The Implementation of E-Learning Web-based Model Centric Course (Edmodo) toward The Mathematics' Interest and Learning Outcomes

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Abstract
The aim of this research is to know the effect of application of E-Learning model based on Web-Centric Course with Edmodo application media to increase: (1) the interesting of learning mathematics, (2) The mathematics student learning outcomes. The research method is used in quantitative research with the quasi-type experimental design, as well as research design using the pre-test and post-test control group. The Instrument has used the test of mathematics learning outcomes and questionnaire interest in learning mathematics students. The data hypothesis test uses the t-test involving pre-requisite tests (normality and homogeneity) beforehand. The result of this research is the application of E-Learning model based on WebCentric Course with Edmodo application media has an effect on: (1) the student learning outcomes of mathematics; (2) the interesting of learning mathematics students.
Keywords: E-learning; Edmodo; Web-Centric Course.

INTRODUCTION

The Mathematics subject is one of the important lessons that is taught at every level of education in Indonesia. Bey & Asriani (2017) argue that the subject of mathematics is one of the basic sciences that plays an important role in the development of science and technology. The results of good mathematics learning are a hope to be achieved for every institution and education. The learning outcomes are an indicator of the success of the educational process that is applied to students (Maonde, 2017). Fadhilaturrahmi (2016) states that the learning outcome is the determinant of the success of students in the learning process in the classroom. However, the optimal achievement of mathematics learning results is constrained. This is based on some previous research which states that the results of learning mathematics learners are still relatively low (Cleopatra, 2016, Bey & Asriani, 2017). The low learning outcomes are influenced by several factors, one that is strongly suspected is the adoption of less innovative classroom learning models.

The various learning models can be developed by using information technology to become more innovative, one of learning model is E-learning. Hanum (2013) defines Elearning is one of information technology form that is applied in the education in the cyberspace form. Based on the statement above, the E-learning model can be defined as learning that utilizes tools or media in the applications form, programs, websites, etc. Through the e-learning learning model, the learning process is not just listening to the material description of the teacher but the students also perform other activities such as observing, performing, demonstrating and others. The Materials can be visualized in various formats and forms that are more dynamic and interactive so that the students will be motivated to involve in the learning process. One of the e-learning media that can be used is the use of website on learning. Aqib states that there are

three possibilities in the development of Internet-based learning, ie web course, web-centric course, and web-enhanced course (Aqib, 2013). Web-centric course is the use of the web for educational purposes which combines distance learning with face-to-face. Web-centric course has advantages such as web-centric course, some learning materials, discussions, consultations, assignments, and exercises are delivered via the internet, while the exam, some of the material delivery and training are conducted by face-to-face. The learning media that originally used whiteboards and limestone turned to the use of computers and the Internet as well as from learning methods that initially face to face directly gradually move to virtual learning. In the educational environment, the benefits of the learning process is done by using the web can overcome various obstacles in the conventional learning especially the limitations of teaching materials, learning resources and time can be mediated with the help of web learning. This websiteassisted learning process, for teachers to upload concept maps, learning objectives and some apperception questions in a site or website, so that students can access it before the learning takes place. The aim is the students have prepared before the learning takes place so that the learning can take place more optimal. This is supported by previous research by Putri & Hernawan (2016) stated that students' understanding using web-centric course-assisted instructional media is significantly higher than the students using conventional media in Embryology courses.

One of the media that can be used in the learning process of mathematics is the Edmodo. Edmodo application is the safe learning platform for the teachers, students and school-based social media (Marfuah, 2011). Edmodo provides a safe and easy way for the class to connect and collaborate, share content and work access, grades and school notifications. The advantages of Edmodo is to help teachers build a virtual classroom based on real classroom divisions in the schools, there are assignments, quizzes, and grades at the end of each lesson. So this application will facilitate learning and know the development of student learning outcomes.

The technological developments, internet facilities, especially social media has not been optimally utilized in learning mathematics by the teachers and the students. It is also suspected of having an effect on the interest of the student. the interesting can be defined as a desire that arises from within the students themselves. Astuti (2015) will be that interest is also an important determinant of educational success. Therefore, it is necessary to improve the learning process in order to grow the student's interests.

Based on the descriptions above, the researcher wants to know the improvement of mathematics learning outcomes and student's interest in learning mathematics through the application of e-learning model based web-centric course with edmodo media applications. The aim of this research is to know the application of E-Learning model based on WebCentric Course with Edmodo application media can grow: (1) student's interest in learning mathematics learners; (2) the student's mathematics learning outcomes

THE RESEARCH METHODS

The research method is used quantitative research. The research uses the quasiexperimental design type with pre-test and post-test control group research. Data collection and analysis of instrument test through questionnaire aims to know the interest of students in learning mathematics subject by using E-Learning Web-based Centric Course with Edmodo application media, the description test aims to determine the improvement of student learning outcomes after learning, the documentation aims to obtain written data about the state of the research subject. Analysis of the test instrument using product moment formula, the alpha formula, the hard formula, and the differentiation power formula. Data analysis consists of data analysis of test values using a normality test, homogeneity test, t-test and Gain test. percentage of success.

THE RESULTS OF THE RESEARCH AND THE DISCUSSION
Normality Test
In this study, the normality test was performed with SPSS using the Kolmogorov-Smirnov. Test with the real level of 5%. Based on Normality Test obtained that the value of sig = 0,200> 5% then H_0 accepted, it means the variable of achievement learning is normal, in other words, the test of outcomes learning are distributed normally. The following is presented in Table 1., the result of a normality test using SPSS:

Table 1. Normality Test

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Achievment	.087	74	.200[*]	.965	74	.037
a. Lilliefors Significance Correction						
*. This is a lower bound of the true significance.						

Homogeneity Test
Based on the results of data processing is obtained that many subjects of experimental class research are 35 students and control classes are 39 students. The experimental class has an average grade of 54.51 with a standard deviation of 18.75, while the control class has an average grade of 53.74, with a standard deviation of 17.65. Since the sig value in Levene's Test for Equality of Variances in Independent Sample Test = 0.584> 5% then H_0 is accepted or variant of two variables is same. In other words, the control class group with the experimental class group is homogeneous or the same initial capability. Table 2 shows the results of the homogeneity test using SPSS:

Table 2. Homogeneity Test

Independent Samples Test										
Levene's Test for Equality of Variances		F	Sig.	t-test for Equality of Means						
				t	df	Sig. (2tailed)	Mean Differenc e	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
The Achievement	Equal variances assumed	.302	.584	-.182	72	.856	-.77070	4.23307	-9.20916	7.66777
	Equal variances not assumed			-.181	69.980	.857	-.77070	4.24710	-9.24131	7.69992

The Final Analysis Results of Normality test

In this study, the normality test was performed with SPSS using the Kolmogorov-Smirnov Test with a real level of 5%. Based on the Normality Test that was obtained that the value of sig = 0.085> 5% then H0 was accepted, it meant that the Y variable is normal, in other words, the test learning results are normally distributed. Below is presented Table 3., homogeneity test results using SPSS:

Table 3. The Normality Test

The Normality Test						
	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Achievement	.096	74	.085	.973	74	.113
a. Lilliefors Significance Correction						

The Homogeneity and Effectiveness Test

From the group statistic is obtained the data for the control class is 39 and the experimental class is 35. The average of the control class grade is 71.46 and the experiment class average is 80.94. The standard deviation of the control class grade is 7.61 and the experimental class is 7.48. Based on the independent output samples test table, obtained sig = 0.612 = 61.2%, this means the grade of sig> 5%. Thus the point hypothesis (H0) is accepted, it means that the variant of THB values of the control class and the experimental class are not different.

The next step is test the average to determine of the average second-class population is equal or not. Since both variants of the population are different than the use of variants to compare the average population by t-test using the basis of Equal Variance not Assumed. Based on independent output samples test table, obtained sig = 0,000 = 0%, this means sig value <5%. Because sig = 0.000 <5% then H_0 is rejected or H_1 accepted, it means that the average of THB of control class is not equal to THB value of the experimental class

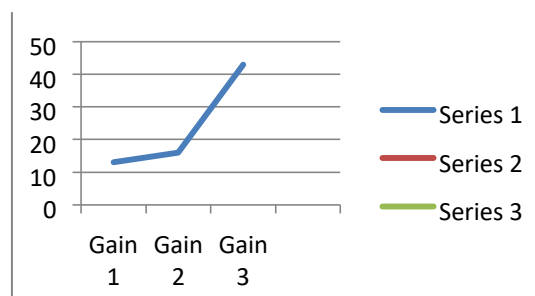**Table 4. Output Group Statistics of comparison test**

	Class	N	Mean	Std. Deviation	Std. Error Mean
	Group Statistics				
Control	Grade	39	71.4615	7.61179	1.21886
	Experiment	5	80.9429	7.47916	1.26421

Table 5. Output Independent Samples Test of comparison test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
	Independent Samples Test									
		F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
1	Equal variances assumed	0.612	.437	-72 5.394	.000	-9.48132		1.75778	-12.98539	-5.97725
	Equal variances not assumed			-5.399	71.393	.000	-9.48132	1.75609	-12.98253	-5.98011

The Result of improvement in learning achievement

The test analysis result of student achievement improvement using E-Learning model based on Web-Centric Course with Edmodo media application shows the increasing average from first meeting to second meeting is 13% and included in the low category. Thethe increasing of student achievement from the second meeting to the third meeting was 16%, including the medium category. The last of increasing test from the third meeting to the fourth meeting obtained the increasing score of 43% including the middle category.

Picture 1. The Graphic of Improvement Learning Achievement

The Results of student's interest analysis

The Results of student interest in learning were obtained from the questionnaire provided after using a Web-based E-Learning Centric Course model with Edmodo's media application. The average value of the interest in learning is obtained at 66.65 with the total score of 88 that can be obtained the percentage of the students' interest with following data.

$$\frac{66,65}{88} \times 100\% = 76\%$$

The E-Learning model based on Web-Centric Course with Edmodo media application can improve students' interest in learning mathematics in relation material and function, the result of questionnaire interest in learning mathematics with average interest is 76% is categorized high.

Applying of E-Learning model based on Web-Centric Course with Edmodo application media can help students in mathematics. Edmodo Media is a school-based social network that provides a safe and easy way for the class to connect and collaborate, share content and access work, school grades and notifications and can help the teachers build a virtual classroom based on real classroom divisions in schools, There are assignments for quizzes and grades at the end of each lesson.

Picture 2. Edmodo Application

The Edmodo app is used in learning by the normal face-to-face meeting. Using the Web-Centric Course, face to face learning is combined with online learning that is done at out of school hours. This is in accordance with research conducted by Offerman in Bonk and Graham, concluding that mixed models are more effective than face to face or fully online (Bonk & Graham, 2004).

The Material and The assignment are incorporated into Edmodo applications so The students can easily access at out of school hours. Using the E-learning model with the Edmodo application the students are accustomed to self-learning in accessing assigned assignments. However, the teachers continue to implement teaching and learning in the classroom. The application of E-Learning model based on Web-Centric Course with Edmodo media application is to train independent students in the learning also make students active in searching material resources before learning in the classroom, conducting online discussions on the tasks assigned and complete the task on time. In line with Mulyatingnigsih that the enjoyable learning can

occur if the interpersonal relationship between the teachers and the learners are combining, enjoyable learning can be achieved because learners are active during the learning process and the teachers as facilitators (Mulyatiningsih, 2010).

E-Learning model based on Web-Centric Course with Edmodo application media from the questionnaire result that are given to the students can increase students' learning interest this can be seen from the average of interest obtained by 76% and included in the high category. This is supported by Sudjana and Rivai's statement that instructional media will make teaching more attractive to the students so that it can grow the motivation to learn (Arsyad, 2011).

CONCLUSION AND SUGGESTION

Based on the result of research and discussion, it can be concluded as follows: (1) there is a difference of the average grade of THB between control class and experiment class using E-Learning model based on Web-Centric Course with Edmodo application media the result of t-test is obtained by sig = 0,000 = 0%, mean sig value <5%; (2) the increasing in learning achievement in the classroom using E-Learning model based on Web-Centric Course with Edmodo application media from the first meeting to the second meeting was 13% (low category). The increase in student achievement from the second meeting to the third meeting was 16% (low category). The last increasing test from the third meeting to the fourth meeting was obtained by 43% (medium category); (3) E-Learning model based on Web-Centric Course with Edmodo media application can improve the students' interest in learning mathematics on relation the material and the function, from the questionnaire of interest in learning mathematics with an average of 76% interest rate is high categorized.

Based on the conclusion above, the researcher gives some suggestion as follows is obtained that the teacher can use Edmodo learning media to improve student achievement and interest. The teacher can overcome various obstacles in conventional learning especially the limitations of teaching materials, learning resources and time.

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