



The Effectiveness of E-Learning Using Edmodo at Islamic Higher Education (PTKI) in East Kalimantan

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Abstract

A face to face instruction or lecture could not always be held for spontaneous activities such as a sudden meeting, faculty's or institute's activities or students' activities which collide with the schedule. Teaching and learning activities become less effective since the lecture plans that have been set through the Semester Learning Plan could not run as planned and it influences the learning outcomes. Therefore, it needs an alternative solution that is utilizing e-learning using Edmodo because it is easy and familiar to use.

This research is a pre-experimental design (non-design) using one-group pretest-posttest research design. The number of the samples was 76 students from IAIN Samarinda and STAI Sangatta. The instruments were pre-test, post-test, and questionnaires.

The result of this research indicates that Edmodo based e-learning at PTKI in East Kalimantan is effective for the learning process. The two sample paired sign test towards pre-test and post-test shows that Z score is -7.330 with sig. of 0.000 and since sig. of 0.000 < 0.05, it means effective. In addition, the analysis towards questionnaires filled out by students show that Edmodo based e-learning at PTKI in East Kalimantan is effective for learning, with score percentage of 81.25% that has a very strong Score Interpretation Criteria.

Key words: Effectiveness, E-learning, Edmodo

Introduction

The instruction is a learning activity that has passed the process of planning, implementation, and evaluation to achieve the objective expected. The more effective the learning process, the better the learning outcomes. Thus, the lecturer's creativity and innovation in the learning process are necessary to improve the learning quality.

The face to face learning could not always be held for some reasons such as spontaneous activities such as a sudden meeting, faculty's or institute's activities or students' activities which collide with the schedule. Therefore, teaching and learning activities become less effective since the lecture plans that have been set through the Semester Learning Plan could not run as planned. As a result, the lecturer might combine several lecture materials in one schedule without giving additional schedule.

Ineffectiveness of the learning process needs to be immediately solved to prevent further problems particularly the learning outcomes that may not be optimally achieved. Thus, learning improvement and innovation need to be done to find an alternative solution so the learning process can run effectively, so it improves the learning quality. One alternative solution is by utilizing students' smart phones for learning or e-learning. E-learning is a learning innovation that greatly influences the learning process.

E-learning could be an alternative to improve the learning process. Lecturers could still hold the learning process through a virtual class, even though without a face to face meeting. Students could still study materials according to the semester learning plan, learning evaluation becomes easier and transparent, students become more discipline in submitting the assignment, and the lecturer gets it easier in marking. The limited college facilities such as electricity, internet, and computer do not matter, and e-learning could still be held since the main facility in this learning is student's smart phones.

One of applications for e-learning is Edmodo. Ahmad Zanin Nu'man states that Edmodo is social media platform for teachers or lecturers and students that functions to plan various activities and assignment that can create interaction between the teacher or the lecturer and students, so Edmodo is visible to be applied as learning media. The features on Edmodo are almost similar to Facebook, so it is familiar to students, but they are simple so it is expected that there is no problem about the complicated e-learning media. In addition, Edmodo could also support for various files for learning, so the teacher or the lecturer and students get it easier to meet the learning needs (Nu'man, 2014).

The development of technology especially internet influences the concept of the learning method. Learning using computers has created a virtual university that now gets more popular. Thus, learning is not only held in a narrow environment, but also in a wider environment. Long distance learning by using electronic network and e-learning concept is one concept of long life education. The convenience of learning is obtained without limitation of spaces and time through internet based learning experience (Kassim dan Abdul Razaq Bin Ahmad, 2010).

E-learning started since 1970s. The concept of computer and network based learning is a learning model by utilizing the technology of web and internet. This teaching and learning concept is actually not a new idea. It has developed since previous decades. Various terms are used to represent idea about electronic learning, such as on-line learning, internet-enabled learning, virtual

learning, or web-based learning, web based distance education, e-learning, and web based teaching and learning. However, its development in the field of formal education has just occurred in the end of 90s (Adawi, 2008).

Globally, the concept of computer and network based learning means e-learning or distance learning. E-learning is an education system or concept that utilizes information technology in the process of teaching and learning. The followings are several definitions of E-learning:

1. A learning that is arranged to utilize electronic or computer system, so it can support the learning process.
2. Long distance learning process by combining the principles in the learning process with technology.
3. A learning system used as a facility for teaching and learning process that is held without face to face meetings between the teacher and students (Riadi, 2014).

William and Katherine Horton(2003)explain that e-learning is all kinds of utilization and application of internet to create learning experiences. E-learning is an innovative approach to be a design of a good delivery media, user-centered, interactive and as a learning environment that has various conveniences for whoever the user, wherever and whenever used.

Edmodo is a social learning platform for a teacher or a lecturer, students, or even parents developed in the end of 2008 by Nic Borg and Jeff O'Hara who felt the need to develop at school or college environment to reflect that the world is more global and connected(BV., 2016). Edmodo is an education network that helpsto connect all learners with others and resources needed. It aims to enhance learning by students, teachers, parents everywhere(Edmodo, 2018).

Edmodo is a social media based learning platform which is safe for teachers, students, and school/college(Wicaksono, 2014). It provide a safe and easy way for a class to connect and collaborate, share content and access to the work, grades and school notices. The goal of Edmodo is to help educators/teachers in utilizing social media strength to adapt the class for every learner. Edmodo can help the teacher to build a virtual class based on the real class at school/college, where in the classes, there are assignments, quizzes and evaluation in the end of every learning(Haris, 2013).

Edmodo is really helpful in the learning process. The design of the display is almost similar to Facebook. With Edmodo, teachers/lecturers can send scores, assignments, or quizzes to students easily. It does not only make the teaching and learning process easier, but also opens access for teachers to discuss with other teachers in other places, share teaching experience, etc. However, in using Edmodo, there is a specific code for each class/ group. If a student wants to join a group, he/ she should first know the code (Zakaria, 2015).

Miarso via Afifatu Rahmawati states that the effectiveness of the learning is one of quality standards of education and is frequently measured with the objective achievement, or the accuracy in managing a situation, or "doing the right things". Supardi via Afifatu Rahmawati also states that an effective learning

is a combination involving humanist, material, facilities, equipment and procedures that are directed to change the students' attitudes to be positive and better according to the students' potency and characteristics to achieve the learning aims (Rohmawati, 2015).

Considering new opportunities to achieve an effective learning process by utilizing e-learning, this research aims to find out the effectiveness of e-learning using Edmodo at Islamic Higher Education in East Kalimantan. It is expected that this research will contribute to learning practice which is more effective to achieve a better learning outcomes.

Research Methods

This research is a pre-experimental design (non-design) by using one-group pretest-posttest design with purposive sampling. The research locations were at State Institute of Islamic Studies Samarinda, H.A.M Rifaddin street, Samarinda, East Kalimantan, and College of Islamic Studies Sangatta, Soekarno Hatta street, East Sangatta, East Kutai, East Kalimantan. The two locations have adequate facilities to implement e-learning by using Edmodo. The most important facilities are students' smart phones. The number of sample was 76 students of IAIN Samarinda and STAI Sangatta.

The data collection technique was by using the research instruments which were pre-test, post-test, and questionnaires. The instruments were tested for the validity and reliability. The result of pre-test and post-test was then tested by using normality test Kosmogorov-Smirnov and two-sample paired sign test with IBM SPSS 17. The questionnaire data analysis was carried out by interpreting four effectiveness variables which were self-adaptation ability, productivity, work satisfaction and resource search.

Findings and Discussion

1. Validity and Reliability Test

a. Item Validity Test

The item validity test of the instrument was done by using IBM SPSS 17 application. The result of Person correlation according to IBM SPSS 17 is as following:

Table 1. The item validity test of the instrument

Item No.	r - item	Sig. (2-tailed)	Testing	Conclusion
X1	0,311	0,130	Sig. < 0,05	Valid
X2	0,484	0,014	Sig. < 0,05	Valid
X3	0,345	0,091	Sig. < 0,05	Valid
X4	0,646	0,000	Sig. < 0,05	Valid
X5	0,577	0,003	Sig. < 0,05	Valid
X6	0,668	0,000	Sig. < 0,05	Valid
X7	0,638	0,001	Sig. < 0,05	Valid

X8	0,667	0,000	Sig. < 0,05	Valid
X9	0,546	0,005	Sig. < 0,05	Valid
X10	0,346	0,091	Sig. < 0,05	Valid

Based on the statistical analysis above, ten questions for pre-test and post-test instruments are all valid.

b. Question Reliability Test

Reliability test is used to find out whether the questions as the test instrument are acceptable as the instrument for research data collection. The reliability test is done by using coefficient Cronbach's Alpha.

Table 2. Reliability Test

		N	%
Cases	Valid	25	100.0
	Excluded ^a	0	.0
	Total	25	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.709	10

c. Questionnaire Item Validity Test

The questionnaire item validity test was done by using IBM SPSS 17 application. The result of Person correlation according to IBM SPSS 17 is as the following:

Table 3. The questionnaire item validity test

Item No.	r - item	Sig. (2-tailed)	Testing	Conclusion
X1	0,609	0,000	Sig. < 0,05	Valid
X2	0,684	0,000	Sig. < 0,05	Valid
X3	0,656	0,000	Sig. < 0,05	Valid
X4	0,645	0,000	Sig. < 0,05	Valid
X5	0,619	0,000	Sig. < 0,05	Valid
X6	0,082	0,609	Sig. > 0,05	Invalid
X7	0,543	0,000	Sig. < 0,05	Valid
X8	0,806	0,000	Sig. < 0,05	Valid
X9	0,849	0,000	Sig. < 0,05	Valid

X10	0,548	0,000	Sig. < 0,05	Valid
X11	0,654	0,000	Sig. < 0,05	Valid
X12	0,533	0,000	Sig. < 0,05	Valid
X13	0,665	0,000	Sig. < 0,05	Valid
X14	0,630	0,000	Sig. < 0,05	Valid
X15	0,564	0,000	Sig. < 0,05	Valid
X16	0,697	0,000	Sig. < 0,05	Valid
X17	0,591	0,000	Sig. < 0,05	Valid
X18	0,584	0,000	Sig. < 0,05	Valid
X19	0,701	0,000	Sig. < 0,05	Valid
X20	0,648	0,000	Sig. < 0,05	Valid
X21	0,841	0,000	Sig. < 0,05	Valid
X22	0,833	0,000	Sig. < 0,05	Valid
X23	0,800	0,000	Sig. < 0,05	Valid
X24	0,726	0,000	Sig. < 0,05	Valid
X25	0,717	0,000	Sig. < 0,05	Valid

Based on the statistical analysis above, 24 question items of questionnaire instrument are categorized valid and one item is categorized invalid which is item number 6.

d. Questionnaire Item Reliability Test

24 valid questionnaire items were then tested for the internal consistency (reliability test). The questionnaire item reliability test was done by using coefficient Cronbach's Alpha.

Table 4. The questionnaire item reliability test

		N	%
Cases	Valid	41	100.0
	Excluded ^a	0	.0
	Total	41	100.0

a. Listwise deletion based on all variables in the procedure.

Cronbach's Alpha	N of Items
.946	24

The calculation of coefficient Cronbach's Alpha (α) is 0.946 on the interval of $\alpha > 0.5$, so it can be concluded that the questionnaire items are acceptable with internal consistency of "Excellent".

2. Kolmogorof-Smirnov Normality Test

a. Pre-test Instrument

The result of normality test of Kolmogorof-Smirnov for pre-test instruments is as the following:

Table 5. The Normality Test of Kolmogorof-Smirnov of Pre-test Instrument

		PRETEST
N		76
Normal Parameters ^{a,b}	Mean	43.68
	Std. Deviation	25.708
Most Extreme Differences	Absolute	.106
	Positive	.083
	Negative	-.106
Kolmogorov-Smirnov Z		.921
Asymp. Sig. (2-tailed)		.365

a. Test distribution is Normal.

b. Calculated from data.

Based on the result of the testing above, it can be seen that:

H0: Variable score population X is normally distributed

H1: Variable score population X is not normally distributed

With the provision of acceptance/rejection H0, so:

If $\text{sig} < \alpha$ (0.05) so H0 is rejected H1 is accepted

If $\text{sig} > \alpha$ (0.05) so H0 is accepted H1 is rejected

Thus, it can be concluded that the score of Kolmogorov-Smirnov Z is 0.921, positive Most Extreme Differences is 0.083 and the score of Asymp Sig = 0.365. Since the score of asymp sig is more than 0.05, so H0 is accepted and H1 is rejected. In other words, Variable score population X is normally distributed.

b. Post-test Instrument

The result of the normality test of Kolmogorof-Smirnov for post-test instrument is as the following:

Table 6. The Normality Test of Kolmogorof-Smirnov of Post-test Instrument

		POSTTEST
N		76
Normal	Mean	78.29

Parameters ^{a,b}	Std. Deviation	16.443
Most Extreme Differences	Absolute	.196
	Positive	.130
	Negative	-.196
Kolmogorov-Smirnov Z		1.709
Asymp. Sig. (2-tailed)		.006

a. Test distribution is Normal.

b. Calculated from data.

Based on the result of the testing above, it can be seen that:

H0: Variable Score Population X is normally distributed

H1: Variable Score Population X is not normally distributed

With the provision of Acceptance and Rejection, so:

If $\text{sig} < \alpha$ (0.05) so H0 is rejected H1 is accepted

If $\text{sig} > \alpha$ (0.05) so H0 is accepted H1 is rejected

Thus, it can be concluded that the score of Kolmogorov Smirnov Z is 1.709, positive Most Extreme Difference is 0.130 and the score of Asymp Sig = 0.006. Since the score of asymp sig is smaller than 0.05, so H0 is rejected and H1 is accepted. In other words, variable score population X is not normally distributed.

3. Two-sample paired Sign Test

This testing was done to find out the effectiveness of Edmodo based e-learning at PTKI in East Kalimantan with two data which were differently distributed. One was normally distributed and another was not normally distributed.

Table 7. Two-sample paired Sign Test

Frequencies		N
POSTTEST - PRETEST	Negative Differences ^a	3
	Positive Differences ^b	64
	Ties ^c	9
	Total	76

a. POSTTEST < PRETEST

b. POSTTEST > PRETEST

c. POSTTEST = PRETEST

Test Statistics^a

	POSTTEST - PRETEST
Z	-7.330
Asymp. Sig. (2-tailed)	.000

a. Sign Test

The table of frequencies shows that negative sign = 3 and positive sign = 64. Z score is -7.330 with the score of sig. Is 0.000. Since sig. $0.000 < 0.05$, it can be concluded that **“e-learning using Edmodo at PTKI in East Kalimantan is effective for the learning process”** on α 5%.

4. The Percentage of the effectiveness variables through questionnaires

Table 8. The Percentage of the Effectiveness Variables

No	Sub Indicator	Percentage (%)	Indicator	Variable	% Variable
1	Able to operate a computer or notebook/ smartphone (item number 2)	83 %	Able to run e-learning using Edmodo easily, economically, as the need of learning	Self-Adaptation Ability	81 %
	Able to run the application on internet (items number 3, 4, 5)	80 %			
	Understand e-learning by using Edmodo (items number 18, 19)	80 %			
2	Students' ability in using features on e-learning using Edmodo (items number 11, 23)	84 %	The outcomes of e-learning by using Edmodo	Productivity	82 %
	The lecture is still held via virtual class (items number 15, 16)	81 %			
	Pre-test, post-test, and assignment submission on certain limited time (items number 13, 14)	80 %			
	Mastery of materials becomes better (items number 7, 9, 12)	83 %			
	Test score is automatically given to students after finishing the test (items number 10, 24)	85 %			
3	Students are motivated in the learning process (items number 8, 20, 21, 22)	81 %	The level of students' interest and satisfaction towards e-learning by using Edmodo.	Work Satisfaction	81 %
4	Students have e-learning devices (smart phones/ laptop) (item number 1)	84 %	Students can integrate and coordinate resources needed in e-learning by using Edmodo	Resource Search	81 %
	E-learning application (Edmodo) is free (item number 17)	81 %			
	E-learning application (Edmodo) can be easily accessed via personal internet network (item number 6)	78 %			

Source: Steers, Richard M in (Pratama, 2016).

Based on the questionnaire analysis above, the effectiveness percentage of the four effectiveness variables are relatively high. The self-adaptation ability is 81%, productivity is 82%, work satisfaction is 81%, and resource search is 81%. The average percentage of the effectiveness of e-learning using Edmodo is 81.25% or if it is converted according to Score Interpretation Criteria, it represents “very strong effectiveness”.

The Implementation of E-Learning Using Edmodo at PTKI in East Kalimantan

E-learning by using Edmodo was implemented in several stages as following:

1. Socialization of e-learning by using Edmodo

Socialization was done to introduce and explain the importance of e-learning by using Edmodo for the effectiveness and the efficiency of the learning process. Students and lecturer made a commitment to utilize e-learning using Edmodo in the learning process to create a better and more effective learning process, so the lecturer and students were responsible to the agreement. The socialization was presented with participative and responsive pattern that involve and is responsive to students in the activity.

2. Creating Edmodo account

The lecturer and students downloaded Edmodo application and registered to have the accounts. The registration was carried out according to the application's terms and services. The lecturer first registered for a lecturer's account then the students registered for students' accounts and created a class group. The students were directed to independently create an account, so they understood all the processes. In creating class group, the students were involved, so the same perception on learning plan could be achieved.

3. Simulation of e-learning using Edmodo

The simulation activity started by uploading the semester learning plans, learning materials, assignment, and quizzes for e-learning process on Edmodo. When the lecturer uploaded the files, the students were with the lecturer, so they could check whether the application run well or not and directly asked the lecturer when it didn't run so. The students could also try to do quiz or test on Edmodo. The lecturer explained the rule to do the quiz or test and how they would be scored. This simulation would make sure that e-learning by using Edmodo can run well when they could not meet in a face to face lecture.

4. The Implementation of e-learning using Edmodo

The implementation of e-learning using Edmodo was similar to the simulation. The difference was the time and places that were flexible. The students were expected to be participative in material discussion and responsive to the discussion during e-learning. The lecturer should be discipline in giving evaluation by mentioning specific time (as scheduled), so the students finished and submitted the tests and quizzes given punctually.

The Effectiveness of E-learning Using Edmodo at PTKI in East Kalimantan Based on Students' Questionnaires

Based on the explanation of the questionnaire result, it can be seen several aspects which are effective as following:

- a. The availability of smart phones and network to implement e-learning by using Edmodo.
- b. The convenience of e-learning by using Edmodo because of good students' ability in operating smart phones and simple features on the application.
- c. Students can download the semester learning plans, textual teaching materials and learning videos.
- d. Students finish and submit assignments and test punctually.
- e. Students can directly get the score and the answers of the questions in the test.
- f. E-learning by using Edmodo can be accessed everywhere and everytime, so the lecturer and students do not always need to meet face to face in the learning process.

Conclusion

Based on the research result, it can be concluded that e-learning using Edmodo at PTKI in East Kalimantan is effective for the learning process. It can be seen from the analysis of two-sample paired sign test towards pre-test and post-test that shows the Z score of -7.330 with sig. score of 0.000. Since sig. score $0.000 > 0.05$, so it is effective. In addition, the analysis on students' questionnaires shows that e-learning by using Edmodo at PTKI in East Kalimantan is effective for learning with percentage of 81.2% which represents a very strong score interpretation criteria.

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