

## **CHAPTER III**

### **RESEARCH METHOD**

This chapter presents the description of methodology used by the researcher in this research. It comprises research design, population, sample and sampling, research variable, research instrument, validity and reliability testing, and data collecting method.

#### **A. Research Design**

Research designs are plans and the procedures for research that span the decision from broad assumption to detail method of data collection and analysis, (Creswell, 2009: 3). This research is conducted in pre-experimental design using quantitative approach with one group pre-test post-test design. This research uses pre-experimental because it does not have random assignment of subject to group or other strategy to control extraneous variable. The reason of researcher uses pre-experimental research because the researcher can't determine the homogeneity of students in writing argumentative essay who have visual learning style in IAIN Tulungagung. Therefore in this research the researcher just takes one group or class to use pre-test and post-test design to know the result of treatment.

This research is classified as pre-experimental design because it is little or no control of extraneous variables. In the one group pre-test post-test design, a single group is measured or observed not only after being exposed to a treatment concisely but also before. Pre-experimental research involved administering pre-test to dependent variable, applying the experimental treatment to the subjects, and administering the post-test. The result of the treatment is comparing in the pre-test and post-test score.

This experimental design used pre-experimental research design (one group pre-test - posttest) that consist of pre-test, treatment and post-test. The pre-test and post-test was given to get the score. The pre-test and post-test are given to know the effectiveness before and after being taught by using mind mapping technique based on students who have visual learning style. Then, both of score were computed by using t-test of statistics to know if there is any significant differences of mind mapping on visual - learning - styled students in writing argumentative essay. The design of this research can be seen at the table below:

**Table 3.1 The design of one-group pre-test post-test**

Pre-test	Independent variable	Post-test
X1	Y	X2

**Explanation:**

X1 = Pre-test

X2 = Post-test

Y = Treatment

## B. Population, Sample and Sampling

### 1. Population

Population is all subjects (students, sentences, animals, and many others) being studied. Ary (2010: 647) states that population is the larger group to which a researcher wishes to generalize; it includes all members of a defined class of people, events, or objects. In this research, the population was all students' argumentative essay composed by the fifth semester of English Department students at IAIN Tulungagung which consist of (A, B, C, D and E class). The characteristic of the students will be shown as below:

**Table 3.2 Characteristic of the population**

Class	Students	Explanation
TBI 5-A	35	There are 25 students who have a visual - learning – styled
TBI 5-B	35	There are 27 students who have a visual - learning – styled
TBI 5-C	36	There are 10 students who have a visual - learning – styled
TBI 5-D	34	There are 9 students who have a visual - learning – styled
TBI 5-E	30	There are 15 students who have a visual - learning – styled

## 2. Sample

Sample is part of population that is being studied. Sample called for in a quantitative research if the population is very large. In consequence, this research takes only certain amount of them. Ary (2010: 649) explains that sample is a group selected from a population for observation in a research. In this case, purposive sampling was chosen as a technique of choosing. The sample in this research is fifth B semester of English department students at IAIN Tulungagung that consist of 27 visual – learning - styled students; 3 male and 24 female.

## 3. Sampling

Sampling is a process selecting unit the individual who participate in this research (Wallen, 1996: 111). So, sampling is process selecting unit from population. The purpose of sampling is to gain of information about a population; rarely is a study conducted that includes the total of population of interest of subject (Gay, 1992: 123). So, sampling is a way that used to select number of individuals for a research in such as a way that the individuals represent the large group from which they were selected.

In this research used purposive sampling technique to choose the sample. Ary (2002: 169) states “Purposive sampling also referred to as judgement sampling-sample elements judged to be typical or representative are chosen from the population.” Purposive sampling

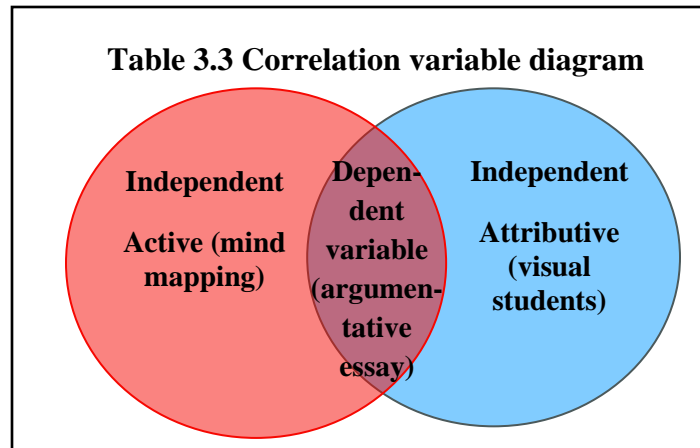
technique is a type of non-probability sampling where the researcher consciously selects particular elements of subjects for addition in a research so as to make sure that the element will have certain characteristic pertinent to the research.

The students characteristic of visual learning style is identified by distributing questionnaire to all of fifth semester of English Department students and from it, B class have biggest visual - learning - styled students than the other classes. When the researcher conduct the research, the researcher got the information from the students in B class, they have confuse and weakness in writing and getting ideas when they want to write argumentative essay. So, mind mapping technique is chosen and suitable to prove the problem. This technique can make student stimulate in the brain and make the student remember the prior knowledge.

### **C. Research Variable**

Variable is one of key terms in any research. According to Fraenkel (2012:77) variable is a concept a noun that stands of variation within a class of object. Such as: table, gender, achievement, color or running speed. According to Ary (2010:39) variable is constructing or characteristic that can take on different values or score. Based on definition above, we can conclude that variable is something that can be measure. In this research, there are two kind of variable. They are independent variable and dependent variable.

The correlation between one variable to other variable can shown in the diagram below:



Based on the diagram, there are two variable in this research, (1) Independent variable, and (2) Dependent variable. Independent variables are antecedent to dependent variable (Ary, 2010:37). In this research, the independent variable are divided into two. First, independent active is teaching writing text using mind mapping technique. Second, independent attributive is students who have a visual learning style. The second variable is dependent variable. Dependent variable is variable that is influenced by independent variable. The dependent variable in this research is writing argumentative essay.

#### **D. Research Instrument**

According to Fraenkel (2012:111), instrument is the device such as: pencil-and-paper test, a questionnaire or rating a scale that the researcher uses to collect the data. In other hand, research instrument is the tools that the researcher uses to collect the data. The requirement of the instrument is valid

and reliable. A research instrument is called valid if the instrument measure what will be measured. In this research used two kind of instruments, questionnaire and writing test.

#### 1. Questionare

The researcher giving a quistionare to the students in B class to know learning style of the students. The questionare consist of 24 statements and after calculate the result of the students in B class, there are 27 students who have visual learning style, 3 male and 24 female.

#### 2. Writing Test

Before conducted pre-test and post-test, there were try out given in A class. Try out has purpose to measure validity and reliability of instrument before it applied in the research class. After that the researcher conducted the pre-test and the post-test. The researcher used test to elicit and collect information on students' writing skill before and after giving treatment. The researcher ensured that the pre-test provided instructions which differ in form or wording from the post-test, though the two tests must test the same content, i.e. they were alternate forms of a test for the same groups. The form of test was argumentative essay test.

Then, to assess students' writing, the researcher use scoring rubric which included the criteria such as (1) content, (2) organization, (3) vocabulary (4) language use, and (5) mechanics. The complete form of the scoring rubric can be seen in the Appendix II.

## E. Validity and Reliability Testing

The data are correct or not are depend on the instrument of collecting method. There are two important requirements that have to fulfill, validity and reliability.

### 1. Validity

Validity was defined as the extent to which an instrument measured what it claimed to measure (Ary, 2010:225). In experimental research, the researcher had to check the validity and reliability of the instrument. Validity is the degree to which the test actually measure (Brown 2000:388). There are two kinds of validity, validity of learning style test (questionare) and validity of writing test:

#### a. Questionare

After distributing the questionare as the trial the researcher got the students' score for each statements and then calculate the validity for each items in the questionare by using *pearson product moment* in SPSS 16.0. that used when data are ranks or interval data.

Each item are considered to be valid if the value of  $r_{\text{obtained}} > r_{\text{table}}$ . From (N=35) with significance level 5 % the  $r_{\text{table}}$  was 0,3338. If the  $r_{\text{obtained}} > r_{\text{table}}$  the item was valid. The result of the its calculation is summarize in the table below.



**Table 3.4 The Result of Validity Testing Each Item**

	<b>r obtained</b>	<b>r table (N=35, <math>\alpha= 5\%</math>)</b>	<b>Notes</b>
ITEM 1	0,4304	0, 3338	Valid
ITEM 2	0,43077	0, 3338	Valid
ITEM 3	0,51608	0, 3338	Valid
ITEM 4	0,61628	0, 3338	Valid
ITEM 5	0,62622	0, 3338	Valid
ITEM 6	0,2345	0, 3338	Not Valid
ITEM 7	0,44731	0, 3338	Valid
ITEM 8	0,44329	0, 3338	Valid
ITEM 9	0,40527	0, 3338	Valid
ITEM 10	0,3302	0, 3338	Not Valid
ITEM 11	0,41621	0, 3338	Valid
ITEM 12	0,41102	0, 3338	Valid
ITEM 13	0,42632	0, 3338	Valid
ITEM 14	0,41452	0, 3338	Valid
ITEM 15	0,3344	0, 3338	Not Valid
ITEM 16	0,40013	0, 3338	Valid
ITEM 17	0,43513	0, 3338	Valid
ITEM 18	0,41091	0, 3338	Valid
ITEM 19	0,6019	0, 3338	Valid
ITEM 20	0,44541	0, 3338	Valid
ITEM 21	0,40486	0, 3338	Valid
ITEM 22	0,3007	0, 3338	Not Valid
ITEM 23	0,2999	0, 3338	Not Valid
ITEM 24	0,3333	0, 3338	Not Valid
ITEM 25	0,3333	0, 3338	Not Valid
ITEM 26	0,2432	0, 3338	Not Valid
ITEM 27	0,42546	0, 3338	Valid
ITEM 28	0,3222	0, 3338	Not Valid
ITEM 29	0, 2112	0, 3338	Not Valid
ITEM 30	0, 3308	0, 3338	Not Valid
ITEM 31	0,39142	0, 3338	Valid
ITEM 32	0,40819	0, 3338	Valid
ITEM 33	0,58735	0, 3338	Valid
ITEM 34	0, 3888	0, 3338	Valid
ITEM 35	0,4635	0, 3338	Valid

Based on the table above there are 11 item statements failed/ not valid. This is failed because the  $r_{\text{obtained}} < r_{\text{table}}$ . The item failed is item 6, 10, 15, 22, 23, 24, 25, 26, 28, 29 and 30. In conclusion there are 24 item statement valid and can be used to the next research. The valid questionnaire will be shown in the appendix IV.

#### b. Writing Test

Validity of writing test consists of three, they are content validity, face validity and construct validity.

##### 1. Content validity

Content validity is validity in terms of the contents of the test. In this test, the researcher firstly gave a questionnaire to know students who have a visual learning style, after that the researcher gave the writing test to measure visual students in argumentative essay and then the researcher assess the result of students using scoring rubric. Therefore, this test is valid in terms of the content validity. In this study the researcher used content validity because the result of test can be representative of the student for entire course material that has been taught. The researcher made this test based on blueprint of research. The content validity in this research can be shown as below:

**Table 3.5 Content validity**

<b>Competence</b>	<b>Form of test</b>	<b>Indicator</b>
Making an argumentative essay	Written test	<ul style="list-style-type: none"> <li>• Students are able to understand about the argumentative essay.</li> <li>• Students are able to understand the generic structure of argumentative essay.</li> <li>• Students are able to choose the suitable topic.</li> <li>• Students are able to arrange statement in the argumentative essay so it's not confusing.</li> <li>• Students are able to show the phenomenon and prove from the field about selected topics.</li> <li>• Students are able to write new statement based on the author's point of view.</li> <li>• Students are able to compose an argumentative essay clearly.</li> </ul>

## 2. Face validity

Face validity is hardly a scientific concept but it is very important. Face validity if it looks as it measures what it is supposed measure. For example, a test which pretended to measure pronunciation ability but which did not require the test-

takers to speak might be through to lack face validity, (Isnawati 2014:30). This is true even if the test is constructing and criterion-related validity can be demonstrated. Face validity refers to the extent to which examinees believe the instrument is measuring what it is supposed to measure (Ary, 2010:228). A test which does not have face validity may not be acceptable by test-takers, teachers, education authorities, and employers.

The test in this research was designed to measure students' writing skill, thus to achieve face validity, the researcher provided the instructions to ask students to write. The researcher uses face validity in this research by consulting with expert and lecturer.

### 3. Construct validity

Construct validity deals with the relationship between a test and a particular view of language and language learning (Johnson, 2001: 303). In this research used writing test. In this writing test should have knowledge of sub-abilities about content, organization, vocabulary, language use and mechanics. The sub abilities only can measured if the form of test is written. Thus, in the pre-test students have to make argumentative essay and in the post test students also make argumentative essay after the got a treatment using mind mapping. Therefore, this test has construct validity because the product of test is written.

## 2. Reliability

According to Richard (2009: 157) reliability refers to the consistency of the score obtained how consistent they are for each individual from one administration of an instrument to another and from one set of items to another.

In this research, used questionnaire and writing test as an instrument to measure the result writing argumentative essay students in fifth semester. Before the researcher applied the instrument into the class, the researcher want to know the reliability of the test. Therefore, the researcher used students score writing in the pre-test to know the students ability in writing argumentative essay, after that the researcher apply mind mapping technique and compare the post test value.

There are two step how to measured reliability in this research. There are:

### a. Questionare

To find the students who have a visual learning style, the reseracher distributing questionnaire to the students as the trial. There are 35 item in that questionnaire. After distrubuting questionnaire, the researcher calculate the reliability by used *Cronbach's Alpha* in SPSS 16.0. The result of reliabilty testing can be seen as below.

**Table 3.6 Reliability of Questionare**

Reliability Statistics	
Cronbach's Alpha	N of Items
.720	35

Based on the table, the result of reliability test for the questionnaire was 0,720 and the r table was 0,3338. If the result of Alpha > than r table the data was reliable. The conclusion, Alpha = 0,720 > r table = 0,3338 so this questionnaire was reliable. The list of reliability item will be seen in the appendix VII.

b. Writing test

To find out the reliability of the score obtained either from the pre-test or post-test, the researcher calculated two sets of score to get the correlation between them. The researcher ascertained that the test was reliable by doing inter-rater reliability. Inter-rater reliability refers to the degree of consistency of scores given by two or more scorers to the same set of oral or written texts (Sarosy et al. 2006: 135). To make sure that the instrument (test) was reliable, the researcher conducted a try-out for the test to the different subject before truly conducting this research to the sample of the research. The formula to find the correlation was *Pearson Product-Moment* in SPSS Statistics 16. The result of try out pre-test can be seen in the appendix VIII.

The statistical correlation Try out pre-test in *Pearson Product Moment* will be shown as below:

**Tabel 3.7 The statistical correlation of Pre-test score (try out) with *Pearson Product-Moment***

Correlations			
		rater1	rater2
rater1	Pearson Correlation	1	.809**
	Sig. (2-tailed)		.000
	N	25	25
rater2	Pearson Correlation	.809**	1
	Sig. (2-tailed)	.000	
	N	25	25

\*\* . Correlation is significant at the 0.01 level (2-tailed).

A perfect correlation, either positive or negative, is respectively denoted with +1 or -1. Thus, closer to 1, the stronger correlation is. If it is closer to +1, it has strong positive correlation. On the contrary, if it is closer to -1, it has strong negative correlation. Referring to Table 3.7, it can be seen that the result of *Pearson Correlation* is 0.809. Thus, it indicates that the instrument had the strong positive correlation.

The same way was also conducted to check the reliability of instrument in post-test. The result of the try out can be seen in the appendix VIII. Table 3.8 showing the statistical calculation try out

post test in *Pearson Product-Moment* from SPSS Statistics 16.0. The result of try out post test can be seen in the appendix IX.

**Table 3.8 The statistical correlation of Post-test score (try out) with *Pearson Product-Moment***

Correlations			
		rater1	rater2
rater1	Pearson Correlation	1	.737**
	Sig. (2-tailed)		.000
	N	25	25
rater2	Pearson Correlation	.737**	1
	Sig. (2-tailed)	.000	
	N	25	25

\*\* . Correlation is significant at the 0.01 level (2-tailed).

As Table 3.8 shows, the result of Pearson Correlation is 0.737. Thus, it indicates that the instrument had the strong positive correlation. To sum up, based on the result of statistical correlation either from pre-test and posttest indicating that the correlation was strong respectively positive, it could be concluded that the instrument in pre-test and posttest were reliable.

#### **F. Data Collection Method**

Data collection method is the way to obtain the data in this research.

The researcher collects the data from the score of pre-test and post-test in



argumentative essay. The researcher gave the pre-test to know visual students in writing argumentative essay without using mind mapping technique. After the researcher get score from pre-test, the researcher applied mind mapping treatment in doing writing argumentative essay. Then, the researcher gave post-test to student after the got a treatment. The schedule of the research will be shown as follows:

**Table 3.9 The schedule of the research**

<b>No.</b>	<b>Date</b>	<b>Activity</b>
1.	Nopember 1st, 2017	Try out questionare
2.	Nopember 6 th, 2017	Distributing questionare
3.	Nopember 8 th, 2017	Try out pre-test
4.	Nopember 13 rd, 2017	Pre-test
5.	Nopember 15 th, 2017 Nopember 20 th, 2017 Nopember 22 nd, 2017 Nopember 27 th, 2017	Treatment 1 Treatment 2 Treatment 3 Treatment 4
6.	December 4 th, 2017	Try out post test
7.	December 11 th, 2017	Post-test

The result of pre-test and post-test will compares using SPSS 16.0 to know the affectivity. The technique of collecting data can be shown as:

#### 1. Questionare

At the first meeting the researcher give the try out learning style to the A class. This try out is questionare form that consist of 35 statements. It is to know is there any item question that is failed or not. To know it, the researcher compute by using SPSS 16.0 system. After the researcher know the item that is failed or not, in the second meeting the researcher distributed again a questionare that consist of 24 questions to the English Department students in fifth semester from A-E class. It is to know students who have a visual learning style in a class. After distributing questionare the researcher knows if B class has the biggest visual - learning - styled students and the researcher conducts research in this class.

#### 2. Try Out

Try out has purpose to measure validity and reliability of instrument before the instrument aplied in the research class. Try out was held before pre-test and post-test, it applied in another class was not involving the research class. The researcher conducts try out in A class because it have 25 visual students and the characteristic of students has same with B class.

### 3. Pre-test

The researcher gives pre-test to the students. The purpose of pre-test is to measure student' score in writing argumentative essay without using mind mapping technique. This test is given to know how far student's ability in writing argumentative essay.

### 4. Treatment

After conducting a pre-test, the researcher gives the treatment to the students. The researcher applied the treatment using mind mapping technique. The procedure of treatment will be shown as follows:

**Table 3.10 Procedure of the treatment**

Treatment	Time	Activity
Treatment 1 (Nopember 15 th, 2017)	60 minutes	<ul style="list-style-type: none"> <li>• The teacher explained about argumentative essay such as the definiton, function, and the generic structure of argumentative essay</li> <li>• After that the teacher explained about mind mapping involves the explanation and the procedure how to make a mind mapping</li> <li>• Next, the teacher divided the class into 5 groups and the researcher give an essay about "You agree or disagree about smoking" and the students must identify the generic structure of argumentative essay and make a mind mapping</li> </ul>

		<ul style="list-style-type: none"> <li>• Then, the students presented the result of their discussion in front of the class</li> <li>• The teacher gave 30 minutes to the students to make simple argumentative essay about “You agree or disagree about smoking”</li> <li>• The last, the teacher gave the evaluation and conclusion</li> </ul>
Treatment 2 (November 20 th, 2017)	60 minutes	<ul style="list-style-type: none"> <li>• The teacher review the previous topic in a first treatment and the teacher gave evaluate the students’ error in writing about content, grammar, capitalization, and sentence that did not have correlation.</li> <li>• Then, the teacher has a topic about “You agree or disagree about polygamy” and the students must make mind mapping based on the topic individually</li> <li>• The teacher asked some students present in front of the class about their mind mapping</li> <li>• The teacher and the students discussed the weakness and strengthen of their mind mapping</li> <li>• The teacher gave 30 minutes to the students to make argumentative essay about “You agree or disagree about polygamy” based on the mind mapping</li> </ul>

		<ul style="list-style-type: none"> <li>• The last, the teacher gave the evaluation and conclusion</li> </ul>
Treatment 3 (November, 22 <sup>nd</sup> 2017)	60 minutes	<ul style="list-style-type: none"> <li>• The teacher review the previous topic in a second treatment and the researcher gave evaluate the students' error in writing</li> <li>• Then, the teacher has a topic about "You agree or disagree about using smartphone in early age" and the students must make mind mapping based on the topic individually</li> <li>• The teacher asked some students present in front of the class about their mind mapping</li> <li>• The teacher and the students discussed the weakness and strengthen of their mind mapping</li> <li>• The teacher gave 30 minutes to the students to make argumentative essay about "You agree or disagree about using smartphone in early age" based on their mind mapping</li> <li>• The last, the teacher gave the evaluation and conclusion</li> </ul>
Treatment 4 (November, 27 <sup>th</sup> 2017)	60 minutes	<ul style="list-style-type: none"> <li>• The teacher review the previous topic in a third treatment and the teacher gave evaluate the students' error in writing</li> <li>• Then, the teacher has a topic about "You agree or disagree about Students' Cheating" and the students must make mind</li> </ul>

		<p>mapping based on the topic individually</p> <ul style="list-style-type: none"> <li>• The teacher asked some students present in front of the class about their mind mapping</li> <li>• The teacher and the students discussed the weakness and strengthen of their mind mapping</li> <li>• The teacher gave 30 minutes to the students to make argumentative essay about “You agree or disagree about Student’s Cheating” based on their mind mapping</li> <li>• The last, the teacher gave the evaluation and conclusion</li> </ul>
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Before conducted the treatment, the researcher found the common mistakes from the visual students such as about the grammar, in here some students did not use grammar correctly. Beside that, the researcher also found error capitalization and paragraphing. Sometimes, the researcher found there is no correlation between one sentence to another sentence in paragraph. After the researcher gave the treatment, visual students knew their weakness and by using mind mapping could help the visual students to make their ideas more organised and to help the visual students to memorize the idea which they want to write.

## 5. Post-test

In the last meeting, the researcher gave the post-test to measure the students' score in writing argumentative essay after taught using mind mapping technique. The test in post-test and pre-test is different but has same the difficulty. The test is used to measure the student skill in writing, especially in writing argumentative essay after taught using mind mapping technique. It is done to know the final score of student after taught using mind mapping technique and one of the requirements to compare and commutating the effect score using SPSS 16.0 statistics.