

III. METHOD

This chapter provides an overview of research design, population and sample, variables, research instruments, validity and reliability of instruments, procedures of the research, data analysis, and hypothesis testing that would be applied in this research.

3.1. Research Design

In this research, the researcher intended to find out the significant difference between students who have intrinsic and who have extrinsic motivation in reading comprehension achievement. To gain the answer to the research question in this research, the researcher carried out quantitative study with *ex post facto design*. Two classes were selected by using purposive random sampling, one as tryout class and another as sample class. The design is formulated as follows:

G1 (purposive) T1
G2 (purposive) T1

(Setiyadi, 2006)

Where:

G1 : Group of students with intrinsic motivation as independent variable.

G2 : Group of students with extrinsic motivation as independent variable.

T1 : Reading comprehension as dependent variable.

Referring to the design above, it stated that there were two independent variables: intrinsic and extrinsic motivation. Meanwhile, the dependent variable was students' reading comprehension achievement. This research answered the first research question by comparing the mean score of reading comprehension test between students with intrinsic motivation and students with extrinsic motivation in sample class one. Then the researcher make conclusions based on the results of that comparison.

3.2. Population and Sample

The population of this research was the second year students of SMAN 7 Bandar Lampung. There were ten classes of the second year students in the academic year 2014/2015. Each class consisted of approximately 33-40 students. Two classes were selected as the subject. This class was chosen by purposive sampling. Purposive sampling is a form of non-probability sampling in which decisions concerning the individuals to be included in the sample are taken by the researcher, based a variety of criteria which may include specialist knowledge of the research issue, or capacity and willingness to participate in the research. Some types of research design necessitate researchers taking a decision about the individual participants who would be most likely to contribute appropriate data, both in terms of relevance and depth. XI science 5 was the tryout class and XI science 4 was the sample class. This research involved two sections; the first one was as try-out class where questionnaire and reading comprehension test were given in order to find out the validity and reliability, the second was as sample

class where questionnaire and reading comprehension test were given after the researcher found the validity and reliability.

3.3. Variables

In this research, the researcher identified three variables. The first variable was intrinsic motivation and second variable was extrinsic motivation, both of them were classified as independent variable because it was assumed those of motivation has an tendency toward students' reading comprehension. The third variable was students' reading comprehension. Students' reading comprehension was classified as dependent variable because it was assumed that students' reading comprehension was influenced by intrinsic and extrinsic motivation.

3.4. Research Instruments

The instruments that would be used by the researcher in this research were questionnaire and reading comprehension.

3.4.1. Questionnaire

Questionnaire is a set of statements to be answered by the students to categorize them into two groups that were intrinsic and extrinsic motivation. The questionnaire was used by the researcher because it consisted of the simple and understandable questions that could easily to divide the students into intrinsic and extrinsic motivation. There were 50 items in the questionnaire, in which 25 items related to intrinsic motivation and 25 items related to extrinsic motivation. The researcher modified some items in the questionnaire from the script by Danar (2012) because she wanted to measure students' reading comprehension based on

their intrinsic and extrinsic motivation, but in Danar's script he wanted to measure students' learning achievement. This kind of instrument is in Indonesian. The questionnaire has 4 options in each question. It consists of positive and negative options. The researcher used *Likert scale* to measure the items of questionnaire. In Likert scale, the answers of every item from questionnaire have gradation from very positive until very negative, for example strongly agree, agree, disagree, and strongly disagree. In the quantitative research, the researcher used score to analyze the answers of the questionnaire.

The scoring of categorizing the answer of the questionnaire is as follows:

Strongly agree	: 4
Agree	: 3
Disagree	: 2
Strongly disagree	: 1

From the explanation above, the maximum score of the questionnaire for intrinsic motivation was 80 and the minimum score was 20, and also same for extrinsic motivation. Students who got score 70 for intrinsic motivation and 50 for extrinsic motivation, they classified as students with intrinsic motivation. Beside that, students who got score 70 for extrinsic motivation and 50 for intrinsic motivation, they classified as students with extrinsic motivation. According to Ryan and Deci (2000) Intrinsic motivation divided into three domains:

a. Enjoyment

Intrinsic motivation refers to doing an activity simply for the enjoyment of the activity itself, rather than its instrumental value. The motivation comes

from the pleasure one gets from the task itself or from the sense of satisfaction in completing or even working on a task.

b. Interest

People are intrinsically motivated for any particular task, in terms of the task being interesting. Intrinsically motivated activities were said to be ones for which the reward was in the activity itself. However, it is critical to remember that intrinsic motivation will occur only for activities that hold intrinsic interest for an individual

c. Challenge

A person who intrinsically motivated is moved to act for the fun or challenge entailed rather than because of external prods, pressures, or rewards. Intrinsically motivated person will work on a solution to a problem because the challenge of finding a solution is provides a sense of pleasure.

On the other hand extrinsic motivation also divided into three domains:

a. Outward

A person who extrinsically motivated doing the work in order to attain the separable outward such as avoiding sanctions. He/she will do the best in their work even they do not understand what they do. They only focused in outward or avoid the punishment.

b. Duty

An extrinsically motivated person who will work on a task because he/she has responsibility to do the task. For example they may dislike a task, may

find it boring, or may have no interest in the subject, but they have to accomplish a task because it is their duty.

c. Reward

A person who extrinsically motivated only wish to engage in certain activities because they wish to receive some external reward. These rewards provide satisfaction and pleasure that the task itself may not provide. An extrinsically motivated person who will work on a task even when they have little interest in it because of the anticipated satisfaction they will get from some reward.

Table 3.1. Specification of Questionnaire

No.	Motivation	Domain	Item Numbers	Total Items	Percentage
1.	Intrinsic	Enjoyment	21, 25, 26, 28, 35, 38, 39, 42	25	50%
		Interest	3, 4, 8, 12, 22, 27, 31, 36, 50		
		Challenge	2, 15, 5, 19, 20, 41, 46, 47		
2.	Extrinsic	Outward	7, 10, 13, 18, 23, 30, 32, 34, 45	25	50%
		Duty	1, 11, 29, 37, 43, 44, 48, 49		
		Reward	6, 9, 14, 16, 17, 24, 33, 40		
Total				50	100%

3.4.2. Reading Comprehension Test

Reading comprehension test were given to the students to find out the differences between intrinsic and extrinsic motivation in reading comprehension of the students. This test were given to the students consisted of 60 questions for 90 minutes. The researcher used multiple choice test items in assessing the students' reading comprehension. For each multiple-choice questions, there were four

possible responses, one correct response and three distracters. All distracters in the multiple-choice question were possible, and multiple-choice question could not be answered correctly by the students without having read and understand relevant parts of the passages.

Reading comprehension test was administered after the questionnaire was given. The researcher used five aspects of reading comprehension in this test. The five aspects of reading comprehension were main idea, specific information (supporting details), inference, reference, and vocabulary.

Table 3.2. Specifications of Reading Comprehension Try Out Test

No.	Reading Aspects	Items Number	Percentage of item
1.	Identifying main idea	1, 2, 7, 12, 13, 19, 20, 25, 30, 37, 44, 51, 53	21,67 %
2.	Identifying supporting details	4, 9, 14, 15, 22, 23, 39, 40, 45, 46, 54	18,33 %
3.	Making inference	6, 11, 18, 21, 26, 27, 31, 32, 36, 43, 49, 56, 60	21,67 %
4.	Identifying reference	3, 8, 16, 24, 29, 35, 42, 47, 52	15 %
5.	Understanding vocabulary	5, 10, 17, 23, 28,34, 38, 41, 48, 50, 55, 57, 58, 59	23,33 %
Total		60 items	100 %

3.5. Validity and Reliability of the Instruments

In relation to this research, there were two aspects of validity and reliability which should exist in each test in the effort to assure that the test is good or well-established. In the following section would be elaborated the validity and reliability of the instruments used in this study.

3.5.1. Validity and Reliability of the Questionnaire

a. Validity

Face validity of the questionnaire is achieved by arranging the questionnaire into the form of multiple choice like arrangements. It made easier to the students to understand when they were trying to answer the questionnaire. That was the reason why the researcher used face validity in the questionnaire. The content validity was achieved by simply looking at the table of specification. It was clear there that the questionnaire wanted to know what kinds of motivation which is on each student. Meanwhile, the construct validity was achieved by looking at the relationship between indicators. If the indicators measure the same aspect, they will have positive association. While negative association will be shown among indicators that measure different aspects.

b. Reliability

The researcher gained the data by using quantitative description. First of all, the result of questionnaires were score based on Likert scale, the score ranges 1 to 4. To measure the consistency of items of the questionnaires the researcher used Cronbach Alpha Coefficient since it is the most common use to measure the consistency among the indicators of the questionnaire. The alpha ranges between 0 and 1. The higher the alpha, the more reliable the questionnaire will be (Setiyadi, 2006). Arikunto (1986) explains the way to examine the reliability level or questionnaire reliability by using Alpha Formula, as follow:

$$r = \left[\frac{n}{n-1} \right] \left[\frac{1 - \sum \sigma_i^2}{\sigma_i^2} \right]$$

Explanation:

r = reliability

n = the number of item

$\sum \sigma_i^2$ = total variance of all items

σ_i^2 = the total variance

To find out the variance, the researcher used the formula as follow:

$$\sigma = \frac{\sum X^2 - \frac{(\sum X)^2}{N}}{N}$$

Explanation:

σ = variance

$\sum X^2$ = the total square of the number of data

$(\sum X)^2$ = square of the total number of data

N = the number of data

And for knowing the classification of reliability are as follows:

- a. Between 0.800 to 1.00 = very high reliability
- b. Between 0.600 to 0.800 = high reliability
- c. Between 0.400 to 0.600 = moderate reliability
- d. Between 0.200 to 0.400 = low reliability
- e. Between 0.000 to 0.200 = very low reliability

To find whether the test was reliable or not, the writer used Cronbach Alpha. Every item in motivation questionnaire was analyzed to make sure that the items consist of good unity. The researcher used Cronbach Alpha that was measured based on the average of the questions correlation. Motivation score was made up of 50 items that refer to intrinsic and extrinsic motivation rated on a 4-point Likert-type scale. From the calculation of reliability analysis of the questionnaire, the alpha is 0.965 (appendix 4). It means that the questionnaire has very high reliability. It could be interpreted that the questionnaire was proper to be used for a research. The analysis of each item showed that if the item deleted, it will make alpha lower.

3.5.2. Validity and Reliability of the Reading Comprehension

a. Validity

A good test can be seen from its validity. "Validity refers to the extent to which the result of the procedure serve the uses for which they were intended" (Hatch & Farhady, 1982:250). Content validity was used in this research. The validity of the test was seen from the content validity. While construct validity was concern with whether the test was actually in line with the theory of what it meant to know the language (Shohamy, 1985:74). In this research, the researcher used reading comprehension that is supposed to be able to be comprehend by the grade XI students of senior high school. The materials are based on the curriculum that used in senior high school.

b. Reliability

The reliability of the reading comprehension test was measured based on Pearson Product Moment which examines the correlation coefficient of reliability between odd and even number (reliability of the half test). The formula can be seen as follows:

$$r_{xy} = \frac{\sum xy}{\sqrt{(\sum x^2)(\sum y^2)}}$$

Explanation:

r_{xy} = coefficient reliability between odd and even number

x = odd number

y = even number

$\sum x^2$ = total score of odd number

$\sum y^2$ = total score of even number

$\sum xy$ = total score of odd and even number

After the reliability of the half test had calculated, the researcher used Spearman Brown's Prophecy formula to measure the reliability of the test as a whole as follows:

$$r_k = \frac{2r_{xy}}{1 + r_{xy}}$$

Explanation:

r_k = the reliability of the whole test

r_{xy} = the reliability of half test

(Hatch and Farhady, 1982: 247)

The criteria of the reliability are:

0.90 – 1.00 = high

0.50 – 0.89 = moderate

0.00 – 0.49 = low

For reliability of reading comprehension try-out 60 items of reading comprehension test was administered in the try-out session. The reliability of the test calculated is 0.97 (appendix 11). That showed that the reading comprehension try-out test has high reliability and was therefore proper to be used in the research. It indicated that the instrument of this research was reliable and good to be taken in the research.

c. Level of difficulty

Level of difficulty deals with how easy or difficult the test items by considering the achievement of the students following the test. The researcher used the following formula to measure the level of difficulty of the test.

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

Where:

LD : the level of difficulty

R : the number of students who answer correctly

N : the total of students in the higher and lower group

(Shohamy, 1985: 79)

The criteria are as follows:

< 0.30 : difficult

0.30 – 0.70 : average

> 0.70 : easy

Difficulty level of the reading comprehension try-out test, after the reseacher was analyzing the level of difficulty of the reading comprehension try-out test, found out that there were 30 easy items, 24 average items, and 6 difficult items in this instrument (appendix 12). Below is the table displaying the difficulty level of the reading comprehension try-out.

Table 3.3. Difficulty Level of Reading Comprehension Try-out Test

Classification	Items	Percentage
Easy	1,2, 3, 4, 5, 6, 7, 8, 12, 14,16, 21,23, 25, 27, 29, 30, 35, 36, 38, 39, 40, 45, 46, 50, 51, 52, 55, 56, 57	50%
Average	9, 13, 15, 17, 18, 19, 20, 22, 24, 26, 28, 33, 34, 37,41, 42, 43, 44, 47, 48, 49, 58, 59, 60	40%
Difficult	10, 11, 31, 32, 53, 54,	10%
Total	60 Items	100%

d. Discrimination Power

Discrimination power refered to the ability of the test items to distinguish the students who have high capability from those who have low capability. A good item, based on that criterion, is an item which is correctly answered by high level students and is incorrectly answered by low level students. The calculation of the discrimination

power is as follows: $DP = \frac{U-L}{1/2N}$

Notes:

DP : discrimination power

U : the number of upper class who answer correctly

L : the number of lower class who answer correctly

N : the total number of the students in upper and lower classes

The criteria are:

0.00 – 0.20 : poor

0.21 – 0.40 : satisfactory

0.41 – 0.70 : good

0.71 – 1.00 : excellent

(Heaton, 1991:182)

Discrimination power of the reading comprehension try-out test was analyzing. The researcher found out there were 2 excellent items, 21 good items, 17 satisfactory items, 16 poor items, and 4 bad items (appendix 12). The following table presents the distribution of discrimination power of this instrument.

Table 3.4. Discrimination Power of Reading Comprehension Try-out Test

Classification	Items	Percentage
Excellent	15, 45	3,33%
Good	4, 6, 7, 17, 18, 19, 21, 22, 24, 26, 29, 33, 34, 38, 40, 46, 52, 56, 58, 59, 60	35%
Satisfactory	1, 5, 9, 10, 11, 12, 13, 16, 20, 23, 25, 32, 35, 37, 39, 42, 43, 57	28.3%
Poor	2, 8, 11, 14, 27, 28, 31, 41, 44, 48, 49, 50, 51, 53, 54, 55	26.7%
Bad Item	3, 30, 36, 47	6.7%
Total	60 Items	100%

Due to the analysis on the difficulty level and the discrimination power described above, the researcher deleted twenty items of difficult and poor mark, average and poor mark, and also easy and poor mark (item 2, 3, 8, 11, 14, 27, 28, 30, 31, 36, 41, 44, 47, 48, 49, 50, 51, 53, 54, and 55). The other 60 items consisting of 1 easy and excellent item (item 45), 10 easy and good items (item 4, 6, 7, 21, 29, 38, 40, 46, 52 and 56), 9 easy and satisfactory items (item 1, 5, 12, 16, 23, 25, 35, 39 and 57), 7

easy and poor items (item 2, 8, 14, 27, 50, 51 and 55), 3 easy and bad items (item 3, 30 and 36), 1 average and excellent item (item 15), 6 average and satisfactory items (item 9, 13, 20, 37, 42 and 43), 14 average and good items (item 17, 18, 19, 22, 24, 26, 33, 34, 37, 42, 43, 58, 59, and 60), 5 average and poor items (item 28, 41, 44, 48, and 49), 1 average and bad item (item 47), 2 difficult and satisfactory items (item 10 and 32) and 4 difficult and poor items (item 11, 31, 53 and 54) were administered. (appendix 12)

Analyzing the data, the researcher found out that there were 20 invalid items (item 2, 3, 8, 11, 14, 27, 28, 30, 31, 36, 41, 44, 47, 48, 49, 50, 51, 53, 54, and 55) (appendix 12). Hence, the researcher deleted those items and only tested 40 items (item 1, 3, 4, 5, 6, 7, 9, 10, 12, 13, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 29, 32, 33, 34, 35, 37, 38, 39, 40, 42, 43, 45, 46, 52, 56, 57, 58, 59, and 60) to the sample class.

e. Scoring System

The researcher used multiple choices in order to gain the objectivity of the result. In scoring the students' work, the researcher used Arikunto's formula (2005:236). The ideal highest score was 100. The score of reading test will be calculated by using the following formula:

$$S = \frac{R}{T} 100$$

Where:

S : The score of the test

R : Number of the right answers

T : Total number of the items on the test

(Arikunto, 2005: 236)

3.6. Procedures of the Research

In collecting the data, the researcher used following steps:

1. Determining research problem

In determining the sample, the researcher chose students in two classes of second grade of SMAN 7 Bandar Lampung. The research problem could be seen in chapter one.

2. Determining the research instrument

The researcher examined the students' intrinsic and extrinsic motivation and their reading comprehension by giving a questionnaire and reading comprehension test. The questionnaire was consisted of 50 items and the reading comprehension test was consisted of 60 items and was administered for about 2 x 45 minutes. The questionnaire has four options that described about characteristic of the learners. Reading comprehension is multiple-choice, has four alternative answers i.e. a, b, c, or d. For the reading comprehension, there is only one correct answer and three distracters.

3. Selecting and determining the materials

The materials of the reading comprehension in this research were based on the School Based Curriculum 2013 for the second grade students.

4. Trying out the instruments

There were two instruments that was administered in try-out class. First instrument was questionnaire and second instrument was the reading comprehension test.

5. Analysing the result of the try-out test

After both the questionnaire and the reading comprehension test are answered, the researcher analyzed the validity and the reliability of the instruments.

6. Distributing the questionnaire

The researcher distributed the questionnaire, to categorize the students who have intrinsic and extrinsic motivation in reading to the students in the sample class after the reliability and validity have been found out. Then she categorized both of students who have intrinsic motivation and extrinsic motivation.

7. Administering the reading comprehension test

The next step the researcher took is conducting the reading comprehension test to the sample class which is intended to assess the students' achievement.

8. Tabulating the data

When the data from the questionnaire and the reading test have been collected, they were tabulated to then be analyzed

9. Analyzing the data

The researcher in this step analyzed the tabulated data. The analysis, which will be done by using independent t-test in SPSS 16.0 computer

program, is on the comparison of the students' motivation in reading and reading comprehension.

10. Drawing conclusion

As the last step, conclusion is drawn up by carefully considering the result of the data analysis.

3.7. Data Analysis

The data of this study were in form of comparative. The researcher used computer system called Statistical Package for Social Sciences (SPSS) program version 16.0. The researcher used independent t-test, where the score of reading comprehension in sample class between students who have intrinsic and extrinsic motivation group would be compared.

3.8. Hypothesis Testing

The hypotheses are used to prove whether the hypothesis proposed in this research is accepted or not. The hypotheses testing are stated as follow:

1. (H_0) Null hypothesis : There was no significant difference between students who have intrinsic and extrinsic motivation in reading comprehension at SMAN 7 Bandar Lampung.
- (H_1) Alternative hypothesis : There was a significant difference between students who have intrinsic and extrinsic motivation in reading comprehension at SMAN 7 Bandar Lampung.

2. (H₀) Null hypothesis : Students with extrinsic motivation achieved better reading comprehension.

(H₁) Alternative hypothesis : Students with intrinsic motivation achieved better reading comprehension.

For the first hypothesis the criteria is:

If the T-count was higher than T-table H₀ was rejected. H₁ was accepted. There was a significant difference between students who have intrinsic and extrinsic motivation in reading comprehension at SMAN 7 Bandar Lampung. The level of significant 0.05 ($p > \alpha$).

Statistical testing: *independent t-test*.

For the second hypothesis, the researcher got from the mean score of reading comprehension test between students who have intrinsic and extrinsic motivation.

The procedure of research has been discussed. This includes the research design, population and sample, variables, research instruments, validity and reliability of the instruments, procedures of the research, data analysis, and hypothesis testing discussed in order to provide an insight to this research.