

Study on the Use of Edmodo in Learning Science

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Abstract—The use of internet as a media and source of learning at this time is very massive. Millennial generation is required to have digital literacy, so that they need for habituation in learning. Edmodo application that can be access by android, computer and tablet, can be used as a media in m-learning-based lectures. The study was done to find the impact of learning science with and without using Edmodo. The method used was quasi-experiment with non-equivalent control group design. Research subject were prospective primary school teachers of semester 6 year 2016/2017 from the department of primary school education - Universitas Pasundan Bandung. The subjects were divided into 41 students of experimental class (A) and 41 students of control class (B). Based on statistics calculations, the $t_{count} = 4.790 > t_{table} (1.664)$, then H_0 is rejected and H_1 is accepted. This is means that the application of Edmodo as media learning is more effective to improve learning outcomes compared with control class that only using power point media. The results of this study indicate that students who have learned science with Edmodo show the better achievement than the student in control class. By the result, lecturer should be more creative to engage technology specifically based on android as media and source of learning science.

Keywords—edmodo; learning science; learning outcome

I. INTRODUCTION

This 21st century teachers are required to produce the qualified students in various ways. The challenges faced by prospective teachers, especially in elementary schools, information technology accessibility, rapidly change so fast giving homework for prospective teachers and printers for prospective school teachers to keep up the development.

The ability of 21st century learners according to Trilling one of which is literacy skills in technology and communication [1]. These demands were answered by the development of various learning activities that came into contact with technology. It is expected that students often interact with technology and not experience technology stuttering, so that later students can create, design and innovate with technology. So as to create these conditions, it takes an

atmosphere that involves a digital touch by the teacher in the classroom.

As it is understood, that for a long time the practice of learning in lectures generally tended to be done conventionally through oral communication techniques. This kind of conventional learning practice is more likely to emphasize how teachers teach (teacher-centered) than how students learn (student-centered), and as a whole the results we can understand are apparently not contributing much to improving the quality of student learning processes and outcomes. To change the practice habits of learning from conventional learning to student-centered learning requires its own challenges, especially for conventional lecturers or rejecting change [2].

The impact of this is that the LPTK must be able to print prospective teachers who have responsive competencies towards both new and renewable digital technologies. In line with Tilaar opinion that 21st century society has 3 characteristics [3], namely (1) technological society, 2) open society, and 3) civil society. The intended technological community is people who can use technology as a basis for life interactions, including in learning activities.

One of these efforts can be used by Edmodo social media which according to Harlequin accommodates lectures through virtual classes that can be accessed anywhere and anytime at a relatively more affordable cost for students [4]. Supported by the ability of students who have an average cell phone based on Android, the use of virtual classes is very possible.

The above reasons are in line with Tremblay his presents challenges for higher education in all countries including pace with rapid advances in communications and social networking technologies [5]; accommodating the increased costs of technology into existing mechanisms for higher education financing; and take advantage of the educational opportunities to provide access and improve their success in higher education. Then it is time for higher education institutions to change in providing education services, namely to multiply

more learning technology capabilities so that graduates are successful in facing the 21st century.

The process of learning and learning outcome is something that cannot be separated in the education process both in lectures and at school. The success of an educator depends on the learning process by the lecturer to the students. Both of these are interrelated and determine the achievement of the objectives of education in schools.

The meaning of learning can naturally be interpreted by educators so that the learning objectives can be achieved. Many theories and understandings about learning, one of which is the understanding of learning according to Slameto learning is a business process carried out by someone to obtain a change in new behavior as a whole, as a result of his own experience in interacting with his environment [6]. Learning requires a process that is experienced by the individual itself, in this case to get a change in behavior. The behavior in question is in abilities in the cognitive, affective and psychomotor domains.

The learning process that involves students is different from elementary students, because students entering into the realm of being able to find their own knowledge. So in the process of learning allows the independence of students in understanding learning.

Learning outcomes according to Winkel are changes that result in humans changing in their attitudes and behavior [7]. Changes in students can be behaviors, attitudes or changes in abilities from those who previously did not know to know and master something.

Learning outcomes or behavioral changes that give rise to abilities can be in the form of the main results of teaching (instructional effects) as well as by-products (nurturing effect) in Purwanto [7]. The main results of teaching in this case learning is the ability of learning outcomes that are planned to be realized in the curriculum and learning objectives. While the results of accompaniment are learning outcomes achieved but not planned to be achieved. For example, after taking mathematics lessons that were initially disliked, then students like it because students are happy with how to teach teachers.

Learning outcomes in higher education in particular have an important role in the success of an institution, in line with the opinion of Tremblay et al namely students' learning outcomes are key factors of institutional performance, and hence of aggregate system performance [5]. Then the learning outcomes contained in the lesson plan are expected to produce the expected output. Learning outcomes in lectures are matched with the achievements of study programs and courses. So in learning science adapted to the achievements of the primary school teacher program in science learning courses, one of which was able to analyze, reconstruct, and modify curriculum, approaches, strategies, models, methods, techniques, teaching materials, media and innovative learning resources as teachers classes in elementary school independently.

The learning outcomes referred to in the study are changes in behavior through innovative learning that can be measured and observed after the learning process in the form of knowledge and learning skills in elementary school science.

Social media at this time is very often used as an alternative way of communication with minimal costs. Communities can interact with other people far away either live (directly) through video calls, text messages (chat) or voice.

Its use is also quite easy, which is just downloading for free at the application provider with data-based, which if implemented is relatively affordable for students. Various social media applications also innovate so that they can be beneficial for educational activities. One of them is Edmodo. Edmodo is a website or site application and a mobile application that users can interact in the activities of virtual class. Here is the website version of Edmodo.

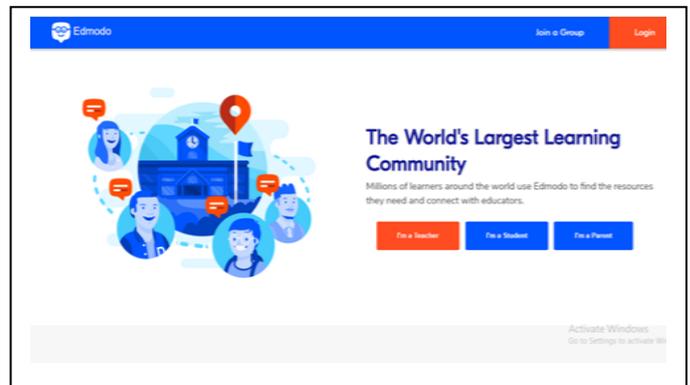


Fig. 1. Edmodo's front view.

Students can interact with teachers, fellow students and even hold discussions through this network. To increase literacy, edmodo network can join a group and a very diverse literature source so students can add knowledge and improve their competence capacity.

II. METHOD

This research used quasi experiment with non-equivalent control group design involving semester 6 students of the 2016/2017 academic year as research objects consisting of one class experiment and one control class each of 41 people.

The design of the research design can be seen in:

TABLE I. RESEARCH DESIGN

Group	Pre Test	Treatment	Post Test
Experiment	O	P1	O
Control		P2	

This study involved independent variables or independent variables in the form of learning media using edmodo social media and conventional learning media, and the dependent variable or dependent variable in the form of student learning outcomes in elementary science learning courses.

Data was collected through quantitative techniques, namely learning outcomes tests in the lecture process of Edmodo based social media science learning conducted in the experimental class and conventional learning lectures in the control class.

Material subject that students learn about cognitive dimension and knowledge dimension. Learning that is applied in this research is set by discussing problem solving in groups in order to attempt problem solving about the cognitive dimensions and dimensions of knowledge, students are able to build knowledge together, through group work allowing students to express ideas, listen to friends' opinions, and together- together improve their thinking skills with the aim of solving existing problems. the difference made in the control class and experiment is that students in the control class can exchange information and use literature sources from Edmodo that have been provided.

In addition to the tests, to strengthen the data, researchers conducted several interviews with some students who were considered to be compliant as data sources that could support research data in both the control class and the experimental class, and researchers searched for data through books, scientific journals, and other sources.

III. RESULT AND DISCUSSION

In this learning, students are directed to conduct an investigation to find a solution to the problem given. Students analyze, define problems, gather information, collect references, and formulate conclusions. The difference that occurs is that students in the experimental class can use a virtual class in reporting work, conducting quizzes, post-tests and looking for literature sources in learning. According to Zuliana and Irwan the advantages of Android are a comprehensive approach, open source, free platform, and a popular operating system [8]. This is very appropriate for students to find learning resources easily and cheaply. Therefore, the development of learning by using Edmodo which is based on android can improve students' understanding of science.

In accordance with the objectives of the research described, the results of the study are presented as follows. In order to see an increase in mastery of concepts that have been achieved by students and their qualifications used statistical calculations. The improvement in learning outcomes described in this section consists of general improvements that are determined

by processing the initial test data, the average final test, for mastering concepts in the two groups of research subjects generally shown in.

TABLE II. MEAN OF LEARNING OUTCOME

Group Statistics					
	Score	N	Mean	Std. Deviation	Std. Error Mean
Class	A	41	3.4780	.23613	.03688
	B	41	3.1300	.40087	.06261

Increasing student learning outcomes before and after learning is closely related to obtaining a mean value of 3.13, which is categorized as good and the mean value in the experimental class is 3.4780, which is categorized very well. From the description above, it can be concluded that the learning media used can significantly influence student learning outcomes.

Then the two-mean difference test was carried out by t-test through the SPSS 24.0 for Windows program. The hypothesis is formulated in the form of a statistical hypothesis (One Test party) as follows:

$$H_0 : \mu_1 = \mu_2$$

$$H_1 : \mu_1 > \mu_2$$

Information: Ho = The application of Edmodo social media in elementary science learning lectures is not effective in improving learning outcomes when compared to the application of traditional (traditional) learning models.

H1 = The application of Edmodo social media in elementary science learning lectures is more effective in improving learning outcomes compared to the application of traditional (traditional) learning models.

TABLE III. T TEST RESULT

Independent Samples Test										
		Levene's Test for Equality of Variances	t-test for Equality of Means							
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Up
CLASS	Equal variances assumed	8.733	.004	4.790	80	.000	.34805	.07266	.20345	.49265
	Equal variances not assumed			4.790	64.774	.000	.34805	.07266	.20293	.49317

Based on calculations, the results and table, it can be seen that $t_{count} = 4.790 > t_{table} = 1.664$, then H_0 is rejected and H_1 is accepted, which means that the application of Edmodo as media learning is effective improving learning outcomes when compared with class that only using power point media as media learning. The results supported by another research that Edmodo is an authentic teaching strategy that should be employed by more teachers hoping to encourage a student-centered technology driven learning environment where students are actively engaged and practicing views of responsible learning [9].

Learning science for primary teacher can be fun with engage technology with Edmodo. Student can be actively and responsive for learning with their gadget. Wadono said that E-learning Edmodo help to improve the mathematics literacy ability in Class VII [10]. Edmodo can increase learning outcome in this study as media learning.

The results of student responses showed that 100% of students expressed interest and liked learning activities using Edmodo because students could take part directly in learning, pouring thoughts while discussing in problem solving efforts, channeling creativity, this made it easier for students to learn material dimensions of learning. This statement is also supported by the results of Wardono study that by learning using Edmodo the atmosphere of learning is more effective because it involves students directly in learning making students feel more interested, motivated, and easier to understand the concept [10].

IV. CONCLUSION

Based on data analysis, and discussion that refers to the formulation of research problems, it can be concluded that there are differences in student learning outcomes in lectures Science Learning through the use of edmodo in the experimental class compared to student learning outcomes

through conventional learning in the control class. Edmodo is effectively as learning to improving media learning outcomes in learning science

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