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Implementation Interactive Whiteboard Media with Constructivism Approach to Public Policy Courses

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Abstract: The teaching and learning process needs to be supported by the development of innovative media to increase student's interest in learning. A good learning motivation and atmosphere will support learning to be optimal. Interactive whiteboard is an alternative visual media presentation. The development of interactive whiteboard assisted learning media was carried out in the first year. To see whether the interactive whiteboard assisted learning media is feasible to use the researchers conducted a trial limited to students in the sixth semester of Civic. Based on the results of the pretest and posttest conducted, it was found that there were differences in the value between the pretest and posttest scores of the sixth semester students of Civic the Universitas PGRI Semarang in the 2017/2018 school year of 67.81 and 71.26. In the 2nd year, the study continued by testing whether the interactive whiteboard assisted learning media could be used widely. For this reason the researchers conducted an expanded trial by applying the media to two universities, namely the Universitas PGRI Semarang and IKIP Veteran Semarang. The results obtained in the use of interactive whiteboard assisted learning media are quite satisfying. The value of the pre-test and post-test for the sixth semester students of Civic the Universitas PGRI Semarang in the 2018/2019 school year were 70.31 and 72.05. While the value of pretest and posttest for students in the sixth semester of Civic in IKIP Veteran Semarang in the 2018/2019 academic year is 63.68 and 68.94. It can be concluded that there is a difference in the value between the pre test and post test, although, it is not so significant. The constructivism approach included in the interactive whiteboard assisted learning media has also helped students develop their interest in learning in public policy courses which in fact are in the form of theory. With the use of media, students actively participate in the teaching and learning process. Visual presentation media displayed on the interactive whiteboard is expected to continually safeguard student learning and be widely used.

Key words: Interacvtive whiteboard, learning media, constructivism, Semarang, posttest, atmosphere

INTRODUCTION

Building knowledge of students in certain fields of study or abilities is a learning goal. Learning objectives will be achieved, if there is a change in behavior during the teaching and learning process. Changes in behavior are related to changes in knowledge (cognitive), skills (psychomotor), values and attitudes (affective). Higher education is more prevalent in the classroom. The teaching and learning process brings together lecturers and students in the class and is usually monotonous. The communication that occurs is more driven to the lecturers. Not infrequently lecturers also experience problems in delivering learning material. Chaeruman (2009) states that monotonous classes and lecturers who are less communicative in delivering material do not cause good learning passion.

The teaching and learning process needs to be supported by the development of innovative media to increase student's interest in learning. Visual presentations that combine text, audio and visual can be chosen as one of the media to shape student motivation and interest in learning. A good learning motivation and atmosphere will support learning to be optimal. Interactive whiteboard is an alternative visual media presentation. Interactive whiteboard is designed for office settings and has never been used in schools. Interactive whiteboard was originally developed for office settings and is a relatively new addition to education (Digregorio and Sobel-Lojeski, 2010), Learning theory is used as the basis for the development of the interactive whiteboard, the constructivism theory. Constructivism sees students build their knowledge from their own learning experiences. Learning can be seen as an active process and knowledge

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cannot be received from outside or from others. Students should be given the opportunity to build knowledge instead of being given knowledge through teaching.

There are several indicators of students who have a high interest in learning, this can be recognized through the learning process in class and at home. According to, these indicators are: feelings of pleasure, attention in learning, interest and participation or involvement. Students who have feelings of pleasure or love for public policy lessons, then he must continue to study the knowledge related to public policy without feeling forced. Attention is also an indicator of interest in learning. Attention is the concentration or activity of our soul towards observation, understanding by putting aside the other. Someone who has an interest in a particular object then naturally he will pay attention to the object. In addition to the feeling of pleasure and attention in learning, interesting subject matter and communicative lecturer attitudes can cause students to be interested in learning it. An interest can be expressed through a statement that shows that students prefer something more than anything else, it can also be manifested in student participation or involvement in an activity, especially in the classroom.

Interactive whiteboard assisted learning media is the right choice to build student's interest in learning. This is in line with what was conveyed by experts. One reason why this new technology tool began to be considered for use in educational settings is because it was identified as a way to integrate various multimedia sources such as written text, sound, images, software packages, video clips, CD-ROM, images and sites internet, into class instruction (Miller *et al*., 2005) many teachers and administrators seem enthusiastic about using the board. One study illustrates how student teachers see the importance of using interactive whiteboard technology for children, even when they have limited experience with their own technological applications (Kennewell and Morgan, 2003). Research conducted by Smith illustrates how the ability of interactive whiteboard to re-read material helps a primary teacher help groups with lower abilities. In addition, to the way in which interactive whiteboards facilitate lesson planning and differentiated instruction, the enthusiasm of teachers and administrators for this technology may also be based in part on student responses (Beauchamp, 2004). Other researchers report in other studies that interactive whiteboards bring students to 16% gain in student achievement (Marzano and Haystead, 2009).

MATERIALS AND METHODS

This research has been running for 2 years using the R&D (Research and Development) method. The development of media with the assisted constructivist approach of interactive whiteboard in public policy courses has been developed using the development model by Borg and Gall states that the research development procedure basically consists of two main objectives, namely: developing the product and testing the effectiveness of the product in achieving the goal. The procedure for developing learning devices uses a model developed by Borg and Gall which includes 10 stages, namely research and information collecting, planning, developing preliminary forms of products, preliminary field testing, main product revision, main field testing, operational product revision, operational field testing, final product revision and dissemination and implementation.

At the stage of research and information collecting, researchers conduct a literature study that underlies learning products that will be developed by examining some of the results of previous studies that are relevant to be used as references, classroom observations and designing research frameworks and learning product development. After the preliminary study is carried out, the next step is to design various activities and procedures to be taken in research and development of learning products. Activities that need to be carried out in this planning stage, namely formulating the specific objectives to be achieved by developing a product estimate the funds, labor and time needed to develop a product formulate the ability of researchers, research procedures and forms of participation needed during research and development of a product.

In the developing phase of the preliminary form of product, the drafting of the initial draft of interactive whiteboard assisted media products (draft 1) has been validated and revised based on the input of experts to produce a revised draft 1. Furthermore, in the preliminary field testing, the setting description is obtained or the feasibility of a product in this case the learning media assisted by interactive whiteboard. This preliminary trial is limited to only involving two classes. The results of this limited trial were conducted to find out the weaknesses of draft 1 and were used as material to revise a product that was to be developed. In the main product revision stage, the activities carried out were to improve the weaknesses of draft 1 based on the results of a limited trial, so as to produce a product improvement called draft 2.

Furthermore, operational product revision where the research activities are integrated and is a trial draft 2 involving 2 classes. This trial was conducted to find out whether draft 2 had shown a performance as expected. If there are still weaknesses, the next stage will be carried out.

Operational field testing is the stage of improvement in draft 2 to analyze weaknesses based on the results of the expanded trial. This is done, so that, media development carried out during research is better. In final product revision, the results of the improvement from draft 2 are then called the final draft which is ready to be published. Dissemination and implementation is the last stage where the aim is for the newly developed media, the interactive whiteboard in the public policy course to be used by the wider community. The core activity at this stage is to disseminate products from development at regional and national levels.

The population in this study were all sixth semester students of Civic at the Universitas PGRI Semarang and IKIP Veteran Semarang. Sampling of this research data using purposive sampling technique by taking one class in the sixth semester of Civic at the Universias PGRI Semarang in the academic year 2017/2018, one class in the sixth semester of Civic at the Universias PGRI Semarang in the academic year 2018/2019 and one class in the sixth semester of Civic at IKIP Veteran Semarang in the academic year 2018/2019.

Data collection that has been carried out for 2 years in the form of quantitative data as basic data and qualitative data in the form of advice and input from respondents as additional data. At the stage of data analysis, data in the form of assessment of learning media obtained from media validity by several experts and students were analyzed for product improvement. Data in the form of student learning interests that have been obtained at the implementation stage (pretest, posttest and questionnaire that students have answered) were analyzed to determine the effectiveness and practicality of the product.

Data from material experts in the form of product quality in terms of material content aspects, namely conformity with the syllabus, relevance to the ability of students, clarity of learning topics, material suitability, material coverage, suitability of evaluation design, relevance of images, videos and illustrations with material, ease of use and ease of understanding material.

Data from media experts in the form of product quality in terms of media aspects, namely interaction with users the use of text format language, color usage, image quality, sound/music quality, video and illustration quality, usage, presentation order and interactive whiteboard display. And student response data in the form of product quality in terms of student attractiveness. This data is used to analyze the attractiveness and accuracy of the material provided by students.

RESULTS AND DISCUSSION

In the development of interactive whiteboard assisted learning media with a constructivism approach to public policy courses it has received input from several media experts and material experts. The input given is in the form of an assessment of the general aspects, aspects of the presentation of learning, aspects of language feasibility and aspects of feasibility of graphics. As a material expert, first reviewer from Universitas Diponegoro gave an assessment of 88.7% and second reviewer from the Universitas Tujuh Belas Agustus Semarang gave an evaluation of 89.2%. While experts who assess the media are first reviewer from the Universitas PGRI Semarang gave a score of 91.5% and second reviewer from IKIP Veteran Semarang gave an assessment of 94.5%. Based on the results of the assessment of the experts, it can be obtained an average of 90.98% which means it falls into the very good category.

Based on the results of filling out the questionnaire by students as a response from the students of Civic the Universitas PGRI Semarang and IKIP Veteran Semarang, good results were obtained, namely the response of students of Unversitas PGRI Semarang by 85.5% and the response of IKIP Veteran Semarang students by 86.0%. In other words, the average score of students on interactive whiteboard assisted learning media is 85.75%. From the results of these percentages it can be concluded that the response of students from both universities is very good. This is supported by (Sunandar and Rahmawati., 2016) showed with media basic IT make learning outcome more increase, especially, about cognitive style. Strengthened by Terrell and Capper (2003) showed cultural change in learning through the use of new technologies make student impact of new technology. The following is the flow of research activities that have been carried out (Fig. 1).

The development of interactive whiteboard assisted learning media was carried out in the first year. To see whether the interactive whiteboard assisted learning media is feasible to use the researchers conducted a trial limited to students in the sixth semester of Pancasila and Citizenship Education.

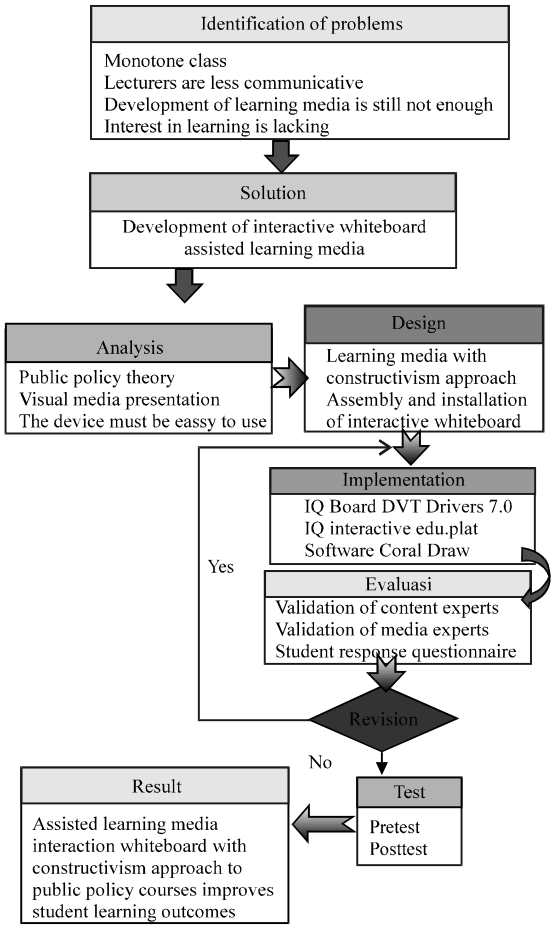

Fig. 1: Research flow of interactive whiteboard assisted learning media

Based on the results of the pretest and posttest conducted, it was found that there were differences in the value between the pre-test and post-test scores of the sixth semester students of Civic at the Universitas PGRI Semarang in the 2017/2018 school year of 67.81 and 71.26.

In the second year, the study continued by testing whether the interactive whiteboard assisted learning media could be used widely. For this reason, the researchers conducted an expanded trial by applying the media to two universities, namely the Universitas PGRI Semarang and IKIP Veteran Semarang (Table 1 and 2).

The results obtained in the use of interactive whiteboard assisted learning media are quite satisfying. The value of the pre-test and post-test for the sixth semester students of Civic the Universitas PGRI Semarang in the 2018/2019 school year were 70.31 and 72.05. While the value of pre-test and post-test for students in the sixth

Fig. 2: Interactive assisted learning media used by public policy lectures

Fig. 3: Students actively participate in the use of interactive whitboard assisted learning media

Table 1: The average test results are limited to pre and post test in the first year

First year (Limited trial)	
Tests	Values
Universitas PGRI semarang	
Pre test	67.81
Post test	71.26

Table 2: The average test results are expected pre test and post test in the second yesr

Second year (Extended trial)	
Tests	Values
Univeristas PGRI semaran	
Pre test	70.31
Post test	72.05
IKIP veteran semarang	
Pre test	63.68
Post test	68.94

semester of Civic in IKIP Veteran Semarang in the 2018/2019 academic year is 63.68 and 68.94. It can be concluded that there is a difference in the value between the pre test and post test, although, it is not so significant. This result showed interactive whiteboard can college student interest to learning topic in the class (Buchori *et al*., 2017) showed more student interesting to learning in the class, if lecturer make new media to improve creaticity college student (Fig. 2).

Fig. 4: Learning activities in the classroom using learning media assisted by interactive whiteboard

The constructivism approach included in the interactive whiteboard assisted learning media has also helped students develop their interest in learning in public policy courses which in fact are in the form of theory. With the use of media, students actively participate in the teaching and learning process. Visual presentation media displayed on the interactive whiteboard is expected to continually safeguard student learning and be widely used (Fig. 3 and 4).

This result with interactive whiteboard in IKIP Veteran Semarang make student more creativity in the class, so, Beauchamp and Parkinson (2005). Showed if beyond the 'wow' factor: developing interactivity with the interactive whiteboard, for example, student enthusiastic to using interactive whiteboard in the class. So, Cooper and Brna (2002) showed supporting high quality interaction and motivation in the classroom using the social and emotional learning and engagement in the NIMS project in the classroom all student made emotional student very fresh and enthusiastic.

CONCLUSION

An interactive whiteboard assisted learning media has been produced with a constructivism approach to public policy courses. Media experts and material experts have assessed with an average of 90.98% in the "very good" category. Whereas the assessment based on the student response questionnaire was 85.75% and included in the excellent category. Based on the results of the pretest and posttest values obtained good results, although, not yet significant. The results of a limited trial in the first year showed a difference between the pretest values of 67.81 and the posttest values of 71.26. And the results of the expanded trial obtained a nilai pre test of 70.31 and a post test value of 72.05 at the Universitas PGRI Semarang and the pre test value was 63.68 and the post test value was 68.94 in IKIP Veteran Semarang.

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