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Effect of Learning Media Variation to Increase Interest and Learning Outcomes of Geography

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Abstract — This study aims to examine the effect of applying variations of instructional media consisting of three forms of media namely ICT-based media, 3D media and environmental media to increase interest and learning outcomes. The subjects of the research were conducted on Geography students of Universitas Negeri Surabaya, which program the subjects of physical geography. Data analysis using manova technique. The results obtained conclusion that these three learning media can increase interest and learning outcomes significantly. Environmental media has the greatest influence on interest and learning outcomes followed by 3D media and ICT media.

Keywords—Media; Interests; Learning Outcomes.

I. INTRODUCTION

Geography studies the geosphere phenomena on the earth's surface that are related to human life. The learning of geography becomes meaningful and interesting if the material in the form of geosfera phenomena can be applied to the learning with variation of media [1]. Some media variations that can be applied in studying geography include: Three-dimensional media (3D), ICT-based media (Information and Communication Technologies), and Media by utilizing the environment.

Geography learning is essentially learning about geographic symptoms on the surface of the earth. The environment around is one source that can be used to support learning activities [2]. Students can be faced with the real situation, natural conditions, so that it is more real, more concrete, more factual and more accountable. But sometimes there are limitations that do not allow bringing students to the direct object being studied, the object is brought to the students. These limitations can be caused by objects that are too large or too small, objects can endanger safety and are full of risks, objects that move too slowly or too fast, objects that are too complex. To reduce the limitations of learning, learning media is needed.

The media functions as an act of communication. It is a chain of practices and processes by and through which

geographical information is gathered, geographical facts are ordered and our imaginative geographies are constructed [3]. Material in geography learning requires the availability of learning resources in the form of media that can describe the process of dynamics and changes in nature. Media that can describe the geosphere and other physical forms of nature can be models, images can be displayed in the form of loose sheets or transparency. But these types of media are difficult to display motion that can describe a process.

Geography must be taught in a way that is congruent with the most recent developments in scientific research and technologies [4]. Teachers are expected to bring new technology to their classrooms. Media learning is very suitable for active learning processes. The most influential daily practices and students are very helpful without relating to geography. However, one must be aware that the use of technology does not mean better. Geography learning must be adapted to the technological environment.

Educating people using media is an effective strategy to improve their knowledge. Learning process needs to be supported by using learning media. The selection of media should not be separated from the context that the media is a component of the learning system as a whole. [5];[6]. Teaching using media is one of the most important components in the teaching and learning process [7];[8].

One of the learning media of geography is ICT-based media. Potential utilization of ICT media in education are many of them are improve access to information, improve efficiency, and quality of learning [9]. ICT Media helps teach geography concepts. In learning geography by utilizing ICT media teachers can create video, internet, animation or simulation to enable students to learn abstract, dynamic, and complex concepts. For example students can see how the hydrological cycle process with the help of animation through computer.

The rapid development of computer and Internet technologies (ICT) has made e-Learning become an important

learning method [10];[11];[12]. One of the strategies in the application of active learning is the use of instructional media in the process of teaching and learning, especially using of computer simulation as the media of teaching [9].

Learning supported by ICT media (eg discussion forums, chat, email) encourages students to interact and collaborate with fellow students, teachers and experts in relevant areas wherever they are [13]. ICT-based media learning (eg simulation, games, animation) also provides facilities for students to manipulate existing situations and create products creatively and attractively.

In addition to ICT-based media, learning media commonly applied in learning geography is a Three-dimensional media (3D). Three-Dimensional media is an important visual medium for displaying spatial objects on the surface of the earth. Geography is closely related to spatial, so material in geography subjects is very good to visualize. Visualization of geographic materials can improve students' understanding and save time because they do not need to go to the immediate environment.

Tree dimensional media can be applied in the form of a demonstration method to enable students [14]. Application of learning methods that are exhibited with 3D media actively has a significant advantage compared with conventional learning methods. The 3D media approaches the geosphere's true phenomenon so that such students can experience real situations or interact directly with actual phenomena.

Another medium that can be utilized in the learning of geography is the media by utilizing the environment. According to prasetya geographical environment on the surface of the earth can be studied directly by students. Students can observe, record it thoroughly, look at changes and changes that include the causes, processes and outcomes of the geosphere phenomenon. Students can observe everything that exists in nature according to what is learned and conduct direct experiments to prove a truth [1].

The process of learning geography in the real environment is a learning process designed so that students learn the subject matter directly on the actual object, thus the more real learning. Geographical environment can be a medium of learning related through mutual relationships of human and community life with the natural environment [15]. In the implementation of learning, environmental utilization can be initiated in a contextual way through its immediate environment, for example: school environment, village environment, forest environment, coastal environment on the

beach and so on. These conditions are adapted to school curricula and student characteristics.

This research was conducted to investigate the effectiveness of various learning media (ICT media, environmental media and 3D media) in Geography lesson at Universitas Negeri Surabaya to increase interest in learning process and geography learning outcomes.

II. METHOD

Subjects in this study were 96 students of Geography, Universitas Negeri Surabaya who program the physical geography course. This research uses quasi-experiment method. Three groups were treated differently in this study. The first treatment group used ICT media (interactive multimedia learning technology), the second treatment group used three dimensional media (3D), the third treatment group used using environmental media. These three media are assumed to increase students' interest in learning geography and student learning outcomes.

The instruments used are interest observation sheet (interest indicator that is motivation, likes, attention and student involvement in learner process) and test result of learning. Data were analyzed descriptively quantitative, followed by inferential analysis using Manova test.

TABLE I. RESEARCH DESIGN

Group	Pre-Test	Strategi Mengajar	Post-Test
Group1 (n = 33)	O_1	X_1 (multimedia technology - ICT)	O_2
Group 2 (n = 32)	O_3	X_2 (3 D Media)	O_4
Group3 (n = 31)	O_5	X_3 (Enviroment Media)	O_6

III. RESULT AND DISCUSSION

A. Result

Data on learning outcomes show a difference in mean values on media variations. Environmental media has the highest average value (77.0), followed by 3D media with an average rating of 74.5 and the lowest average value on ICT media (70.6). Similarly, interest in learning data shows the difference in mean values on media variations. Environmental media had the highest average score (73.9), followed by 3D media with an average value of 67.2 and the lowest average value on ICT media (63.9).

TABLE II. DESCRIPTIVE STATISTICS

	Variasi media	Mean	Std. Deviation	N
Learning Outcomes	Media ICT	70.6667	8.80223	33
	Media 3D	74.4688	7.27339	32
	Media Enviroment	77.0000	11.61895	31
	Total	73.9792	9.63653	96

Interest	Media ICT	63.9091	11.33679	33
	Media 3D	67.1563	7.94785	32
	Media Enviroment	73.2581	11.03319	31
	Total	68.0104	10.83609	96

Based on the test table of Between-Subjects Effect describes model testing univariat. Visible p value for the category of media variations of both ICT media, 3D media and environmental media of 0,028 (<0,05), this means there is a significant difference between the average learning interest and learning outcomes among the three media.

TABLE III. TESTS OF BETWEEN-SUBJECTS EFFECTS

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	Learning_Outcomes	652.656 ^a	2	326.328	3.715	.028	.074
	Interest	1432.108 ^b	2	716.054	6.849	.002	.128
Intercept	Learning_Outcomes	525994.750	1	525994.750	5987.967	.000	.985
	Interest	445022.565	1	445022.565	4256.670	.000	.979
Variasi media	Learning_Outcomes	652.656	2	326.328	3.715	.028	.074
	Interest	1432.108	2	716.054	6.849	.002	.128
Error	Learning_Outcomes	8169.302	93	87.842			
	Interest	9722.882	93	104.547			
Total	Learning_Outcomes	534222.000	96				
	Interest	455195.000	96				
Corrected Total	Learning_Outcomes	8821.958	95				
	Interest	11154.990	95				

a. R Squared = .074 (Adjusted R Squared = .054)
b. R Squared = .128 (Adjusted R Squared = .110)

B. Discussion

Results from this study suggest that the use of media and employment of explicit approach in instructions had invariably enhanced students' writing performance to a great extent. The results of hypothesis testing showed that there are significant differences in learning outcomes between student groups using ICT media, 3D media and environmental media. Learning outcomes on environmental media is greater than the 3D media and ICT media. application of media variations in learning has improved the learning outcomes of most students. findings of research results [16], showed that the use of media in instructions had invariably enhanced students' performance to a great extent.

The result of hypothesis testing shows that there is significant difference of learning interest between student groups using ICT media, 3D media and environmental media. Interest in learning on environmental media is greater than the 3D media and ICT media.

Results of learning environmental media > 3D media > ICT media. Similarly, interest in learning environmental media > 3D media > ICT media. Thus there is a close relationship between interest in learning and learning outcomes by using

media variations. The greater the interest of media use, the greater the learning outcomes.

Interest great effect on learning, because if the learning media learned does not match the interests of students, then students do not learn as well as possible. Conversely, the learning media that attracts the attention of students, will be more easily understood and remembered for the interest to increase the desire to learn.

Interest becomes a strong source of motivation to learn and becomes the cause of student participation and activeness in learning activities. Without learning interest in students, it will result in less optimal results in the learning process. Students who have an interest in a particular subject tend to give greater attention to the subject. To increase students' interest in learning, teachers have an important role to play. Teachers must be creative in creating media delivery of materials because the way teachers teach can affect the high or low interest in student learning.

The design of the physical environment in accordance with the role of educational principles is one of the means that can be used to transform the educational idea into reality [17]. Environmental media has the highest interest value. Student. Students with high learning interest have a feeling of fun in learning, have great attention, interest and high involvement in every learning activity [18].

Environmental media gained the greatest interest and learning outcomes because this medium is concrete. This is in accordance with the experience of Edgard Dale [19] that the results of a person's learning is obtained through direct experience (concreteness), the reality that exist in one's life environment then through artificial objects, to the verbal (abstract) symbol. The more the top of the cone the more abstract the messenger medium. The learning interaction process does not have to be from direct experience, but begins with the type of experience that best fits the needs and abilities of the group of students encountered by considering the learning situation. Direct experience in the environment will provide information and ideas contained in the experience, because it involves the sense of sight, hearing, smell, and touch.

Environmental media can facilitate the learning and understanding of abstract concepts since students can notice graphically displayed changes of concrete experience [20]. The material in geography learning requires the availability of learning resources in the form of media that can describe the process of dynamics and changes in the natural environment. Environmental media is very appropriate when applied in the

learning of physical geography. This is stated [21], that geography is a study of geosphere symptoms on the surface of the earth, so that the real environment is a phenomenon that can be used as sources and learning media in the teaching of geography.

Environmental media is a very important factor in the recent smart education environment to promote their learning constantly through motivation and interest improvement. Geography learning through environmental media can develop students' intellectual ability, increase curiosity, strengthen the power to observe the natural environment, train memory and image of life with their environment, and can practice problem solving skills in daily life [15].

The process of learning with the media environment, has a very important meaning to improve student learning interest, because such learning process can provide direct experience to students. This direct experience allows the lesson to be more concrete so that the learning process becomes more meaningful. Through experience in the immediate environment students can avoid certain material misperceptions. For example, to improve students' understanding of the various forms of land that can not be brought in class, to achieve such learning objectives will be more meaningful when teachers design direct learning by exposing students to the real environment.

In geography learning, geosphere phenomena and natural processes are real situations that can not always be provided by teachers both in the classroom and in the environment. For that we need a variety of learning media that can be brought into the classroom to provide a picture or sample of real situations or examples of artificial situations in a representative dish.

IV. CONCLUSION

There are significant differences between groups using environmental media, 3D media and ICT media on interest and learning outcomes. The highest interest and learning outcomes are in groups using environmental media, followed by 3 D media and ICT media. There is a close relationship between interest in media usage and learning outcomes. The greater the interest in media use, the greater the learning outcomes achieved by students.

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