

Hak Cipta Diindungi Undang-Undang

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- b. Pengutipan tidak merugikan kepentingan yang wajar UIN Suska Riau.

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## CHAPTER III

### RESEARCH METHOD

#### A. Design of the research

This research is a correlational research. According to Creswell (2008, p.356), correlational research is a quantitative method with a statistical inferences to describe and measure the degree of magnitude or relationship between two variables. From the definition above, it is clear that the purpose of the correlational research is to find out whether there is a relationship between two or more sets of data. There were two variables in this research; they were students' critical thinking and the students' reading comprehension. The students' critical thinking was the independent variable and students' reading comprehension was the dependent variable.

#### B. Time and location of the research

The research was conducted from May to July 2017 at State Islamic Senior High School 4 Kampar.

#### Subject and objective of the research

The subject of the research was the second year students of State Islamic Senior High School 4 Kampar and the object was to find out the significant relationship between critical thinking and reading comprehension.

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## D. The Population and the Sample

The population of the research was second year students at State Islamic Senior High School 4 Kampar . There were 2 classes of the second year students. They were 54 students all of them. It can be seen in the following table:

Table III.1  
Population

| No    | Classes | Population |
|-------|---------|------------|
| 1     | XI IPA  | 23         |
| 3     | XI IPS  | 31         |
| Total |         | 54         |

To determining the sample, the writer took all the respondents. According to Arikunto (2006) , if the total population is less than 100, it is better to take all of them as the sample .The technique was total sampling. Total sampling is the technique to determine sample by taking all members of population as the respondent or sample (Sugiyono, 2013, p. 124). So, the writer choosed 54 students as sample of the research.

## E. The Techniques of Collecting Data

In order to collect some data in this research, the writer applied the techniques as follows:

### 1. Questionnaires

According to Wilson and McLean (cited in Cohen, 2007, p. 315), the questionnaire is a widely used and useful instrument for collecting survey information, providing structured, often numerical data, being able to be administered without the presence of the writer, and often

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being comparatively straight forward to analyze. This questionnaire was used to get the information about critical thinking. It indicated by using likert scale to measure interpretation, analysis, evaluation, inference, explanation and self-regulation. Namely: Strongly agree, agree, neutral, disagree, and strongly disagree (Riduwan, 2013, p.12-13).

2. Test

This technique was used to find out the students' score in reading text comprehension. In this test, the writer used the written test. This test contained some questions of reading text for the respondent by using multiple choice items.

## **F. Validity and Reliability**

1. Validity of Instrument

According to Brown (2003), content validity is partly a matter of determining if the content that instruments contain is an adequate sample of the domain of content it is supposed to represent. Content validity just focuses on how well the items represent the intended area. Then, he stated that validity is the individual's score from an instrument that makes sense, meaningful, draw good conclusion from the sample you are studying to the population. It means that validity is the extend to which inferences made from assessment result are appropriate, meaningful, and useful in terms of the purpose of assessment.

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## a. Validity of Questionnaire

The researcher determined the validity by referring to the material that is related to indicators of critical thinking itself. To analyze the variable X, the writer used Microsoft Excel program. The writer used the item analysis in which the items scores were correlated with the total score. The standard value of validity was  $r_{pb} > r_{table}$ . The  $r_{pb}$  higher than  $r_{table}$  at significance level of 5% which is 0.4444, and where  $r_{table}$  ( $dk = N - 2 = 18$ ). If the value of  $r$  on the analysis of less than  $r_{table}$ , it can be concluded that these items are not significantly correlated with the total score (declared invalid) and must be removed.

Based on the result of the instrument to the 20 students, it was found that 20 items were valid and 5 items were invalid. It means that there were 20 items that could be used in this research. The result of the try out is as follows:

Table III.2  
The Analysis of Critical Thinking Questionnaire Validity

| Item number | r-item | r-table | Result |
|-------------|--------|---------|--------|
| 1           | 0.6419 | 0.4444  | Valid  |
| 2           | 0.4916 | 0.4444  | Valid  |
| 3           | 0.4731 | 0.4444  | Valid  |
| 4           | 0.4993 | 0.4444  | Valid  |
| 5           | 0.6134 | 0.4444  | Valid  |
| 6           | 0.5625 | 0.4444  | Valid  |
| 7           | 0.5245 | 0.4444  | Valid  |
| 8           | 0.4888 | 0.4444  | Valid  |
| 9           | 0.5523 | 0.4444  | Valid  |
| 10          | 0.5258 | 0.4444  | Valid  |
| 11          | 0.5120 | 0.4444  | Valid  |

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|    |         |        |         |
|----|---------|--------|---------|
| 12 | 0.5574  | 0.4444 | Valid   |
| 13 | 0.4898  | 0.4444 | Valid   |
| 14 | 0.5449  | 0.4444 | Valid   |
| 15 | 0.9079  | 0.4444 | Valid   |
| 16 | 0.1922  | 0.4444 | Invalid |
| 17 | 0.4966  | 0.4444 | Valid   |
| 18 | 0.6766  | 0.4444 | Valid   |
| 19 | 0.3989  | 0.4444 | Invalid |
| 20 | 0.5051  | 0.4444 | Valid   |
| 21 | 0.0526  | 0.4444 | Invalid |
| 22 | 0.2642  | 0.4444 | Invalid |
| 23 | -0.1222 | 0.4444 | Invalid |
| 24 | 0.5639  | 0.4444 | Valid   |
| 25 | 0.8969  | 0.4444 | Valid   |

## b. Validity of Reading Comprehension

The test can be valid if it measures accurately whether the test is appropriate, meaningful, and useful. The writer determined validity by referring to the material related to indicator of KTSP. The standard value of validity was  $r_{pb} > r_{table}$ . The  $r_{pb}$  higher than  $r_{table}$  at significance level of 5% which is 0.4444, and where  $r_{table}$  ( $dk = N - 2 = 18$ ). If the value of  $r$  on the analysis of less than  $r_{table}$ , it can be concluded that these items are not significantly correlated with the total score (declared invalid) and must be removed.

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Table III.3  
The Analysis of Reading Comprehension Test Validity

| Item number | r-item  | r-table | Result  |
|-------------|---------|---------|---------|
| 1           | 0.6087  | 0.4444  | Valid   |
| 2           | 0.4586  | 0.4444  | Valid   |
| 3           | 0.7068  | 0.4444  | Valid   |
| 4           | 0.4586  | 0.4444  | Valid   |
| 5           | 0.5324  | 0.4444  | Valid   |
| 6           | 0.4984  | 0.4444  | Valid   |
| 7           | 0.5782  | 0.4444  | Valid   |
| 8           | 0.1228  | 0.4444  | Invalid |
| 9           | 0.4516  | 0.4444  | Valid   |
| 10          | 0.5414  | 0.4444  | Valid   |
| 11          | 0.5471  | 0.4444  | Valid   |
| 12          | 0.5383  | 0.4444  | Valid   |
| 13          | 0.4908  | 0.4444  | Valid   |
| 14          | 0.4785  | 0.4444  | Valid   |
| 15          | 0.2047  | 0.4444  | Invalid |
| 16          | -0.0196 | 0.4444  | Invalid |
| 17          | 0.3276  | 0.4444  | Invalid |
| 18          | -0.1278 | 0.4444  | Invalid |
| 19          | 0.4710  | 0.4444  | Valid   |
| 20          | 0.4688  | 0.4444  | Valid   |

## 2. Reliability of Instrument

Brown (2003) stated that reliability has to do with accuracy of measurement. This kind of accuracy is reflected in obtaining of similar result when measurement is repeated on different occasion or with different instrument or by different person. The reliable test is consistent and dependable.

The table below is the level of reliability of test used (Cohen, Manion, & Morrison, 2007).

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Table III.4  
The Level of Reliability

| Reliability | Level of Reliability |
|-------------|----------------------|
| >0.90       | Very High            |
| 0.80-0.90   | High                 |
| 0.70-0.79   | Reliable             |
| 0.60-0.69   | Marginally/Minimally |
| <0.60       | Unacceptably Low     |

**1. Reliability of Questionnaire**

To obtain the reliability of questionnaire given, the researcher used SPSS 16.00 program to find out whether the questionnaire is reliable or not.

Table III.5  
The Analysis of Questionnaire Reliability

| Reliability Statistics |            |
|------------------------|------------|
| Cronbach's Alpha       | N of Items |
| .884                   | 20         |

From the table above, it was obtained that the value of cronbanch's alpha was 0.884. Based on the table of reliabilty, the questionnaire was categorized into high reliable.

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## 2. Reliability of Reading comprehension

In this reading comprehension test, the writer made the test based on the material related to second year in KTSP of State Islamic Senior High School 4 Kampar.

Table III.6  
The Analysis of Reading Comprehension Test Reliability

| Reliability Statistics |            |
|------------------------|------------|
| Cronbach's Alpha       | N of Items |
| .856                   | 20         |

From the table above, it was found that the value of cronbach's alpha was 0.856. Based on the table reliability, the test was categorized into high reliable.

### G. Techniques of Data Analysis

In analyzing critical thinking and reading comprehension of the second year students at State Islamic Senior High School 4 Kampar, the data were analyzed by using product moment correlation to examine whether there is or no correlation between two variables. The writer used Pearson Correlation Coefficient (r) by using SPSS 16.00 for windows in analyzing and calculating the data.

Furthermore, the data of reading comprehension should be scored by using formula below :

$$\frac{\text{Number of correct answer}}{\text{number of items}} \times 100$$

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Table III.7  
The Classification of Students' Score

| The Score Level | Category  |
|-----------------|-----------|
| 80-100          | Very good |
| 66-79           | Good      |
| 56-65           | Enough    |
| 40-55           | Less      |
| 30-39           | Fail      |

(Arikunto, 2006, p.245)