficulty, and the discrimination power. The tryout test was multiple choice that consisted of 40 items with four alternative options A, B, C, and D. The try out test was conducted for 60 minutes.

f) Administering the pretest

This test was given to find out the students' basic reading comprehension. This test was administered that was consisting of 25 multiple choice items. It was conducted for 45 minutes.

g) Conducting the treatment

After the pretest, the researcher conducted the treatment for three meetings that take 90 minutes in every meeting. The researcher taught reading comprehension by using think-pair-share as the technique to the students' experimental class. The material that was used was the recount texts.

h) Administering the posttest

The posttest was given to evaluate the students' reading comprehension achievement after giving the treatments. The test was in the form of

multiple choices that consisted the 25 items and it was conducted for 45 minutes.

i) Conducting the interview

The interview was conducted in experimental class, 8 F. The interview was conducted to find out the problems the students faced during the application of Think-pair-Share (TPS) technique.

j) Analyzing the data

Both pretest and posttest results were analyzed by using Repeated Measures t-test to compare the data of the two means score (Hatch and Farhady, 1982:108). The researcher analyzed the improvement by comparing the scores of pretest and posttest from the experimental class. If the score of posttest is better than pretest, it means that there is a progress of students' reading comprehension achievement.

k) Concluding and reporting the result of the data analysis

After analyzing the results of pretest and posttest, the researcher drew the conclusion and the results of this research that was reported in this script including suggestion from the researcher.

3.5. Data Collecting Technique

In this research, the instrument for data collection was in the form of questions of the reading comprehension tests, i.e. pretest and posttest and interview. The questions were used as the measurement that used recount texts as the topic of the reading texts with 25 multiple choices items. Each item had four options (A, B, C,

and D) with one correct answer and three distracters. In order to find out the problems that the students faced during the application of Think-pair-Share (TPS) technique, the researcher did interview to several students as the representatives of upper and lower students. The upper and lower group student was identified after giving the posttest.

Those two forms of questions were arranged as pretest and posttest. They were similar, only the order of the texts and their corresponding items were rearranged for the posttest. The instrument for those two tests was previously qualified through the tryout test.

In collecting the data, this research will be conducted as the following steps:

1) Pretest

The pretest was conducted before the treatment. It was used to identify whether the students had understood about main idea, detailed information, reference, inference, and vocabulary. The pretest included 25 items with four options (A, B, C, and D); one correct answer and three distracters. The pretest required 45 minutes for the test. The materials that were tested were recount text. Pretest was given to know how far the students' competence in reading comprehension before treatment was conducted.

2) Posttest

The posttest was conducted after the treatment. The test was multiple choices consisting of 25 items; each item has four options (A, B, C, and D): one correct answer and three distracters. It required 45 minutes for the

test. It was used to identify whether the students had understood about the aspects of reading comprehension and how well they could comprehend the reading texts after the application of TPS technique in teaching-learning process. The items of the posttest were similar to those in the pretest, but the order of the texts and their corresponding items were rearranged.

Shohami (1985) states that a good quality of multiple-choice items has a satisfactory degree of validity, reliability, level of difficulty and the discrimination power.

a) Validity

Validity shows how far the test measures what supposed to be measured (Setiyadi, 2006). This is used to measure whether instruments have a good validity or not. A test can be considered to valid if it can precisely measure the quality of the test. There are several types of validity according to the different purpose of the tests. Face validity refers to the layout of the test and criterion-related validity is measuring the success in the future as the replacement test (Hatch and Farhady, 1982:251). According to the Hatch and Farhady (1982:281), there are two basic types of validity, such as content validity and construct validity that the writer used in this research as follows.

- Content Validity

Content validity is the extent to which the test measures a representative sample of the subject matter content, the focus of content validity is adequacy of the sample and not simply on the

appearance of the test (Hatch and Farhady,1982: 251). Since the test instrument was conducted to get the data of the students' reading comprehension achievement, the content validity of the test items were conducted by arranging the material that is suitable with the curriculum. Thus, if the measuring instrument has represented all the ideas that connected with the materials that will be measured, that measuring instrument has fulfilled the content validity.

- **Construct Validity**

Construct validity is concerned with whether the test is actually in line with the theory of what it means to know the language (Shohamy. 1985; 74). Knowing the test was true reflection of the theory in reading comprehension, the researcher examined whether the test questions actually reflected the means of reading comprehension or not. The test consisted of some reading skills namely, determining the main idea, finding specific information, identifying inference, identifying reference, and identifying vocabulary.

As Suparman (2012) states that reading have five aspects in order to comprehend the text. In this research, the researcher had formulated the table of specification. The content of the item was presented in the table of specification below:

Table 1. Specification in Pre-test

No	Reading Skills	Item Numbers	Percentage
1	Determining main idea	1, 12, 17	12 %
2	Finding detailed information	4, 7, 9, 14, 15, 18, 20, 24	32 %
3	Identifying references	2, 8, 10, 13, 25	20 %
4	Identifying inferences	3, 19, 22	12 %
5	Identifying vocabulary	5, 6, 11, 16, 21, 23	24 %
	Total	25	100%

Table 2. Specification in Post-test

No	Reading Skills	Item Numbers	Percentage
1	Determining main idea	5, 12, 17	12 %
2	Finding detailed information	3, 8, 11, 13, 15, 19, 20, 23	32 %
3	Identifying references	4, 6, 18, 22, 24	20 %
4	Identifying inferences	1, 7, 14,	12 %
5	Identifying vocabulary	2, 9, 10, 16, 21, 25	24 %
	Total	25	100%

Those were the representative of the materials from the subject. In order to measure the content and construct validity, *rater* analysis was used to make the reading test instrument more valid. Thus, English teacher of SMPN 8 Bandar Lampung would be the rater; she is Hj. Mainiar, S.Pd. She was the one who examine whether the test has fulfilled the content and construct validity or not.

b) Reliability

Reliability is defined as the extent to which a questionnaire, test, observation or any measurement procedure produces the same results on repeated trials. In short, it is the stability or consistency of scores over time or across ratters. As Shohamy (1985:70) states that reliability refers to whether the test is consistent in its scoring and gives us an indication of how accurate the test score are. It is a measurement of accuracy, consistency, dependability, or fairness of scores resulting from the

administration of particular examination. According to Heaton (1988:162) reliability is a necessary characteristic of any good test.

To measure the coefficient of the reliability between odd and even number (reliability of half test), the researcher uses Pearson Product Moment, in the following formula:

$$rl = \frac{\sum xy}{\sqrt{[\sum x^2][\sum y^2]}}$$

Note:

- rl : Coefficient of reliability between odd and even numbers items.
- x : Odd number.
- y : Even number.
- x² : Total score of odd number items.
- y² : Total score of even number items.
- xy : Total number of odd and even numbers.

(Lado, 1961 in Hughes, 1991:32).

The criteria of reliability:

- 0.0 – 0.49 = low
- 0.5 – 0.89 = moderate
- 0.9 – 1.00 = high

In this research, the result of reliability of the try-out test is 0.96 (see appendix 4). It could be inferred that the test had very high level of reliability, in the range 0.80-1.00. It indicated that this instrument would produce consistent result when it was administered under similar condition and participants but in different time (Hatch and Farhady, 1882: 286). So, it can be concluded that the test was reliable.

c) Level of difficulty

Level of difficulty is used to see whether the test items are good or not. The test has to have an average score that is telling that the test is not too difficult and not too easy. In the other word the difficulty level is average.

The classification of the difficulty level is as follow:

0,0 – 0,3	=	too difficult
0,3 – 0,7	=	average
0,7 – 1,0	=	too easy

The formula that will be used to determine the difficulty level of each test item is as follow:

$$LD = R/N$$

In which:

LD	:	level of difficulty
R	:	the number of correct answers
N	:	the number of students taking the test

Based on the criteria above, there were 6 easy items in the try-out test (1, 4, 6, 8, 30, and 33). There were 7 difficult items (14, 18, 21, 27, 32, 33, and 39). And, there were 27 average items. (see appendix 5)

d) Discrimination Power

Discrimination power is the ability of the item to differentiate between the students who have high ability and those who have low ability. It can be calculated with this formula of the discriminate power:

$$D = U - L \div \frac{1}{2}N$$

In which:

- D : discrimination power
- U : the number of students from the upper who answer correctly
- L : the number of students from the lower who answer correctly
- N : the number of students

(Shohamy, 1985:82)

The criteria are:

- - (negative) = Bad items, should be omitted
- 0.00-0.20 = Poor items
- 0.21-0.40 = Satisfactory items
- 0.41-0.70 = Good items
- 0.71-1.00 = Excellent items

(Heaton, 1975:180)

Based on the criteria above, there were 13 items in the try-out test which did not fulfill the standard of discrimination power, since those items had discrimination index under 0.20 which meant that the items had bad and poor discrimination power. By looking discrimination power and level of difficulty, the total items that were administered were 25 items (2, 3, 5, 7, 9, 10, 11, 12, 13, 15, 16, 19, 20, 22, 23, 24, 25, 26, 28, 29,31, 36, 37, 38, and 40). Those items had discrimination power above 0.21 with the criteria from satisfactory to excellent items. (see appendix 5)

Students' responses in the tryout, the pretest, and the posttest were scored using the following formula:

$$S = \frac{R}{N} \times 100$$

In which:

- S : the score
- R : the total correct responses
- N : the number of items

3.6. Data Analysis

Data analysis was following the steps below:

- a) Scoring the pretest and the posttest.
- b) Tabulating the result of the pretest and the posttest and calculating the means of both,
- c) Testing the hypothesis using paired-samples t-test via SPSS for Windows to see whether the improvement gained is significant or not by the students after the application of TPS technique.
- d) Interpreting the result of statistical calculations and drawing the conclusion.

The other instrument was interview, which was conducted in 8 F in the form of open and formal questions. The questions must be in the form of explanation or description rather than “yes” or “no” answers, to avoid the students from being reluctant to answer the questions given, to analyze its qualitative data, matrix analysis, in this case description analysis was used, since the researcher used her own idea, including her own interpretation toward the data (Setiyadi, 2006:262).

3.7. Hypothesis Testing

The hypothesis testing was tested to see whether the teaching learning through TPS technique would increase the students' reading comprehension significantly or not. The repeated measure t-test was used to measure it. The hypothesis was also statistically tested by using statistical computerization (SPSS 17), in which the significance is determined by $p < 0.05$. Therefore, the hypothesis which can be cited is as follows:

H_0 = There is no significant difference of students' reading comprehension achievement after the application of Think-Pair-Share (TPS) technique for understanding teaching reading recount text.

H_a = There is significant difference of students' reading comprehension achievement after the application of Think-Pair-Share (TPS) technique for understanding teaching reading recount text.

(Setiyadi, 2006:97)

Besides that, the interview was also conducted. The interview was in 8 F in the form of open and formal questions. The questions must be in the form of explanation or description rather than "yes" or "no" answers, to avoid the students from being reluctant to answer the questions given, to analyze its qualitative data in order to find out the problems the students face during Think-Pair-Share (TPS) technique, in this case description analysis was used, since the researcher used her own idea, including her own interpretation toward the data (Setiyadi, 2006:262).