**CHAPTER III**

**RESEARCH METHODOLOGY**

**A. Research Design**

This research is design as an experimental design. According to Creswell (2008:298) states "experimental design is traditional research approach to quantitative research". Experimental designs are procedures in quantitative research in which the investigator determines whether an activity or material make a difference in result for participants. The design of this research was quasi-experiment design by using the nonequivalent control group design. There are 2 variabels in this research. They were variable X and variabel Y. Variable X is Competence, Autonomy, and Relatedness (CAR) Principlesand variable Y is students' reading comprehension in descriptive text. This research used an experimental and a control class. Therefore, the experimental class was provided with pre-test, treatment, and post-test. The design can be seen in the following table (Creswell (2012:310)):

**Table III.1**
**Table of Research Design**

| Group | Pre-test | Treatment | Post-test |
|---|---|---|---|
| Experimental | X1 | T | Y1 |
| Control | X2 | - | Y2 |

Note:

X1 : Pre-test for experimental group
X2 :Pre-test for control group
T : Treatment by using CAR Principles
- : Treatment without using CAR Principles
Y1 : Post-test for experimental group
Y2 : Post-test for control group

## B. Time and Location of the Research

The location of the research was IslamicJunior High School of Al Ihsan Boarding School in Kampar Regency. The location of Islamic Junior High School of Al Ihsan Boarding School is at Jalan Kubang Raya Ujung. In addition, the time of the research was from 28 March to 20 May 2016.

## C. Subject and Object of the Research

### 1. Subject of the Research

The subject of this research was the seventh grade students at Islamic Junior High School of Al Ihsan Boarding School in Kampar Regency.

### 2. Object of the Research

The object of this reasearch was the effect of using Competence, Autonomy, and Relatedness (CAR) Principles on Students' Reading Comprehension at Islamic Junior High School of Al Ihsan Boarding School in Kampar Regency.

## D. Population and Sample of the Reasearch

The population of this research was the students of the seventh grade at Islamic Junior High School of Al Ihsan Boarding School in Kampar Regency. It had 4 classes: the number of the seventh grade students of Islamic Junior High School of Al Ihsan Boarding School in Kampar were 104 students. The specification of the population can be seen as follows:

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**Table III.2**
**The Population of The Seventh Grade Students of IslamicJunior High School of Al Ihsan Boarding School**

| NO | CLASS | NUMBER OF STUDENTS |
|---|---|---|
| 1 | VII UHUD | 27 |
| 2 | VII KHANDAQ | 25 |
| 3 | VII UMMU SALAMAH | 27 |
| 4 | VII KHODIJAH | 25 |
| | TOTAL | 104 |

The writer took two classes as sample by using cluster sampling. According to Gay and Airasian (2002:129) cluster sampling selects based on group not individually, all the members of selected group had similar characteristics. It means that the sample chosen in group was not individually, the groups had the same ability. The classes chosen were VII Uhud for experimental class and VII Khandaq for control class. The experimental group consisted of 27 students, while the control group consisted of 25 students.

**Table III.3**
**The Sample of the Research**

| NO | CLASS | TOTAL |
|---|---|---|
| 1 | VII UHUD | 27 |
| 2 | VII KHANDAQ | 25 |
| | TOTAL | 52 |

## E. Technique of Collecting Data

In order to get the data which were needed to support this research, the writer applied a test as the technique of collecting the data. The test used by the writer was multiple choice questions. Multiple choice questions require the students to select the best answer out of a number option. Test was given twice. The first was pretest and the last was posttest.

Furthermore, test was used to get achievement of test series given. The score of the pretest-posttest of the experimental class was compared to the pretest-posttest of the control class. The result of the post test was analyzed as the final data of the research.The test consisted of 20 items. The writer constructed or adopted the test from the book and sources that were related.The blue prints of the reading comprehension test (pre-test and post-test) are as follows.

**Table III.4**
**The Blueprint of the Test**

| Number | Indicator of Items | Number of items | Items number |
|---|---|---|---|
| 1. | Find out the main idea of descriptive text | 4 items | 1,6,13,20 |
| 2. | Find out the generic structure of descriptive text | 4 items | 2,8,11,17 |
| 3. | Find out the purpose of descriptive text | 4 items | 3,7,12,16 |
| 4. | Find out the information of descriptive text | 4 items | 4,10,14,18 |
| 5. | Make reference from the descriptive text | 4 items | 5,9,15,19 |

After the students did the test, the writer then took total score from the result of reading comprehension test. According to The classification of the students' score as follows:

**Table III.5**
**The Classification of Students' Score**

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

**F. Validity and Reliability of the Test**

**1. Validity**

Before the test was given to the sample of this research, the writer tried out the test items. The test given to the students was considered not too difficult or not too easy. According to Arikunto (1997: 208) the test is accepted if the degree of difficulty is between 0.30 – 0.70. It was determined by finding the difficulty level of each item.The formula for item of difficulty is as followsSuharsimi (2009:245)

$$P = \frac{B}{JS}$$

Where P      : index of difficulty or facility value

      B      : the number of correct answers

      JS     : the number of examinees or students taking the test

The difficulty level of an item shows how easy or difficult a particular item in the test. The items that do not reach the standard level of difficulty are excluded from the test and they are changed with the new items that are appropriate.

According to Suharsimi (2009:210), the standard level of difficulty used is **<0, 30** and **>0, 70** It means that the item test that is accepted if the level of difficulty is between 0.30-0.70 and it is rejected if the level of difficulty is below 0.30 (difficult) and over 0.70 (easy). Then, the proportion correct is represented by "p", whereas the proportion incorrect is represented by "q".

**Table III.6**
**The students are able to find out the main idea of descriptive text.**

| Variable | Finding the main idea ofdescriptive text. | | | | N |
|---|---|---|---|---|---|
| Item no | 1 | 6 | 13 | 20 | |
| Correct | 14 | 16 | 17 | 13 | 27 |
| P | 0.52 | 0.59 | 0.63 | 0.48 | |
| Q | 0.48 | 0.41 | 0.37 | 0.52 | |

Based on the table III.6, the proportion of correct answer for item number 1 shows the proportion of correct 0.52, item number 6 shows the proportion of correct 0.59, item number 13 shows the proportion of correct 0.63, item number 20 shows the proportion of correct 0.48. Based on the standard level of difficulty "p" $<0.30$ and $>0.70$, it is pointed out that item difficulty level of each item number for finding the topic of descriptive text is accepted.

**Table III.7**
**The students are able to find out the generic**
**structure of descriptive text**

| Variable | Finding the generic structure of descriptivetext. | | | | N |
|---|---|---|---|---|---|
| Item no | 2 | 8 | 11 | 17 | |
| Correct | 18 | 17 | 16 | 17 | 27 |
| P | 0.67 | 0.63 | 0.59 | 0.63 | |
| Q | 0.48 | 0.37 | 0.41 | 0.37 | |

Based on the table III.7, the proportion of correct answer for item number 2 shows the proportion of correct 0.67, item number 8 shows the proportion of correct 0.63, Item number 11 shows the proportion of correct 0.59, item number 17 shows the proportion of correct 0.63. Based on the standard level of difficulty "p" $<0.30$ and $>0.70$, it is pointed out that item difficulty level of each items number for finding the generic structure in descriptive text is accepted.

**Table III.8**
**The students are able find out the purpose of descriptive text**

| Variable | Finding the  purpose of  descriptivetext. | | | | N |
|---|---|---|---|---|---|
| Item no | 3 | 7 | 12 | 16 | |
| Correct | 16 | 17 | 18 | 15 | 27 |
| P | 0.59 | 0.63 | 0.67 | 0.56 | |
| Q | 0.41 | 0.37 | 0.33 | 0.44 | |

Based on the table III.8, the proportion of correct answer for item number 3 shows the proportion of correct 0.59, item number 7 shows the proportion of correct 0.63, item number 12 shows the proportion of correct 0.67, item number 16 shows the proportion of correct 0.56. Based on the standard level of difficulty "p" <0.30 and >0.70, it is pointed out that item difficulty level of each item number for finding the generic structure in descriptive textis accepted.

**Table III.9**
**The students are able to find out the information of descriptive text**

| Variable | Finding the information of descriptivetext. | | | | N |
|---|---|---|---|---|---|
| Item no | 4 | 10 | 14 | 18 | |
| Correct | 16 | 17 | 16 | 18 | 27 |
| P | 0.59 | 0.63 | 0.59 | 0.67 | |
| Q | 0.41 | 0.37 | 0.41 | 0.33 | |

Based on the table III.9, the proportion of correct answer for item number 4 shows the proportion of correct 0.59, item number 10 shows the proportion of correct 0.63, item number 14 shows the proportion of correct 0.59, item number 18 shows the proportion of correct 0.67. Based on the standard level of difficulty "p" <0.30 and >0.70, it is pointed out that item difficulty level of each item number for finding the value of descriptive text is accepted.

**Table III.10**
**The students are able make reference from the descriptive text**

| Variable | Making reference from the descriptive text. | | | | N |
|---|---|---|---|---|---|
| Item no | 5 | 9 | 15 | 19 | |
| Correct | 15 | 19 | 17 | 15 | 27 |
| P | 0.56 | 0.70 | 0.63 | 0.56 | |
| Q | 0.44 | 0.30 | 0.37 | 0.44 | |

Based on the table III.10, the proportion of correct answer for item number 5 shows the proportion of correct 0.56, item number 9 shows the proportion of correct 0.70, item number 15 shows the proportion of correct 0.63, item number 19 shows the proportion of correct 0.56. Based on the standard level of difficulty "p" <0.30 and >0.70, it is pointed out that item difficulty level of each item number for making reference from the descriptive text is accepted.

## 2. Reability

According to H. Douglas Brown (2003:19), that reliability has to do with accuracy of measurement. This kind of accuracy was reflected in obtaining similar results when measurement was repeated on different occasions or with different instruments or by different persons. The characteristic of reliability was sometimes termed consistency. Meaning that, we can say the test was reliable when an examinee's results were consistent on repeated measurement.

To obtain the reliability of the test, it must be known the Mean and Standard Deviation of test. Validity in general refers to appropriateness of a given test or any of its component parts as measure of what it was purposed

to measure. It means the test was valid to the extent that was measured what it was supposed to measure.

The reliability coefficients for good identified kinds of text structure text and reading comprehension test were expected to exceed 0.0 and closed 1.00. Heaton (1988 : 164) states that, the reliability of the test was considered as follows:

1. 0.0 – 0.20 = Reliability is low
2. 0.21 – 0.40 = Reliability is sufficient
3. 0.41 – 0.70 = Reliability is high
4. 0.71 – 1.0 = Reliability is very high

According to Sugiyono (2007: 359) to obtain the reliability of the test given, the writer used the formula as follows:

$$KR\ 20: ri = \frac{n}{(n-1)}\left\{\frac{s^2 - \sum pq}{s^2}\right\}$$

Where:

n : number of items on the instrument

Pi : proportion of subjects who answered the item correctly

Q : proportion of subject who answered the item wrong (1-Pi)

$\sum pq$ : the multiplication result between p and q

S² : total variance

Firstly, the writer calculates the total variance:

$$s^2 = \frac{x^2}{n}$$

Where:

n : number of respondents

$$x^2 = \sum xt^2 - \frac{(\sum xt)^2}{n}$$

$$= 4021 - \frac{(317)^2}{27}$$

$$= 4021 - \frac{100489}{27}$$

$$= 4021 - 3721.8$$

$$= 299.2$$

$$s_{t^2} = \frac{299.2}{27}$$

$$= 11.08$$

$$ri = \frac{k}{(k-1)}\left\{\frac{s_{t^2} - \sum piqi}{s_{t^2}}\right\}$$

$$ri = \frac{20}{(20-1)}\left\{\frac{11.08 - 4.72}{11.08}\right\}$$

$$ri = \frac{20}{19}\left\{\frac{6.36}{11.08}\right\}$$

$$ri = 1.05 \times 0.57$$

$$ri = 0.598$$

Based on the result above, it also can be stated that the reliability was **high.**

G. **Technique of Data Analysis**

In this research, the data were analyzed by using statistic software which was SPSS 16 version for the independent T-Test. The result of t-test analyzing could be seen on the SPSS output. The significant level chosen in analyzing the score $t_o$ (t-observed) was 5% or 1%.

Ha was accepted if: $t_o > t_t$

Or If probabilities **smaller** than 0.05

It means that there was no significant effect those taught by Competence, Autonomy, and Relatedness (CAR) Principles and those were not.

Ho was accepted if: $t_o < t_t$

Or If probabilities **bigger** than 0.05

It means that there was significant effect those taught by Competence, Autonomy, and Relatedness (CAR) Principles and those were not.