### **CHAPTER III**

#### RESEARCH METHOD

## 1. Research Design

The design of this research is quantitative correlational. According to Ary, Jacobs and Sorensen'statement that correlational research produces indexes which show the direction and the strength of relationship among variables. In addition, as pointed out in a book by Emzir, the purposes of the correlational methodology are to disclose the relationship of each variable and to know the prediction score of one variable through score in another variable. From the theories, the writer concludes that correlational research is to identify the relation among variables and to know the strength of the relationship.

The design is useful to describe and find out the significance correlation between students' participation and students' examination score in PeerWise online learning. In the same line, Meredith D.Gall, Joyce P.Gall, and Walter R.Borg say that correlation research is purposed to discover the relationship between variables through the use of correlational statistyics.<sup>3</sup>

<sup>&</sup>lt;sup>1</sup> Donald Ary, Lucy Cheser Jacobs, and Chris Sorensen, "Introduction to Research in Education", pp. 350.

<sup>&</sup>lt;sup>2</sup> Prof. Dr. Emzir, M.Pd, "Metodologi Penelitian Pendidikan Kuantitatif & Kualitatif", Jakarta: PT. Raja GrafindoPersada, 2008, pp.47.

<sup>&</sup>lt;sup>3</sup> Meredith D. Gall, Joyce P. Gall, and Walter R. Borg, "Educational Research: An Introduction ", pp. 320.

The aim of this study is to know whether there is any correlation between students' participation and their examination scores in PeerWise online learning. The variables of this study are students' participation as an independent variable, and their examination score as the dependent variable. As the purpose of this research is to find the correlation between these two variables, the appropriate design is descriptive using correlation.

Through this quantitative using correlation design, this study depends on statistical principles and analysis in measuring the degree of relationship between the two variables. Although there are two variables above, it does not mean that it has a reciprocal causal connection because the two variables are discussed only in order to know whether there is any correlation between the two variables or not.

The writer used a specific formula to find the extent of the relationship between the two variables. The relationship was computed to get the correlational coefficient. The correlational coefficient shows the level of relationship between the two variables. From this method, the data findings could be well interpreted and concluded based on the research questions.

## 2. Research Population and Sample

### A. Population

According to Ary, Jacobs, and Sorensen explain that "population is defined as all members of any well-defined class of people, events, or objects". <sup>4</sup> The population

<sup>&</sup>lt;sup>4</sup> Ibid..148.

of the research is students of English education department at UIN Sunan Ampel Surabaya. The consideration in choosing the population is because students of English education department used online learning system named PeerWise as webbased application.

# B. Sample

Sample is the process of selecting units (such as people and organizations) from a population of interest so that by studying the sample which can fairly generalize the result to the population from which the uints were chosen.<sup>5</sup> The researcher takes the sample in language testing class that the sample is students' of English education departement who used PeerWise as their online learning. The sample consist of 105 students.

### 3. Research Subject and Setting

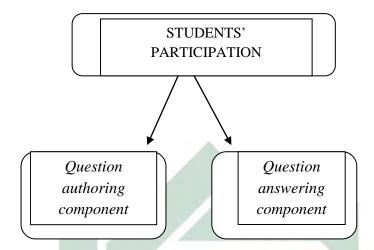
Research will be conducted in UIN Sunan Ampel Surabaya which is located at Jl.Ahmad Yani, Surabaya, East Java. The setting is chosen based the consideration that UIN Sunan Ampel Surabaya has object being observed that is PeerWise online learning. The subject of this study are students of English education departement who used PeerWise in Language Testing class. The researcher chose students of English education departement because they used PeerWise web-based application in their online learning.

<sup>&</sup>lt;sup>5</sup> William Trochim, James P Donnelly, "The research methods knowledge base", pp.44-45

#### 4. Research Variable

The research variable is divided in two variables that are dependent variable and independent variable. The dependent variable is some aspect of the subjects behaviour assessed to reflect the effects of the independent variables. The dependent variable is the experimental counterpart to a response variable. The dependent variable of this research is students' examination score. Furthermore, an independent variable is that variable whose values (or levels) the experimenter selects to determine what effect this independent variable has on the dependent variable. The Independent variable is what you (or nature) manipulates – a treatment or program or cause. In this research, the dependent and independent variable is the students' participation in PeerWise online learning. The students' participation refers to the participation in PeerWise online learning. There are two activities on PeerWise that students have to participate, those are: question authoring component and question answering component. In addition, students' participation as the independent variable has two sub-variable which ilustrated below.

<sup>&</sup>lt;sup>6</sup> William Trochim, James P Donnelly, "The research methods knowledge base", pp.8



On the research, the researcher will take only two component. Those are questioning authoring component and question answering component. To know the result of students' participation, it is investigated through the students' participation on PeerWise online learning.

The students' participation assessment on PeerWise web-based application class is to assess the level of students activities which is high, medium, or low.

Furthermore, the student's examination score as the dependent variable is the students' accomplishment in examination online through Pro prof online system. It is investigated through the examination score of students in English education department.

The categorization of students' examination score as follows:

$$90 - 100 = excellent$$

$$80 - 89 = \text{very good}$$

$$70 - 79 = good$$

$$60 - 69 = fair$$

$$< 60 = poor$$

# 5. Hypothesis

The statement of the hypothesis of this study is as follows

a. Hypothesis Alternative (Ha): there is significant positive correlation or negative correlation between students' participation (X) and their examination score in PeerWise online learning (Y) at UIN Sunan Ampel Surabaya.

b. Hypothesis Null (Ho): there is no significant positive correlation or negative correlation between students' participation (X) and their examination score in PeerWise online learning (Y) at UIN Sunan Ampel Surabaya.

### 6. Data and Source of Data

C.R. Kothari has opinion that primary data are data collected individually for the first time. Moreover, he defines that secondary data, are data which have already been collected by someone else and have already been passed through the statistical process. In this research, data of students' participation is in a form of document which is taken from PeerWise web-based application. Then, the data of students examination score is students' record which collected by lecturer from PeerWise. Both of data are belong to primary data.

# 7. Data Collection Technique

<sup>7</sup> C. R. Kothari, "Research Methodology: Methods & Techniques", New Age International. New Delhi. 2004, pp.95

The researcher conducts the research in UIN Sunan Ampel Surabaya. The data are collected by documentation. Before going to the main research, the researcher conducts preliminary research. Preliminary research is attempted to get information about the implementation of PeerWisee web-based application in online learning.

In the preliminary research, the researcher meets the lecturer who applied PeerWise web-based application and asking about the implementation of PeerWise in online learning. The obtained data from preliminary research is used to set up the action of the research. The first data about students' participation is document which is taken from PeerWise in Language testing class. The researcher collects the students' participation scores in the online learning through the students' record.

### 8. Research Instrument

Research insrument is a means to collect the data. According to Arikunto, instrument is a tool used in collecting the data for the research.<sup>8</sup> The study uses a document as the research instrument.

Document are "a ready source of data in research as many already exist in the institutional system". The researcher takes a document from lecturer which is taken from PeerWise web-based application. Burns states that document has a wide range of research focus which can be used by the researchers, such as students' portfolios

<sup>&</sup>lt;sup>8</sup> Suharsimi Arikunto, "Prosedur Penelitian Suatu Pendekatan Praktek", pp. 112.

<sup>&</sup>lt;sup>9</sup> Anne Burns, "Collaborative Action Research for English Language Teachers", pp140.

of written work, student record and profiles, lesson plans, classroom material, letters, class memos, newsletter and previous test or examination paper. <sup>10</sup> In the same line, Suharsimi Arikunto states documentation is a technique in collecting the data about variables in the forms of notes, scores, books, newspaper, magazines, etc. <sup>11</sup>

Since PeerWise web-based application as teaching and learning tool is able to record the students' score, so the researcher chooses to gain the data of students' participation from the teachers' transcript that taken from PeerWise. Next, for the data of students' examination score, the researcher chooses to gain the data from the students' record in PeerWise which is to know the students' examination score toward PeerWise web-based application in online learning.

Before researcher states the data analysis, it is important to show a general drawing which is a table or list has relation among examined variable, source of data, method and instrument that will be used.

Numb	Research	Source of data	Method	<u>Instrument</u>
	<u>Variable</u>			
1	Students'	Document	documentation	Document
	participation in	(teachers'		
	PeerWise online	transcript)		
	learning	from PeerWise		

<sup>&</sup>lt;sup>10</sup> Ibid.

<sup>&</sup>lt;sup>11</sup> Suharsimi Arikunto, "Prosedur Penelitian Suatu Pendekatan Praktek ", pp. 114.

2	Students'	students'	documentation	Document
	examination	record		
	score			
3	The correlation	Data from (x)	Statistical	Rubric of
	between	and (y)	patterns	correlation
	students'			
	participation and			
	their examination		191	
	score in			
	PeerWise online			
	learning			

# 9. Data Analysis Technique

In the research, the researcher uses Pearson Product Moment to analyze the correlation between students' participation and their examination score in PeerWise online learning. Ary, Jacobs, and Sorensen state that "a very useful statistic", the Pearson product Moment correlation coefficient (Pearson r), indicates both the direction and the magnitude of the relationship between two variables". 12

The first variable is students' participation in online learning which is taken by lecturer through web-based application. It is considered as independent variable

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 $<sup>^{12}</sup>$  Donald Ary, Lucy Cheser Jacobs, and Chris Sorensen, "Introduction to Research in Education ", pp.129

(variable X). Then the second variable is students' examination score in online learning which is taken from lecturer document, it is considered as dependent variable (Variable Y).

The data from documentation are the main data of the research. It will be collected and analyzed using Pearson Product Moment. The procedures of data analysis are arranged as following steps:

## a. Sorting

The researcher sorts the data needed after collecting the data. The main data is from students' participation score and their course examination score on PeerWise web-based application.

## b. Analyzing

The researcher sums up the score of students' participation score which the score is collect by the lecturer from PeerWise during one semester. Then, the result is calculated with their course examination score on PeerWise with Pearson Product Moment to find the correlation significant between students' participation and their examination score on PeerWise online learning.

The formula as follows:

$$r_{xy} = \frac{n\sum XY - (\sum X)(\sum Y)}{\sqrt{\{n\sum X^2 - (\sum X)^2\}\{n\sum Y^2 - (\sum Y)^2\}}}$$

#### Where:

r = correlation coefficient of variable X and Y

 $\Sigma XY$  = the sum of the product of X and Y scores for each students

 $\Sigma X =$ the sum of X scores

 $\Sigma$  Y = the sum of Y scores

 $\Sigma$  X2 = the sum of square of students' participation score

 $\Sigma$  Y2 = the sum of square of students examination score on PeerWise

 $(\Sigma X)^2$  = the sum of squared X scores

 $(\Sigma Y)2$  = the sum of squared Y scores

n =the total of respondents

The above formula is very important due to finding out whether or not the (Ho) Hypothesis or (Ha) Hypothesis is accepted in this research. The result computation indicates whether there is any correlation between the two variables or not. Then, from the result of the r computation (r-observation), it is classified as the perfect positive relationship (+1.00), no relationship (0), or the perfect negative relationship (-1.00). As Donald Ary, Lucy Cheser J. And Chris Sorensen's explanation that explain.<sup>13</sup>

"The sign (+ or -) of the coefficient indicates the direction of the relationship. If the coefficient has a positive sign, this means that as one variable increases, the other also increases. . . A negative coefficient indicates that as one variable increases, the

13 Donald Ary, Lucy Cheser Jacobs, and Chris Sorensen, *Introduction to Research in Education*, 350.

other decreases . . . The size of the correlation coefficient indicates the strength of the relationship between the variables. The coefficient can range in value from +1.00 (indicating a perfect positive relationship) through 0 (indicating no relationship) to -1.00 (indicating a perfect negative relationship)."

To know the significance of the correlation computed r with r at the table, there are many classifications of the degrees of the correlation to indicate the significance. To know the significant of correlation in simple way, the r-observation is investigated through the table of interpretation of the correlation coefficient. The degreed of correlation are classified into five groups, they are as follows <sup>14</sup>:

0.00 - 0.199 = very low correlation

0.20 - 0.399 = low correlation

0.40 - 0.599 = moderate correlation

0.60 - 0.799 = high correlation

0.80 - 1.000 = very high correlation

The correlation coefficient has some important properties. Mark balnayes and Peter Caputi explained that the magnitude of the correlation coefficient indicated the strength of the relationship between the variables. The values of the correlation coefficient can range from +1 to +1. A coefficient close to +1 or to -1 indicates a strong relationship between two variables. Scores closes to zero indicated the absence of a relationship between the two variables. If the coefficient has a negative

<sup>&</sup>lt;sup>14</sup> Sugiyono, "Statistika Untuk Penelitian"pp, 231.

sign, the variables are negatively associated. If the coefficient has a positive sign, the

variables are positively related. 15

In order to make all the calculation easier, SPSS 16.0 application in windows

computer program was used. The value of sig is higher than the level of significance

0,05 is compared. If the value of sig is higher than the level of significance, the null

hypothesis is accepted and vice versa. So that, it did not need to compare the research

result and statistic table manually because it can be known from the Z score at the

end of statistic technique from the computer.

Another way in investigating the significant of correlation is comparing with

r-table. This way is considered as the thorough way. 16 Therefore, it investigates the

coefficient correlation more careful than using the degrees of correlation above. In

comparing the r-observation and r-table, the degrees of freedom (df) should be

computed first. The formula as follows <sup>17</sup>:

df = N - nr

Where:

df = the degrees of freedom

N =the number of cases

nr = the number of variables, in this research the number

<sup>15</sup> Mark balnaves and Peter Caputi, "Introduction to Quantitative Research Methods an Investigative Approach", (London: SAGE publication Ltd, 2001) pp.155

<sup>16</sup> Anas Sudijono, "Pengantar Statistik...", pp.194.

<sup>17</sup> Ibid., 181.

of variables are two which students' participation (X) and students' examination score (Y), so nr = 2.

