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Analysis of Prior Knowledge of Educators on *Edmodo* E-Learning Media and *Schoology* and its Relationship with Students Critical Thinking Ability

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Abstract. Technology-based learning media is the recommended media in the 2013 curriculum. The used facilitates students to learn to find, solve problems and be able to draw their own conclusions. Media is expected to facilitate students to think critically, act creatively and productively, and collaboratively. This research is an ex post facto study which aims to identify and analyze the use of instructional media by vocational school history educators. The research sample was 3 educators and 30 vocational school students in Banyuwangi district. The data collection technique in this research used a questionnaire. The analysis of questionnaires from educators showed that 66.7% of educators used power point media and 33.3% used student worksheets. The results of previous research related to the critical thinking skills of students who were taught using power points learning media and worksheets found that (1) 53.3% of students were able to ask a question and were able to formulate problems; (2) 56% of students were able to come up with new ideas; 3) 76.7% of students were able to collect and assess information; (4) 63.3% of students were able to draw conclusions and provide solutions; (5) 46.7% of students think openly to the existing possibilities; (6) 63.3% of students were able to distinguish facts and opinions; (7) 76.7% of students were able to provide solutions to a problem. The results of this research will be considered for further research on the effect of *Edmodo* media and *schoology* on critical thinking skills

1. Introduction

The development of the industrial revolution 4.0 is the driving force for current technological progress. One of the impacts of the development of science and technology is on education and learning. The importance of using technology in education is indicated by the competence demands that students must master in the 21st century, namely the ability of students to use information media effectively and integrate technology in the learning process [1]. Mastery of technology makes the current generation process information very quickly, so they have the opportunity to be more innovative [2]. So that educators must change the learning paradigm and teaching skills, especially related to the use of technology as a learning medium that makes learning activities interesting and interactive.

Educators, as agents of change, must be able to keep up with technological developments, and design creative and innovative learning [3]. 21st century learning is directed towards digital learning by adopting certain technologies or incorporating e-learning systems in learning [4]. The use of e-learning is expected to be able to improve student learning outcomes both as a supplement (addition), a complement (complement), and a substitute (substitute) for conventional learning [5]. Educators can use e-learning media in delivering learning and giving assignments to students. Research conducted by Thakre and Thakre [6] states that the use of technology-based learning media and e-learning-based learning is learning that is of great interest to students. One of the e-learning media that can be used by educators is by using *Edmodo* and *schoology* learning media.

Edmodo has various advantages including easily accessible from a variety of devices, including smartphones. *Edmodo* is also easy to use and uncomplicated, even educators who are not used to using it can carry out learning through *edmodo* media well [7]. The use of *edmodo* in learning helps students to increase students' learning motivation, so that students can improve their critical thinking skills in solving problems. This is reinforced by research which shows that *Edmodo* media can improve critical



thinking skills [8] [9] [10] [11]. *Edmodo* media supports collaborative and innovative learning because it allows working in groups and allows students to share ideas and materials freely,

Besides *Edmodo*, a platform that can be used in e-learning is *Schoology*. *Schoology* is a free e-learning media program categorized into social learning networks that are widely used by educators in the learning process [12]. *Schoology* can develop students' argumentative skills and improve critical thinking skills through discussion [13] [14]. This is reinforced by research that shows that media *schoology* can improve critical thinking skills and student learning outcomes [15]. *Schoology* learning media encourages active students in the learning process and improves critical thinking skills that affect student learning outcomes.

The Ministry of Education and Culture [16] describes the demands for critical thinking skills that must be mastered by students, including students being able to communicate effectively in solving problems, students with their own abilities are able to solve problems by expressing and analyzing a problem, students are able to use various type of thinking or reasoning with the right reasons according to the situation. Furthermore, to achieve critical thinking skills can be formulated in several aspects, including the ability to analyze, evaluate, explain, inference, and interpret which will be integrated into learning activities [17]. Critical thinking skills can be developed through innovative learning. One of them is by using *Edmodo* media and *schoology* in the learning process.

Based on the description above, educators need to use learning media combined with technological advances. This study has the aim of analyzing the learning media used by educators and measuring the thinking skills of students. The benefits for educators through this research are to provide solutions in choosing the right media in order to improve students' critical thinking skills and become material for information and study for further research

2. Methods

This study aims to analyze the instructional media used by educators and measure the critical thinking skills of students. The method used in this research is *ex post facto*, which means after the fact, by taking survey data. Data collection is used to analyze the instructional media used by educators and to measure critical thinking skills using a questionnaire distributed to educators and students. The questionnaire used in this study is a closed questionnaire, where the answer options have been provided by the researcher so that the respondent only has to choose. The research sample used in this study were 3 educators and 30 students in Banyuwangi Regency. Meanwhile, to analyze the research data, descriptive analysis techniques are used

3. Results

3.1. Learning Media Analysis.

The analysis was carried out to determine the learning media used in the field so that it could provide educators with solutions in choosing the right media in the learning process. The results of the analysis of the answers to the questionnaire given to educators showed that 1) Students were only given 66.7% of the material through powerpoint and 33.3% through worksheets. As in the diagram below. The refore students feel bored and less motivated. The media used have not been able to achieve the desired learning objectives and have not attracted students which have an impact on learning outcomes that are less than optimal. The refore new, more innovative learning media are needed;

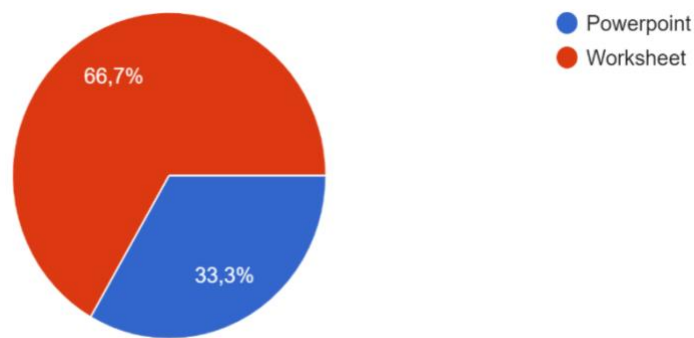


Figure 1. Analysis of the use of learning media

2) Learning in the revolutionary era 4.0 requires educators to use technology-based learning media and in accordance with the times, but the reality in the field is that only 33.3% of educators know about technology-based learning media such as *edmodo* and *schoology*. In the learning process students are allowed to use internet media, but students often abuse this opportunity to play games and open social media. So that educators need to use technology-based media so that students are interested and motivated in the learning process; 3) Curriculum 2013, which requires students to take advantage of technology-based learning media which hopes that the media can facilitate students to think critically, act creatively and productively, as well as collaboratively. The media used by educators 66.7% was not able to make students able to solve problems. So that the demands of the 2013 curriculum have not been achieved. Thus educators need to use technology-based media in order to facilitate developing students' thinking skills.

3.2. Analysis of Critical Thinking Ability

Analysis of critical thinking skills is a study to determine and measure the critical thinking skills of students. This analysis was carried out using a questionnaire given by 30 vocational school students in Banyuwangi Regency. The following are the results of research related to students' critical thinking skills who were taught using power point learning media and worksheets distributed to students found that (1) 53.3% of students were able to ask a question and were able to formulate problems with; (2) 56% of students are able to come up with new ideas with; 3) 76.7% of students are able to collect and assess information; (4) 63.3% of students are able to draw conclusions and provide solutions; (5) 46.7% of students think openly to the existing possibilities; (6) 63, 3% of students are able to distinguish facts and opinions; (7) 53.3% of students are able to provide solutions to a problem.

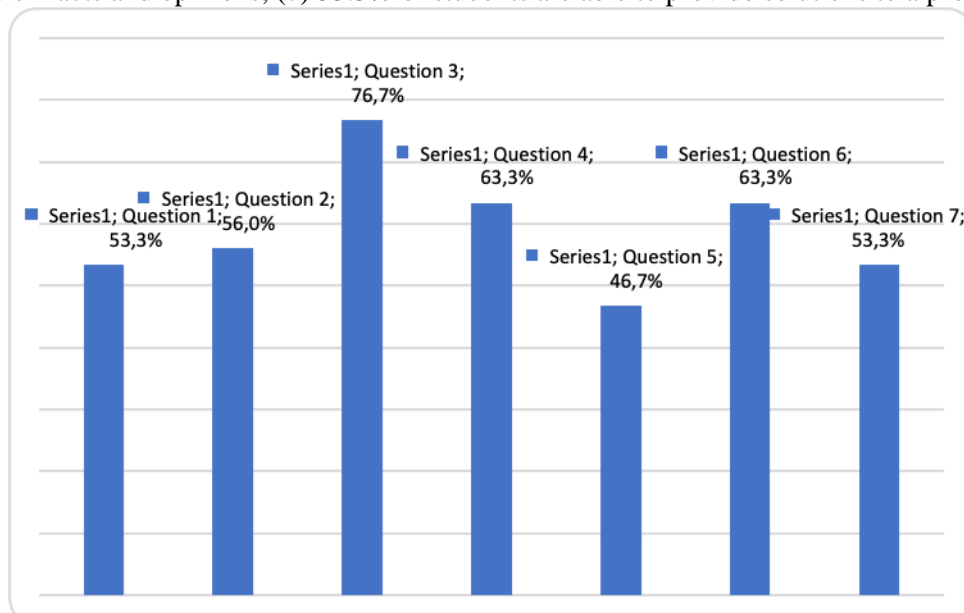


Figure 2. Analysis of students' thinking abilities

So it can be seen that the critical thinking skills of students are still in the moderate category and need to use learning media that is in accordance with the demands of the 2013 curriculum, which requires educators to use technology-based learning media and students have the ability to think critically.

4. Discussion

Based on the results of the learning media analysis, several things were found: 1) educators used powerpoint media and worksheets, 2) the media made learning objectives not optimally achieved; 3) the attractiveness of learning is still low which results in less than optimal learning outcomes; 4) Some educators still do not use technology-based learning media; 5) some educators have not used *Edmodo* and *schoolology* media; 6) as educators argue that *Edmodo* media and *schoolology* have advantages, namely learning that is fun and can improve thinking skills. The description above shows that the analysis of learning media needs to be done to determine the extent to which the learning media plays a role in the learning process.

The results of the analysis of students' critical thinking skills who were taught using power point learning media and worksheets / textbooks found that students' critical thinking skills were still in the moderate category, this is in line with the opinion of Danci et al, (2016) [18] that the use of textbooks which are arranged but not in accordance with the characteristics of teaching materials and learning models tend to have an impact on ordinary and undirected learning, so that students are less motivated and find it difficult to understand the material presented by the educator. According to Jenkins, (2006) [19], traditional learning is relevant to use, because in the digital era there are many new participatory media in the form of social networking sites, file sharing, blogs that can be used in the learning process.

Edmodo media and *schoolology* are social networking learning media that can be used to create interesting learning because these media can be supplemented with materials in the form of audio and video in formats according to aspects of pedagogical technology. As said by one of the international instructional media experts, Buckingham (2003) [20], learning media must reflect several emphases, namely that learning media must be equipped with image media, print media and new digital communication technologies. So that it can make it easier for students to understand the material, the students' critical thinking skills will increase

5. Conclusions

The initial analysis of instructional media was carried out by researchers to obtain data about the learning media used by educators and to measure students' thinking abilities. So that with this data, the recommendations of the next researcher to use learning media can improve students' critical thinking skills and foster students' learning motivation so that it affects optimal learning outcomes. By using technology-based media, one of them is by using *Edmodo* and *schoolology* media

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