

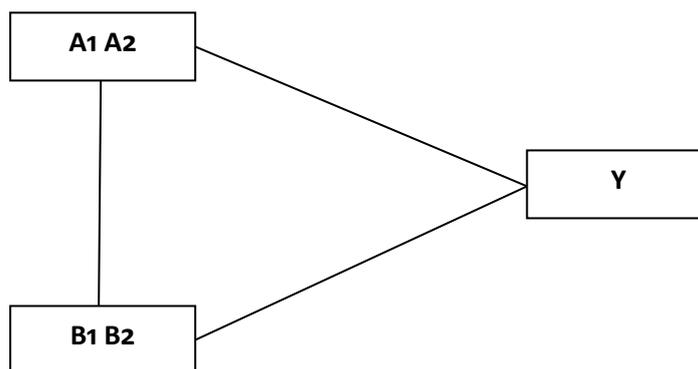
III. RESEARCH METHODS

This chapter presents research design, population, sample, data collecting technique, try out, validity of the instrument, reliability of the instrument, level of difficulty, discrimination power, scoring system, data analysis, procedures of collecting data, hypothesis testing.

3.1 Research Design

This research used quantitative design. The design of this research was factorial design. Factorial design is the most common way to study the effect of two or more independent variable, and we focused on the design that have only two independent variables that combined with all levels of the other independent variable to produce all possible conditions.

In this research, the design included two variables and each variable had two levels. The variables were technique has two levels i.e. scanning and skimming techniques, and personality has two levels i.e introvert and extrovert personalities. This would be called a 2x2 (two-by-two) factorial design because there are two independent variables, each of which has two levels. The experiment design was drawn based on the picture below:



Picture 3.1 Experiment Design

Where :

A_1B_1 = Block of students sample who has introvert personality used scanning technique

A_2B_1 = Block of students sample who has introvert personality used skimming technique

A_1B_2 = Block of students sample who has extrovert personality used scanning technique

A_2B_2 = Block of students sample who has extrovert personality used skimming technique

Y = Reading Comprehension

This research used two classes as experimental class, one class was taught used scanning technique and one class was taught used skimming technique. Two classes as experimental class using simple random sampling, which was selected randomly by using lottery. Both of class had observation questionnaire, treatments and post test.

One way to represent a factorial design is with a design table. The table below represents a 2x2 design factorial in which two independent variables is the type of

the technique in reading (scanning and skimming) and personality of the students (introvert and extrovert)

Table 3.1 Research Design in Table

Variable Techniques (A)		Technique	
		Scanning (A ₁)	Skimming (A ₂)
Variable Personality (B)			
Personality (B)	Introvert (B ₁)	A ₁ B ₁	A ₂ B ₁
	Extrovert (B ₂)	A ₁ B ₂	A ₂ B ₂

(Nawawi and Martini: 1996)

3.2 Population

The population of this research was the 2nd grade of SMPN 29 Bandar Lampung period of 2012/2013. There were 8 classes in 2nd grade and consisted of 36-38 students in each class (VIII A - VIII H).

3.3 Sample

The class was selected randomly by using lottery, in the 2nd grade in SMPN 29 Bandar Lampung was no priority class. It was apply based on the consideration that every student in the population had the same chance to be chosen and in order to avoid the subjectivity in the research (Setiyadi, 2006: 39). The researcher used two classes as experimental class. The sample were VIII C and VIII E as

experimental class, which consist 36 students and these class were selected using simple random sampling. Try out class in VIII A which consisted of 38 students.

3.4 Data Collecting Technique

In collecting data, this research used questionnaire and reading test as the instruments. Questionnaire was an instrument which was very effective to measure aspects and variables in associated with personality, psychology aspect or sociology (Setiyadi, 2005). In this research, the result of the students answer's in questionnaire separated them into introvert and extrovert students in the class.

The questionnaire was taken and translated into Bahasa order to minimize the misinterpretation by the students. The questionnaire consisted of 30 items, 15 items questionnaire of introvert personality and 15 items questionnaire of extrovert personality. For questionnaire of introvert personality at even number and extrovert at odd number. The questionnaire had 2 options that was "YES" or "NO" in each question . if the answered of the students is "yes" in introvert question it means the students had introvert personality, but if the answered is "no" it means the students had extrovert personality and vice versa, If the answered of the students is "yes" in extrovert question, it means the students had extrovert personality, but if the answer is "no" it means the students had introvert personality.

By using the result of the questionnaire, the researcher classified the students into introvert and extrovert personalities. If the answered of the students in extrovert question more than introvert question, then can be said the students had extrovert

personality, whereas if the question answered of introvert questions was more than extrovert questions, it can be said the students had introvert personality.

Table 3.2 The Questionnaire to Measure Students Personality of Introvert and Extrovert

No	Level of Personality	Item numbers	Total
1	Introvert	2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30	15 items
2	Extrovert	1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29	15 items

Table 3.3 Table of Specification (Questionnaire)

Items Number	Personality				Total Items	Percentage of Items
	Extroversion		Introversion			
	Sanguine	Choleric	Phlegmatic	Melancholic		
1, 3, 5, 7, 11, 13, 17, 21, 23	√				9	30%
9, 15, 19, 25, 29		√			5	18%
2, 4, 12, 16, 22, 28, 30			√		7	24%
6, 8, 10, 14, 18, 20, 24, 26				√	8	28%

The next instrument was reading test included post-test. The post-test consisted of multiple choices and some reading texts. Multiple choices test was used since its marking is rapid, simple and most important reliable, that was, not subjective or influenced by marker judgements (Heaton, 1975: 151). The questions had four alternative answer for each (A, B, C and D), one as the correct answer and the rest are distracters. Therefore, if one participant answered all the items correctly s/he

got 100 points. The treatments also used reading text. The texts were taken from English books, magazines, newspapers. The length of time in collecting data is 3 weeks.

3.5 Try Out

Before conducting the research, the reading test was tried out in order to make sure whether the instruments were valid and reliable to collect the data. The try-out tests included one kind of test, i.e. posttest. The try-out test for posttest contained 50 items of reading test in which there were 4 options (A, B, C, D) with one correct answer and three distractors. Each correct answer got 2 points, so the highest score was 100.

The validity of the instruments refers to the content and construct validity in which the question represents five of sorts reading skills, i.e. determining idea, finding the detail information, reference, inference and vocabulary (Nuttall, 1985). The try-out test was used to know the quality of the test before it was used as the post-test.

Table 3.4 Specification of the Try Out Test

No	Skills of Reading	Item Numbers	Percentage of Items
1	Determining Main Idea	1, 6, 11, 16, 21, 26, 31, 36, 41, 46, 48	22%
2	Finding specific information	2, 3, 7, 12, 17, 22, 27, 28, 32, 37, 39, 42, 44, 47	28 %
3	Inference	5, 8, 15, 18, 25, 29, 37, 40	16%

4	Reference	10, 14, 20, 23, 34, 49	12%
5	Vocabulary	4, 9, 13, 19, 24, 30, 35, 38, 43, 45, 50	22%

From the try out text, the questions of the text was reduced, adjust the ability of the students. Result from the try out test, became post-test consisted 4 options in each question, one correct answer and three distractors. The highest score was 100. Post-test is to check the students after they are given treatments by using scanning and skimming techniques, to know whether the students reading comprehension achievement is differences or not. The question also represented five aspects of reading skill.

3.6 Validity Of the Instrument

Validity of the instrument is considered in this research. The research take content and construct validity for this research. It is considered that instrument should be and in line with reading theory and the material. The validity of the instrument is presented as follows:

- a. Content validity reffers to extent to which a test measures a representative sample the subjet matter contents, the focus of the content validity is adequacy of the sample and simply on the appearance of the test (Hatch & Farhady, 1982: 251). Content validity is intended to know whether the test items are good reflection of what would be covered. The test items are adapted from the materials that has been taught to the students. The test should be so constructed as to contain a representative sample of the course (Heaton, 1975: 160). This

research applies two materials for the treatments. Those material are monologue and functional texts. To know whether the test has a good content validity, the items of the test are discussed with the experts (lectures and advisors).

- b.** Construct validity, it measures whether the construction has already referred to the theory, meaning that the test construction has already in line with the objective of the learning (Hatch & Farhady, 1982: 251). To find the construct validity of the pretest and posttest, the theory of reading comprehension in identifying the specific information, determining the main idea, specific information, references, inference and vocabulary are formulated the test items. The table of specification is for pretest and posttest. The table of specification for pretest and posttest are considered as the fulfillment of the construct validity.

3.7 Reliability of the Instrument

Reliability refers to the extent to which the test is consistent in its score and gives us an addition of how accurate the test score are (Hatch & Farhady, 1982: 246). To test the reliability of the instruments, the researcher used *split-half method* in which the reading tests are divided into halves (Hatch & Farhady). By splitting the test into two equal (first half and second half); it was made as if whole tests had been taken in twice. Moreover, by arranging the test into first half and second half allow the researcher to measure the test reliability by having *split half method*. To measure the coefficient of the reliability between the first and second half, Pearson Product Moment was used, which was formulated as follows:

$$r1 = \frac{\sum xy}{\sqrt{(\sum x^2)(\sum y^2)}}$$

where:

r1 = The coefficient reliability between first and second half

x = total number of first half

y = total number of second half

x² = square of x

y² = square of y

(Lado in Hughes, 1991: 3)

Spearman Brown's Prophecy formula (Hatch and Farhady, 1982: 268) as apply to know the coefficient correlation of the whole item.

$$rk = \frac{2rl}{1 + rl}$$

Where:

rk : the reliability of the test

rl : the reliability of the half test

The criteria of reliability are:

0.90 – 1.00 = high

0.50 – 0.89 = moderate

0.0 – 0.49 = low

If the reliability of the test reaches 0.50 the researcher would consider that it has been reliable. Hatch and Farhady (1982: 223) state that level of reliability about 0.90 up to 1 is high reliability. It indicates that this instrument would produce consistent result when administered under similar condition to the same participant and in different time. Therefore, the students' result of the tests were believed as the reflection of their reading comprehension which is accurate and consistent.

3.8 Level of Difficulty

Level of difficulty of the reading test was used to classify the test items into difficult items and easy ones. The items should not be too difficult or too easy for the students. In this research, reading tests consisted of one kind i.e for post-test. Before being used, both kinds of the test were tried out the result of which were explained in this section. In calculating the Level of Difficulty for each item, the following formula was used:

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

Where:

LD : level of Difficulty

R : number of students who answer correctly

N : the total number of students following the test

The criteria are:

<0.30 : difficult

0.30-0.70 : average

>0.70 : easy

(Shohamy, 1985: 79)

3.9 Discrimination Power

The discrimination power (DP) is the proportion of the high group students getting the items correct and the proportion of the low-level students who getting the items correct minus. In calculating the discrimination power of each item the following formula was used:

$$DP = \frac{\text{correctUpper} - \text{correctLower}}{1/2 N}$$

DP = Discrimination Power

U = Number of upper group students who answer correctly

L = Number of lower group students who answer correctly

N = The total number of students who take the test

The criteria are:

DP: 0.00 – 0.19 = Poor

DP: 0.20 – 0.39 = Satisfactory

DP: 0.40 – 0.69 = Good

DP: 0.70 – 1.00 = Excellent

DP: - (Negative) = Bad items, should be omitted

(Heaton, 1975: 180)

3.10 Scoring System

In scoring students result of the test, the researcher was used Arikunto (1997) Formula. This ideal score is 100. The scores of post-test were calculated using formula as follow:

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

Where:

S : the score of the test

R : the total of the right answers

N : the total items

3.11 Data Analysis

In analyzing the data, this research was used two classes for the experimental class. The students of the class was separated using questionnaire to be two personality i.e introvert and extroverts students personality. The students was taught using scanning technique and skimming technique, after that the students given post-test. The score of a post-test was puted into the table of design factorial. Post-test in introvert and extrovert students in two classes, class that was taught using scanning technique and class that was taught using skimming technique, the result can be seen in the table of design factorial.

Analyzing the data in this research used Independent Group T-Test and Two Way Anova. Independent Group T-Test was used to compare '*mean*' from two different groups and both of groups is taken in different situation. Two Way Anova was used if we have two variables that will be compared, and each variables has two levels or more. This analyze is used for the data that is retrieved through design factorial (Setiyadi: 2006).

3.12 Procedure of Collecting Data

In collecting the data, the researcher will use following steps:

1. *Selecting the instrument material*: the instrument materials were questionnaire and reading test. Reading test was chosen from authentic materials (English magazines and newspaper) and textbook. The selecting process considers materials that had been taught to the students and the students' interest.
2. *Determining research instrument*: for questionnaire, the students was separated into two personalities i.e. extrovert and introvert students. The questionnaire was given in the first meeting in experimental class. It consisted of 30 items and was administered in 15 minutes. For reading test (post-test), the materials were taken from students' authentic material (short articles and functional texts), i.e. English magazines and newspaper. Short articles monologue texts, e.g. narrative, descriptive and recount text) in each test contained about 2-4 paragraph while the other (functional texts, e.g. advertisement and TV schedule) consisted only single paragraph or not more than ten sentences (functional texts). It was aimed at making an equal proportion and level of difficulty of post-test. The numbers of the items were arranged in such a way so that the reliability of the tests could be seen through split-half method. The authentic materials were chosen as the text, since the textbook did not provide various types of reading text that the students need to know. In other words, reading materials in textbook were limited and did not give the various type of the text required.

3. *Determining the population and sample of the research*: the sample of the research was determined through simple random probability sampling. It means that the sample was selected randomly by using lottery, since 2nd grade in SMPN 29 Bandar Lampung was not stratified class, there was no priority class. There were 8 classes of 2nd grade at SMPN 29 Bandar Lampung. Then, randomly class VIII C and VIII E were chosen to be the experimental class.
4. *Administering try out test*: the try out using reading text and 50 items of multiple choices. It was taken 80 minutes. The test was given to find the quality of the test before it is used in order to get the data on the research. It was to find out whether the test items were good or not in validity, reliability, level difficulty and the discrimination power. The researcher used split-half method to measure the reliability in which require her provide the items into two same groups, first half and second half.
5. *Determining final test of instrument*: in this step, the researcher revises all of instruments based on the result of questionnaire and try out test. The revision is done by changing the ambiguous statement, distracters, double correct answer.
6. *Giving treatment*: giving three treatments by using scanning technique in VIII C class and skimming technique in VIII E class were given in 3 weeks. The treatments was conducted in three meetings and 80 minutes for each. The treatments were classroom activity, which was used and applied scanning and skimming techniques in reading.

7. *Conducting post-test*: post-test is conducted after the treatment. Post-test was conducted to find out whether there was differences in students' reading comprehension of introvert and extrovert personality in identifying specific information and main idea after treatments. It was administered for about 40 minutes in experimental class.

3.13 Hypothesis Testing

The hypothesis were stated as follows:

- H₀:
1. There is no an interaction between techniques and personality of students
 2. There is no difference in students' reading comprehension achievement of introvert and extrovert students who use scanning technique?
 3. There is no difference in students' reading comprehension achievement of introvert and extrovert students who use skimming technique?
 4. There is no difference in students' reading comprehension achievement who use scanning and skimming techniques of introvert students?
 5. There is no difference in students' reading comprehension achievement who use scanning and skimming techniques of extrovert students?

- H₁:
1. There is an interaction between techniques and personality of students
 2. There is difference in students' reading comprehension achievement of introvert and extrovert students who use scanning technique?
 3. There is difference in students' reading comprehension achievement of introvert and extrovert students who use skimming technique?
 4. There is difference in students' reading comprehension achievement who use scanning and skimming techniques of introvert students?
 5. There is difference in students' reading comprehension achievement who use scanning and skimming techniques of extrovert students?

The hypothesis is analyzed by using Independent Group T-Test and Two way Anova through computing with Statistical Package for Social Science (SPSS) version 20.0 for window. The researcher uses the level of significance 0.05 in which the hypothesis is approved if $\text{Sign} < \alpha$. It means that the probability of error in the hypothesis is only 5%.