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The basic physical program based on education model online assisted by alfa media to increase creative thinking skills

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Abstract. This research was conducted to find out the level of creative thinking skill of physics education student at Universitas muhammadiyah makassar, through basic physics education program based on education model online (Edmodo) with alfa media aid. In addition, this study is also to determine the response of students to the lecture program. Edmodo is an application of learning model with online learning system. Edmodo provides a more effective environment for lecturers and students in carrying out learning. In descriptive analysis of pretest data, creative thinking skills obtained an average score of 8.89 with a standard deviation of 1.72. Maximum score obtained 11 and minimum score of 6 of the ideal score of 20. In descriptive analysis of posttest data of creative thinking skill that is average score 13.30 with standard deviation 1.77. Maximum score obtained 17 and a minimum score of 10 of the ideal score of 20. The result of student response questionnaire is the average percentage of student response to the implementation of learning is 78.30 percent. Then it can be concluded that the student response is in the high category.

2 Introduction

The rapid development of information technology in the current era of globalization can not be avoided anymore influence on the world of education. Global demands require education to always adjust the technological development of the effort in improving the quality of education, especially the adjustment of the use of Information and Communication Technology (ICT) for the world of education, especially in the process of learning [1,2].

The trend of change and innovation in the world of education will continue to occur and develop in the 21st century entering today [3]. These changes include: easier access to learning resources, more options for using and utilizing ICTs, increasing media and multimedia roles in learning activities, more flexible learning time, using computer-based learning, using television / video, mobile learning, e-learning, online curriculum, e-library [2]. The trend of change and innovation has enormous implications for education, changes in renewal and learning technologies, changes in learning and learning, more control of learning to learners, and demands integration of ICTs in learning activities [4].

Education-based online modeling (Edmodo) is the best option for enhancing greater effectiveness, efficiency, and attractiveness in interacting with people in diverse learning environments [5]. Learning Edmodo offers learning opportunities to be both collectively and separately, as well as at the same time



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or different. A community of learning can be done by students and teachers who can interact anytime and anywhere because it utilizes the acquired computer and other devices (iPhone) as a facilitation of learning. Edmodo provides a highly sensitive learning facilitation of all the different psychological characteristics as well as the learning environment [6,7].

Universitas Muhammadiyah Makassar has started to utilize information and communication technology in various aspects, among others, for teaching and learning process, delivering information both academic and non-academic, lecturer data collection, students, and employees. All campus activities related to ICT users are handled by ICT Center Rectorate as the institution responsible for the use and utilization of ICT on campus.

Edmodo tries to combine several kinds of existing learning models. Along with developments in information and communication technology, especially in network technology in the form of internet, generally model of learning model that combined in the form of face-to-face learning model (face-to-face) with offline learning, and online learning. Based on the background of the problem, then formulated the problem as follows is how the implementation of basic physics courses based on Edmodo edufodo alpha media can improve the ability of creative thinking [7].

2. Research method

This research is a quantitative research using pre-experimental design by one-group pretest-posttest design. Subjects in this research are physics education students of Universitas muhammadiyah makassar in odd semester of academic year 2017, as many as 27 people. Data collection was done before and after the implementation of Edmodo based learning in basic physics learning at Physics Education Student. The research instrument used is a creative thinking skill test consisting of 25 questions. Results of student responses can be measured using a Likert scale questionnaire consisting of 15 statements.

For data of research result is analyzed by using descriptive and inferential analysis. Descriptive analysis, namely the presentation of data to categorize the level of creative thinking skills of students used value intervals and categories. Inferential analysis, this analysis is used to test the research hypothesis that is t test for correlated sample and N-gain test. In this case used the pre-test and post-test scores, as well as the highest score (maximum). The increase that occurred before and after learning according to Meltzer is calculated by the formula (N-Gain)[8,9]. Analysis of student response, which is obtained from questionnaire of student response to the implementation of basic physics-based learning process Edmodo, and then analyzed by percentage. The activities undertaken to analyze student response data are: 1) calculate the number of students who respond very agree, agree, disagree, and strongly disagree, according to the aspect asked, then calculate the percentage. 2) determine the category for the student's positive response by matching the percentage results to the defined criteria [10,11]. Analysis to calculate the percentage of the number of students who responded to each of the categories asked in the questionnaire.

Table 1. Category level of creative thinking skills.

Interval (%)	Category
81-100	Very high
61-80	High
41-60	Medium
21-40	Low
0-20	Very low

3. Result and discussion

3.1. Result

Descriptive statistical analysis of the data score of creative thinking skills through alpha based basic physics can be seen in the following table 2.

Table 2. Descriptive analysis score creative thinking skills.

Statistic	Pretest	Posttest
Subjects	27	27
Ideal Score	20	20
Highest Score	11	17
Lowest Score	6	10
Range Score	5	11
Average Score	8,89	13,30
Standard Deviation	1,72	1,77

For more details about the average score of pretest and posttest of students' creative thinking skill in the basic physics lecture based on Edmodo with alpha media aid can be seen from the following table 3.

Table 3. Interval distribution score creative thinking skills.

Interval	Frequency		Category
	Pretest	Posttest	
0 - 4	0	0	Very low
5 - 8	9	0	Low
9 - 12	18	9	Medium
13 - 16	0	17	High
17- 20	0	1	Very high

Based on table 3, it can be seen that the level of creative thinking skills after applied basic physics teaching based on Edmodo with alpha media can be categorized as having an increase. The result of descriptive analysis is basically only a general description of the data of the research results of the variables involved and has not shown the full results of the research. To know the existence of improvement of student creative thinking skill hence conducted by inferential analysis.

Based on the results of N-gain analysis can be known from the gain-test through the average score of all students. The obtained gain value of 0.5 is the moderate category by looking at the N-gain criteria table. Based on this it can be seen that the improvement of students' creative thinking skills in basic physics courses after Edmodo-based learning with alpha media is in the medium category, can be seen in table 4.

Table 4. Category level N-Gain.

Batasan	Kategori
$g > 0,7$	High
$0,3 \leq g \leq 0,7$	Medium
$g < 0,3$	Low

Analysis of student response to basic physics learning process based on following items namely alpha media, online teaching materials, online tasks, and online discussion as outlined in the student response questionnaire. The result of data analysis of student response toward the implementation of basic physics learning based on Edmodo with alpha media can be seen in table 5.

Table 5. Results of student response.

Item Response	Response results (%)
Alpha Media	72.45
Online Teaching Materials	81.25
Online Tasks	81.25
Online Discussion	78.24
Average Percentage	78.30

Table 5 shows that the average percentage of student response to the implementation of basic physics learning based on Edmodo with alpha media is 78,30 percent. Then it can be concluded that the student response is in the high category.

3.2. Discussion

In the implementation of basic physics learning based educational model online (Edmodo) with alpha media, various learning activities have been done by students. But not all activities that can be observed one by one. Some of the activities shown by the students are considered to be quite representative of the liveliness of the students in following the lectures. Learning activities have been conducted an online basis.

Prior to the application of physics-based Edmodo learning, many students were not interested in studying, because they thought that the physics lesson was very difficult and boring, that is the words they often pronounced by the students before the learning took place, the researcher assumes that this is a problem where researchers must change their thinking that in fact all the lectures are not difficult, especially the basic physics. Of the 27 students who tested the pretest test almost all received a very low score it resulted in low creative thinking skills.

This research is intended to find out the level of students' creative thinking skill in basic physics course after applied with Edmodo based learning. Based on the result of descriptive analysis, the average score of students' creative thinking skill level before applied by less Edmodo based learning is because the initial foundation of students' creative thinking skill is not maximal, compared to creative thinking skill after applied by Edmodo based learning.

It can be seen in the average score obtained by the students when the pretest is in the medium category while at the posttest average score obtained by students are in the high category. This shows that there is an improvement of students' creative thinking skill after applying basic physics learning based on Edmodo with the aid of alpha media. If viewed from the overall student score, then the improvement of creative thinking skills are in the medium category with a value of 0.5. The results of this analysis illustrate that after applied basic physics learning based on Edmodo with the aid of alpha media, then there is an increase of students' creative thinking skill. Based on these results can be concluded that the basic physics-based learning program Edmodo with the help of alpha media can improve students' creative thinking skills.

Based on the result of the student's response to basic physics learning based on Edmodo with the aid of alpha media, it can be obtained by looking at student's questionnaires to alpha media, online teaching materials, online tasks, and online discussion. From these results, student response to learning activities are in high category with a percentage of 78.30%. This means that empirically, students are generally able to accept basic physics learning based on Edmodo with the help of alpha media and assume that the learning program is needed by students especially for their creative thinking skills.

4. Conclusion

Based on the result of research and discussion that have been stated, it can be concluded that: 1) There is improvement of students' creative thinking skill by using physics learning based on Edmodo with the aid of alpha media that is in medium category, thus is one of the learning alternative needed by the students. 2) The result of the student's response to basic physics learning based on Edmodo with the aid of alpha media is obtained by looking at student's questionnaires to alpha media, online teaching materials, online tasks, and online discussion. From these results obtained the response given by students on learning activities are in the high category with a percentage of 78.30%.

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