

Development of Geography E-Learning Media Based Adobe Flash to Improve Students' Learning Outcome of 10th Grade in Senior High School 1 Sragen

1stUlfah Khairani Ramadha

*Geography Educational Study
Program
Sebelas Maret University
Surakarta,Indonesia
ulfahkhairani8@gmail.com*

2nd Chatarina Muryani

*Geography Educational Study
Program
Sebelas Maret University
Surakarta,Indonesia
muryanichatarina@gmail.com*

3rd Setya Nugraha

*Geography Educational Study
Program
Sebelas Maret University
Surakarta,Indonesia
setya.nug@gmail.com*

Abstract—Learning media is a supporting tool in teaching and learning processes. The media that use in the teaching and learning process must be suitable to the student's need and the school environment. This research aims to find out (1) the student's need of geography e-learning media (2) the development of geography e-learning media based Adobe Flash (3) the effectiveness of the geography e-learning media to improve learning outcomes. The development of learning media based on Dick and Carrey's model. The effectiveness using e-learning media to improve student's outcomes was analyzed using T test. The result of this research are: (1) 58.3% of students agree to use geography e-learning media in the teaching and learning processes (2) geography e-learning media is eligible to be used in the learning process because it obtained 4 module score (likert scale) (3) geography e-learning media effectively to improve student's cognitive learning outcomes

Keywords— *Geography E-Learning Media, Adobe Flash, Cognitive learning Outcomes*

I. INTRODUCTION

This In executing process and reaching the goal of learning, it needs learning strategy. Learning strategy is an illustration of material component and procedure or the ways used to ease students in learning. Strategy explains general components of material and procedure that will be combined with material in purposing for the result of the study(Dick and carey 2005 : 3). In choosing suitable strategy and method of learning, it becomes supporting factors in successful teaching learning process. The most important thing in choosing strategy is determined by appropriate media which is suitable with teaching material, and it is also suitable with standardized content and competency in 2013 curriculum. [4]

Media of learning is a technology that brings message used for learning needs. It is physical tool in delivering lesson. It is the way for communication in printed as well as hearing and sight included hardware technology. (Rusman, 2013 : 160). In developing

media of learning, there is one thing should be paid attention for teaching learning process, that is suitability, worthiness and effectiveness of media that appropriate with student's need.[16]

Nowadays, there are many media of learning used to support teaching learning process, but it is inappropriate toward student's need and school stuff. As we know that an effective media of learning at certain school is not merely suitable with other schools. Therefore, a good media of learning for teaching learning process should be suitable with student's need and school stuff, so that developer should execute need analysis. Then, it should be examined its worthiness to make sure that media is appropriate for students. Media of learning should contain lessons that are suitable with lately curriculum; otherwise it is developed based on certain criteria. Then, suitability is also important to be examined to make sure that it is suitable for learner. It should be examined to improve the result of learning (Dick and Carry, 2005 : 6). As we know that media of learning may make students active or inactive to enhance cognitive competence of students. So, it needs to be examined that it can support both process and result aspect of learning.[4]

SMA N 1 Sragen is one of high school in Sragen regency in applying 2013 curriculum. In executing the curriculum, the school also has some problem, such as; there is no innovative learning, appropriate strategy and good material that is easy to be accessed by students and teachers. It is big problem in teaching learning process. SMA N 1 Sragen has sufficient computer and internet facility. It can be accessed everywhere. The ability of students and teachers are competent in operating those media. But, SMA N 1 Sragen has not applied e-learning for Geography yet. In addition, the learning process is also teacher-centered there.

In Geography lesson, the characteristics of the lesson at Standard Competency on topic Lithosphere Dynamics and its Effect toward Life need the real

examples such as photos and videos. Related with the background of the school, so it is needed development of *adobe flash* for Geography e-learning. *adobe flash* is applications that can be used for developing media of learning, because it can construct file from big size to be minimum size. In addition, e-learning based *adobe flash* can be accessed by many computers with limited access of internet speed.

Moreover, e-learning Geography can help accessing and revising chance of learning towards all students. In addition, it can strengthen and deepen the comprehension of science, enlarge experience, enrich variety of science subject and fix effectiveness of learning process. In developing e-learning, it can make two orientation of learning based on 2013 curriculum, they are student-centered learning and teacher role as facilitator.(Permendikbud No 22, 2016) [11]

If students use e-learning outside of classroom activities in learning, it can help as supplementary and independent learning material. Students should be active to search more information about the topics discussed in the classroom. Then, teacher is a facilitator. Teachers give directions and supervise students in learning and collecting information. They also should check and revise whether the information is suitable or not. So, students can accept the information correctly.

II. METHODS

This research uses development model designed by Dick and Carrey that is reduced from ten steps to be five steps. Five steps in this research represent ten steps of research in prior. There are holds of discussion of the research, such as analysis, plan, development, expert validation, and test of product.[4]

Product enhancement and validation are held in School of Teacher Training and Education, Sebelas Maret University (November-december 2017) based on the result of analysis at SMA N 1 Sragen (October 2017). Measurement used in this research is learning result of students. Test of product use questionnaire. In this research, questionnaire uses *likert* scale which consist five alternative answers, such as score 1, 2, 3, 4, and 5. Score integrity for alternative answers is on table I.[8]

TABLE I. CRITERIA OF ASSESMENT QUESTIONNAIRE LIKERT SCALE

| Score and category | |
|--------------------|-------|
| Category | Score |
| Very Good | 5 |
| Good | 4 |
| Sufficient | 3 |
| Insufficient | 2 |
| Very Insufficient | 1 |

^a. Source : Mogy in Harvey (1998 : 21)

The purpose of test product is to know the effectiveness of e-learning Geography to enhance the learning result which is executed at SMA N 1 Sragen (January 18th – February 8th). There are seventy

subjects in this research, that are thirty six students of 10th grade Social 1 class as experiment class and thirty six of 10th grade Social 2 as controlling class that uses Power Point as usual for learning. Effective experiment of learning media by using e-learning Geography based *adobe flash* uses pre test and post test, the result is analyzed by using Sample T test in validity 0.05.

III. RESULT

A. Student's Needs to Use E-learning Geography, planning and development.

1) Needs of Students on Learning Media.

The student's attachment to the learning media obtained from the result of questionnaire assessment and obtained the following results: From the analysis of learning styles of students 42% of all the number of students has a visual learning style. Based on the results of the questionnaire assessment, 72% of the students are able to operate the computer and the internet so it can be concluded that students are able to operate the resulting media later as a support to be used.

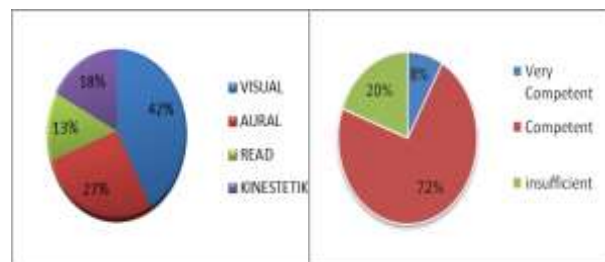


Fig. 1. Analysis Result of Learning Style of Students

Fig. 2. Analysis Result of Students' Experience Using Media

2) Product planning and development

Learning media designed tailored to the characteristics of learning materials dynamics lithosphere. E-learning learning media is created using *Adobe flash* applications, is an interactive learning media that was prepared with the help of computer technology. The uniqueness and advantages of this flash are able to create animations and interactivity that is very attractive for the user in using the *adobe flash* designed program to create the various application such as picture, animation, game, web, video, and so forth. Due to the parameters measured in using e-learning learning media is the result of learning then the e-learning media loaded exercise a useful question as an arena of training for students to measure their abilities before facing the actual test post-test



Fig. 3. Example of picture provided in the media



Fig. 4. Example of text provided in the media



Fig. 5. Example of quiz provided in the media



Fig. 6. Example of video provided in media

B. Media Feasibility of E-learning Geography Based on Adobe Flash on Student Learning Outcomes.

The feasibility of learning media of adobe flash based e-learning geography is obtained from

validation result by expert and educator as well as product test to the students. The following assessment results from each validator:

TABLE II. TABLE II MODUS SCORE FOR EACH VALIDATOR

| Validation Step and Experiment | Score of Modus |
|--------------------------------|----------------|
| Validation of the Expert | 5 |
| Validation of the Media Expert | 4 |
| Validation of Educator | 4 |
| Individual Product Experiment | 4 |
| Small Group Product Experiment | 4 |
| Field Product Experiment | 4 |

^b Source : Primer Data R & D 2017

It shows that the learning media of adobe flash based geography based on the learning achievement of the students is feasible to be tested/used in school learning because based on the product assessment, the score has met the minimum requirement of the learning media based on the adobe flash e-learning learning has been determined by the researcher that is score mode 3 (enough category in Likert scale).[8]

C. Effectivity E-learning Geography Based Adobe Flash on Student Learning Results.

After the validity of the learning media produced and obtained the result that the learning media worthy of use in the learning then conducted experiments about the effectivity of learning media e-learning geography based adobe flash on learning outcomes of learners. The effectiveness of e-learning based on adobe flash geography conducted quasi-experimental research approach.

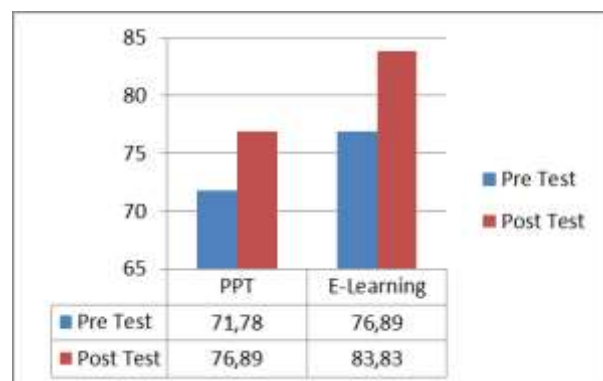


Fig. 7. The comparison Between Mean of Pretest and Post-test of the Class Which Use Power Point Media and E-Learning Geography as Learning Media

From the research data, it is known that the average score of students during pre-test is 71.7 and the value of students at post-test is 76.8. From the data, it can be seen that there is an increase in learning outcomes of students for 5.11, using learning media e-learning based adobe flash geography the average value of students at pretest is 72.7 and the value of students at post-test is 83.8. From the data, it can be seen that there is an increase in student learning outcomes of 11.06. Learning media e-learning geography is said to be effective because the average learning outcomes of students are greater when compared with the average value of students using the powerpoint media.

The effectiveness of adobe flash based e-learning geography learning media to improve learning outcomes for the students is measured using independent sample T-test against pretest and post-test

TABLE III. ANALYSIS OF VARIANCE (ONE-WAY ANOVA) STUDENT

| Result | | | | Information | | Decision |
|-------------------------|----------|-------------------------|----------|---------------------------|--------|-----------------------|
| <i>T</i> _{tab} | <i>N</i> | <i>T</i> _{obs} | <i>α</i> | <i>T</i> _{obs} > | 2.31 > | <i>H</i> ₀ |
| 2.03 | 35 | 2.31 | 5% | <i>T</i> _{tab} | 2.03 | accepted |

So the value of *t* arithmetic is greater than *T* table, it shows that the initial hypothesis is accepted that the use of adobe flash based e-learning instructional e-learning media is more effectively used in geography learning on lithosphere dynamics material and its impact on life compared with media power point with significant difference. Classes that use e-learning geography as learning media on lithosphere dynamics materials have a higher average value and the number of students who have value above the KKM (Minimal Criterion) is also more when compared with the class that uses the power point media.

IV. DISCUSSION

So, it can be concluded that in making products, researchers have created learning in accordance with the principle of e-learning media which is an effective teaching and learning process supported by technological advances utilizing the Internet as a medium in delivering learning materials to be delivered, so that the learning process more dynamic, interesting, fun and learning materials can be accessed by anyone, anywhere without being limited by space and time. E-learning is closely related to the use of computers in the learning process.

Media has different characteristics, therefore in utilizing the media that will be used to support the process of delivering information in this case the subject matter of geography on Standart Competency lithosphere dynamics and its impact on life really pay attention from the character of the media so that the media chosen is media in accordance with the conditions and needs so that when used in learning can improve student learning outcomes.

The use of learning media e-learning geography in learning in order to improve learning outcomes of these students has the advantage of increasing the level of interaction of students with different teachers with conventional learning, because the learning that is conventional, the opportunities that exist or provided lecturers/ teachers/instructors for discussion or questioning are very limited. In addition to the e-learning, media learning can be done anywhere without limitations of space and time, students can learn the learning materials not only when face to face in the classroom but e-learning learning media can also be used when learning takes place at home.

The effectiveness of adobe flash based e-learning geography learning media to improve learning outcomes for the students is measured using independent sample T-test against pretest and post-test. Independent sample T-test is done to know whether there is the difference of learning result between classes that are treated using powerpoint media with adobe flash based e-learning learning media so that it can be known the effectivity of the two media which media is more effective in improving participant learning result educate. Independent sample T-test conducted using 5% confidence level obtained the result that the use of learning media e-learning based on adobe flash geography more effective to use in learning material geography dynamics lithosphere and its impact on life compared with medium powerpoint with the significant difference.

V. CONCLUSION

- Based on the elucidation above, several conclusions could be drawn as follows:
- Based on need analysis, it shows that 42% students have visual learning style, and it can be a reference in developing media. Therefore, 72% students are competent in using internet and computer as supporting media in applying available learning media. So, e-learning Geography based adobe flash required by student SMA N 1 Sragen.
- Moreover, e-learning Geography based adobe flash is worthy and appropriate as learning media in Geography lesson based on the result of expert examination/validity. Then, the product test shows 4 modus score (likert scale). hich is that score 4 is good category in likert scale.
- In addition, it is evident that applying e-learning Geography based adobe flash is effective to enhance student's cognitive learning outcomes, because there is significant improvement. The data point that e-learning Geography is more effective in teaching learning process rather than power point media. It can be seen based on the result of T test that has been done. However, student learning result using e-learning better than power point media.

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