

CHAPTER III

METHODOLOGY

3.1 Research Design

This study aims to determine the influence of students' learning styles towards students' engagement in technology-based learning. This type of research is quantitative research. This study is a quantitative research with survey method. This study used correlation which is a research conducted to show the relationship between several variables by testing the hypothesis.

In this study, there are independent and dependent variables. The independent variable in this study is students' learning style (X) and the dependent variable is students' learning engagement (Y).

3.2 Research Population and Samples

The population of this research are undergraduate English Education Department students of University of Muhammadiyah Gresik who experience online learning.

The samples of this study were the students of English Education Department at University of Muhammadiyah Gresik who have studies for 1 to 4 years at academic year of 2020/2021. The samples consisted of the third semester students, the fifth semester students, and the seventh semester students. The total number of samples were 127 students, consisted of 44 students of the third semester, 45 students of the fifth semester, and 38 students of the seventh semester. All the respondents experienced online learning during language

learning process. The researcher reached the respondents through online messaging platform (Whatsapp).

3.3 Data Collection Technique

In order to collect the data, there are some procedures have to be done by the researcher as follow:

- 1) The researcher determined the participants in this study based on the length of time the students studied at the English Education Department. The participants were students who had studied at the English Education Department at the University of Muhammadiyah Gresik for 1 to 4 years in the odd semester of the 2020/2021 academic year. So that the participants obtained were from the third, the fifth, and the seventh semester students.
- 2) There are two instrument of this study, students' learning style questionnaire and students' online engagement. The instruments were translated by a linguist and distributed to several English Education Department students of the University of Muhammadiyah Gresik to check its validity and reliability. The questionnaires were distributed in online survey using Google Form. Then, the instruments was tested using Pearson Product Moment and Cronbach Alpha. If the instruments are valid and reliable, it can be used for this research.
- 3) The researcher shared the questionnaire link via online messaging platform (whatsapp). The respondents filled the questionnaire in Google Form page. The researcher has to make sure that the result of the questionnaire is as many as the number of research samples.

- 4) After all the respondents filled the questionnaire, the researcher downloaded the result in excel form and analyze it in SPSS 17.

3.4 Research Instrument

This study used two questionnaires, namely the Students' Learning Styles Preferences questionnaire and the Students' Online Engagement questionnaire. For both questionnaires provide 5 option responses (strongly disagree, disagree, neutral, agree, strongly agree).

Before respondents filled the questionnaire, the researcher had to ensure that the respondents were English Education Department students in the third, fifth, and seventh semester who experienced online learning. The Researcher provides three questions, which read: *'Are you a student of English Education Department at University of Muhammadiyah Gresik?'*, *'Which semester are you in?'* and *'Did the class take place in online environment, such as using zoom, online discussion forum, or other online platforms?'*.

The instrument used to measure students' learning styles was the Students' Learning Styles Preferences adapted from Reid (1987) questionnaire. In this questionnaire there are 6 types of learning styles, namely visual, auditory, kinesthetic, tactile, group, and individual learning. Each learning style type in this questionnaire consists of 5 items as shown on the table above. This questionnaire has been widely used in previous research (e.g. Lee, Yeung, & Ip, 2016; Karthigeyan & Nirmala, 2013; Nematipour, 2012; Rossie-Le, 1995; Steb-bins, 1995).

Students' Online Engagement Scale which adapted from Dixon (2010) in this study is used to measure students' engagement in technology-based learning. This questionnaire was used in the previous study to evaluate its validity and reliability. Henrie et al (2015) analyse this questionnaire with Explanatory Factor Analysis and obtain 3 types of engagement, specifically behavioral, cognitive, and emotional engagement. From the table below, behavioral engagement consists of 6 items, cognitive engagement consists of 8 items, and emotional engagement consists of 5 items.

Table 1 Questionnaire Items Table

Variable	Item number	Indicator	Types	Source
Student learning styles (X)	1	When the teacher tells me the instructions I understand better	Auditory	Reid, 1987
	7	When someone tells me how to do something in class, I learn better		
	9	I remember things I have heard in class better than things I have read		
	17	I learn better in class when the teacher gives a lecture		
	20	I learn better in class when I listen to someone	Kinesthetic	
	2	I prefer to learn by doing something in class		
	8	When I do things in class, I learn better		
	15	I enjoy learning in class by		

		doing experiments		
	19	I understand things better in class when I participate in role-playing		
	26	I learn best in class when I can participate in related activities		
	3	I get more work done when I work with others	Group	
	4	I learn more when I study with a group		
	5	In class, I learn best when I work with others.		
	21	I enjoy working on an assignment with two or three classmates		
	23	I prefer to study with others		
	6	I learn better by reading what the teacher writes on the chalkboard	Visual	
	10	When I read instructions, I remember them better		
	12	I understand better, when I read instructions		
	24	I learn better by reading than by listening to someone		
	29	I learn more by reading textbooks than by listening to lectures		
	11	I learn more when I can make a model of something	Tactile	

	14	I learn more when I make something for a class project.		
	16	I learn better when I make drawings as I study		
	22	When I build something, I remember what I have learned better		
	25	I enjoy making something for a class project		
	13	When I study alone, I remember things better	Individual	
	18	When I work alone, I learn better		
	27	In class, I work better when I work alone		
	28	I prefer working on projects by myself		
	30	I prefer to work by myself		
Technology-based engagement (Y)	1	I always make sure to study on a regular basis.	Cognitive	Dixson, 2010
	3	I stay up on the readings.		
	4	I look over class notes between getting online to make sure I understand the material.		
	5	I am study in organized manner.		
	6	I take good notes over readings, PowerPoints, or video lectures.		
	7	I listen/read carefully.		

	15	I get a good grade.		
	16	I am doing well on the tests/quizzes.		
	2	I put forth effort in studying.		
	8	I find ways to make the course material relevant to my life.		
	9	I apply course material to my life.	Emotional	
	10	I find ways to make the course interesting to me.		
	11	I Really desire to learn the material.		
	12	I am having fun in online chats, discussions or via email with the instructor or other students.		
	13	I participate actively in small-group discussion forums.		
	14	I help fellow students.	Behavior	
	17	I engage in online conversations (chat, discussions, email).		
	18	I post in the discussion forum regularly.		
	19	I get to know other students in the class.		

3.5 Research Instrument Test Design

3.5.1 Validity Test

Validity is the accuracy of the interpretation produced by a measurement or evaluation (Gronlund & Linn, 1990). Meanwhile, the validity test is defined as a step taken to measure the accuracy of instrument content in a study (Sugiyono, 2012). For this reason, researchers need to carry out a validity test to determine whether the instruments used in the study are correct.

The instruments in this study had been translated by a linguist to test the validity of the language. After being translated, this instrument was distributed to several students to test the content validity. According to Sugiyono (2012), the criteria that must be met in order for an instrument to be said valid is if the r_{count} is greater than 0.3 ($r_{\text{count}} > 0.3$). If r_{count} is less than 0.3 ($r_{\text{count}} < 0.3$), the instrument is invalid.

The analytical tool used was SPSS 17 for Windows with Pearson Product Moment. The results of the validity test of this research instrument showed that the r_{count} was greater than the 0.3 ($r_{\text{count}} > 0.3$) so that this instrument was valid and able to be used in this research.

3.5.2 Reliability Test

Reliability is the consistency of an instrument to be used repeatedly (Sugiyono, 2012). Therefore, it is very important to test the reliability before distributing the instrument.

After testing validity, the researcher tested the reliability. The analysis tool used to test the reliability is SPSS 17 for Windows Software with the Cronbach

Alpha. According to Sugiyono (2012), the criteria that must be met in order for an instrument to be said reliable is if the Cronbach Alpha coefficient is greater than 0.6 (Cronbach Alpha coefficient > 0.6). Reliability test results are shown that the coefficient numbers are $0.884 > 0.6$ and $0.941 > 0.6$. So, it can be said that this instrument is valid and can be used for research.

3.6 Types and Data Source

This study uses two types of data, namely primary data and secondary data. Primary data is raw data and is obtained from research subjects for analysis. The primary data in this study are in the form of two questionnaires, the Students' Learning Styles Preferences questionnaire and the Students' Online Engagement questionnaire, that distributed to the respondents,

The second type of data is secondary data. Secondary data is data that already exists and is used to complement research data. Secondary data in this study are journals and books.

3.7 Data Analysis

Because the data obtained from the questionnaire were cardinal, researcher used bivariate correlation for parametric data analysis or Pearson correlation to answer the first research question.

To find out the answer of the second research question, the researcher used multiple regression. The researcher used SPSS 17 for windows as analysis tool.

The independent variable in this study is the Students' Learning Style, which is then broken down based on its 6 dimensions, into 6 independent variables.

While the dependent variable in this study is Students' Online Engagement. So this study analyzes the effect of Students' Learning Style, including its dimensions, on Students' Online Engagement using multiple linear regression equations.

3.8 Hypothesis Test Design

1) Formulating hypothesis

- a. $H_0: \beta_i = 0$ means that H_0 does not have a positive and significant correlation between the independent variable and the dependent variable.
- b. $H_a: \beta_i \neq 0$ means that H_a there is a positive and significant correlation between the independent variable and the dependent variable..

2) Determining the level of significant

The probability of error is less than 5% or $P < 0.05$.

3) Determining the decision area

- a. The first research question:

If sig. (2-tailed) < 0.05 , then H_0 is rejected and H_a is accepted, which means that there is a significant influence between the independent variables and the dependent variable.

If sig. (2-tailed) > 0.05 , then H_0 is accepted and H_a is rejected, which means that there is no significant influence between the independent variables and the dependent variable.

- b. The second research question:

If $T_{\text{count}} > T_{\text{table}}$, then H_0 is rejected and H_a is accepted, which means that there is a significant influence between the independent variables and the dependent variable.

If $T_{\text{count}} < T_{\text{table}}$, then H_0 is accepted and H_a is rejected, which means that there is no significant influence between the independent variables and the dependent variable.

The T_{table} provisions is obtained by comparing the significant level (0.05) and df ($df = n-k$), then the T_{table} obtained is 1.98.

