MEDIA APPLICATION OF FLASH BASED ANIMATION ON EVALUATION COURSE

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MEDIA APPLICATION OF FLASH BASED ANIMATION ON EVALUATION COURSE

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Abstract

This research is an application of animation media that has been developed previously. The purpose of this study is to look at the effect of flash-based animation media that has been developed on improving learning outcomes in Chemistry Learning Outcomes Evaluation courses, and see the percent increase in student learning outcomes
As a sample, the 2016 students consisted of 2 classes as an experimental class and a control class in the chemistry department at Unimed. After a normality test and a homogeneity test, the hypothesis is tested using a t test, and an increase in learning outcomes using a normalized gain test. From the results of the study obtained average pre-test learning outcomes in the experimental group and in the control group of 31.6 and 33.5. While the average post-test learning outcomes in the experimental group (79.5) and in the control group (75.0). From the average value, it can be seen that students who are taught by using the animation media developed by FLAS, have a higher average value compared to students who are taught without using media. While the gain of an increase in student learning outcomes in the experimental class by 70.6% and an increase in the increase in student learning outcomes in the control class by 63.4%. So it was concluded that flash-based animation media is good to be used in learning the Chemistry Learning Outcomes Evaluation course.

Keywords: Application; Animation Media; Macromedia Flash.

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1. Introduction

Learning media is a learning device that can support the learning process going well. Kurniawati (2013) writes that the media can open insight into student thinking so that they can learn various concepts and ways to relate them in real life. One of the most widely used media lately is computer-based media. Computer assistance to understand abstract concepts cannot be avoided (Gudyanga & Tawanda, 2014). Masykur, et al., (2017), said that the use of macromedia flash as a learning medium is very beneficial for educators and students. This media can also stimulate student

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stimulus to manipulate concepts and be able to know the real form of abstract concepts, while Ultay (2015) examines media use and concludes that the animation media used can successfully integrate the cognitive domain and psychomotor domains because it has the power to integrate the ability visual, auditory and kinesthetic learning. In connection with that Retnani, et al (2014) said that the use of Macromedia Flash combines 2 human senses, namely audio (sense of hearing) and Visual (sense of sight). The use of some of these senses will cause students to be fixated on the media that contains the material being studied, so students are motivated and focused on studying the material.

Evaluation courses in chemistry education majors are full of concepts, from simple concepts to more complex concepts. This course also requires memorization and understanding of concepts that are quite high because students will begin to learn by making, analyzing and testing how to make instruments that are good and right. Students are not only required to just memorize but also demanded students to understand the material in depth. For instance, understanding of test instruments, non-validity tests, reliability, distracters, index discrimination and so on that tend to be abstract.

Thus, the problems in this study can be formulated into: (1) Is there an effect of using macromedia flash-based animation media on student learning outcomes in the Chemistry Study Evaluation and Evaluation course? (2) What is the percentage increase in learning outcomes of courses Evaluation of students who are taught using flash-based animation media and who do not use flash animation media.

2. Material and Method

Macromedia Flash Based Animation Media

Learning media are all things that can be used to channel messages (learning materials), so they can stimulate the attention, interests, thoughts, and feelings of the learner in learning activities to achieve certain learning goals. Arsyad (2014), concluded that the media can clarify the presentation of information so as to increase student interest and learning outcomes, the media can also attract student attention so as to increase learning motivation, interactions between students with their environment, and invite students to study on their own accordingly his interest, the media can also overcome the limitations of space and time.

The media used in this study is Macromedia Flash. Macromedia flash is a program used to create interactive multimedia animations and dynamic websites. With Macromedia Flash can help learning with simulation methods. The simulation method is one of the learning strategies that aim to provide a more concrete learning experience through the creation of imitation forms of experience that approach the real atmosphere. In addition, the use of methods using information and communication technology is more profitable and effective (Mawarni, et al, 2015).

The advantage of Macromedia Flash is being able to produce more dynamic animations, videos and images. The graphics generated through this software have a vector base, so that the animation produced will look smoother and faster when accessed via the internet. Macromedia Flash can be used to create games, presentations, and cartoon animations. With creativity and high imagination,

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this software will be able to produce an interactive and fantastic learning media (Sanubari, et al, 2014).

Course of Evaluation Chemistry Learning Outcomes

Based on a short description of the Chemistry Learning Process and Learning Evaluation course, the discussion of this course covers the concepts of planning and implementing learning processes and learning outcomes in the field of chemistry studies, concepts and implementation of measurement, assessment and evaluation, types of measuring instruments in the teaching learning process and outcomes , test and non-test, determine the validity and reliability of the instrument, test item analysis, process the measurement data to determine the evaluation results, and make a report. From this brief description, it can be seen that the Process Evaluation and Learning Outcomes course contains the basic concepts of evaluation and measurement that can be used to solve problems related to daily life and their applications in learning.

Research Methodology

To see the presence or absence of the influence of flash-based animation media on the Evaluation course, a one-party t test was used. While an increase in student learning outcomes taught is analyze by using flash-based media can be seen by using the gain (achievement) as follows:

$$g = \frac{\text{post-test score - Pre-test score}}{\text{maximum score – pre-test}}$$

With criteria g (normalized gain):
$g < 0,3$ = low; $0,3 \leq g \leq 0,7$ = medium ; $g > 0,7$ = high
The magnitude of the influence of computer-based media can be calculated by the formula:

$$g = \frac{\text{Experiment gain – control gain}}{\text{Experiment gain x 100\%}}$$

While the Percent (%) increase in learning outcomes is calculated by the formula g factor (normalized score gain). The formula used is:

$$g = \frac{\text{Sum of total gain}}{\text{Sum of total student x 100\%}}$$

If value of g:

< 50% : Animation media is not effective to improve learning outcomes.
50% – 70 : Animation media is effective to improve learning outcomes.
> 70% : Animation media is very effective to improve learning outcomes.

3. Result and Discussion

Learning Outcomes Data

Before the sample is given a different treatment, first an initial test is given to determine the initial abilities of each student in both classes. Furthermore, different learning is carried out as an

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experimental class and a control class, and at the end of the learning process will be given a final test to determine student learning outcomes. Based on the results of the study after the calculation is obtained the average pretest, posttest, standard deviation and increase in learning outcomes as in table 3.1

Table 3.1: Average Student Learning Outcomes

Control Class			Experiment Class		
Pretes	**Postes**	**Gain**	**Pretes**	**Postes**	**Gain**
$\overline{X}$	$\overline{X}$	$\overline{X}$	$\overline{X}$	$\overline{X}$	$\overline{X}$
33,5	75	0,634	31,6	79,5	0,706

Test Data Analysis Requirements

There are two conditions that must be met so that the hypothesis test can be done, namely the test for normality and homogeneity. The normality test uses the SPSS test for windows. Test data that the pretest-posttest and gain of both classes are normally distributed at a significant level ($\alpha = 0.05$) and $n = 27$.

Table 3.2: Result of Normality Test in Class Experiment

Test	N	Mean	SD	Significant	Conclusion
Pretest	21	31,667	10,7335	0,196	Normal
Posttest	21	79,524	7,1423	0,747	Normal
N-Gain	21	0,7060	0,09673	0,880	Normal

Table 3.3: Result of Normality Test in Control Class

Test	N	Mean	SD	Significant	Conclusion
Pretest	25	33.5	6,4952	0,226	Normal
Posttest	25	75	7,0341	0,855	Normal
N-Gain	25	0,6341	0,08837	0,864	Normal

Whereas, the variance homogeneity test between the sample groups compared can be done by testing the similarity of two variances with a significant level of 0.05. Homogeneity variance test results are shown in table 3.4.

Table 3.4: Homogeneity Test Result

Test	Levence Statistic	df1	df2	Significant	Conclusion
Pretest	3,001	1	44	0,090	Homogen
Posttest	0,044	1	44	0,834	Homogen
N-Gain	0,016	1	44	0,900	Homogen

Based on the results of these tests, the value of Fcount <Ftable shows that the data obtained in this study came from a homogeneous population. After testing it can be ascertained that the requirements that must be met by the research data have been met.

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Hypothesis Test Student Learning Outcomes

Hypothesis testing is done by using a one-party test, namely the left-side test with $\alpha = 0.05$. The calculation results obtained are summarized in table 3.5.

Table 3.5: Hypothesis Test Student Learning Outcomes

Data	T_{count}	t_{table}	Remark
Learning Outcomes	0,02111	-2,008	$T_{count} > t_{table}$ Refuse Ho

The hypothesis used in this study is

Ho1: There is no influence of animation media in improving student learning outcomes in the HB Chemistry Evaluation course

Ha1: There is an influence of animation media in improving student learning outcomes in the HB Chemistry Evaluation course

Statistical Hypothesis

Ho : $\mu_1 \leq \mu_2$

Ha : $\mu_1 > \mu_2$

Where:

μ_1 = Using flash-based animation media

μ_2 = With Using flash-based animation media

Increasing of Student Learning Outcomes

To see an increase in student chemistry learning outcomes in the experimental class and the control class seen from the average normalized gain of the experimental class and the control class multiplied by 100%. Data on the improvement of student learning outcomes of the experimental class and the control class in table 3.6.

Table 3.6: Increasing of Student Learning Outcomes between Experiments Class and Control Class

Sample	Average Gain	% Increasing of Learning Outcomes
Experiment Class	0,706	70,6 %
Control Class	0,634	63,4 %

Based on the table above it can be seen that the Improved Student Learning Outcomes of the Experiment class is higher than the Control class, can be illustrated in the following graph:

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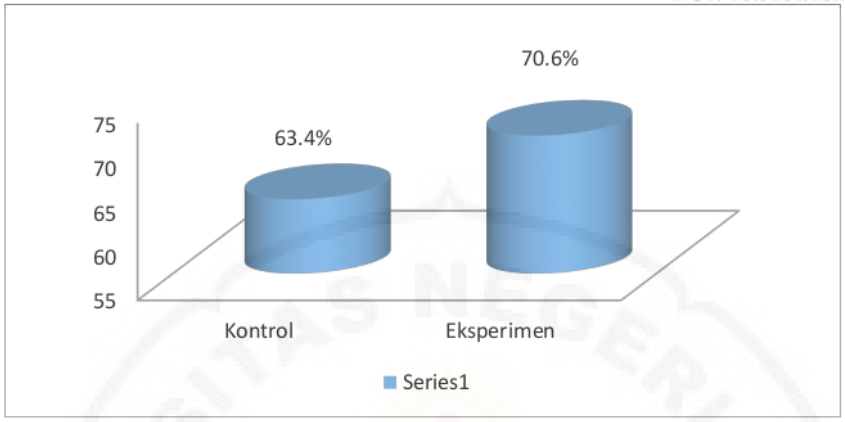

Figure 3.1: Increasing of Learning Outcomes

This further research is an experimental study, testing hypotheses using the t-test formula, while increasing student learning outcomes are carried out with a gain test. The results found t count> t table, then Ho was rejected, while the gain test showed the experimental class 0.706 while the control class obtained an average gain of 0.634. This study concluded that there was an increase in student learning outcomes in the experimental class by 70.6% while in the control class it was only 63.4%. Improved Student Learning Outcomes Experiment class is higher than the control class, meaning that in learning HB Chemistry Evaluation courses better use of computer-based animation media that has been developed. In connection with animation Zeeshan Bhatti1, et al, (2017) said that with the help of animation media, various complex phenomena and theories can be explained and taught easily and comfortably. Whereas Md. Baharul Islam, et al (2014) said that it's time to adjust learning by using multimedia, so they can improve their learning abilities, and memorization skills, so as to create a high-quality learning environment.

Discussion of Research Result

The results of the processing of learning research data obtained an average of pre-test learning outcomes of HB Chemistry student evaluation courses in the experimental group and in the control group of 31.6 and 33.5. After the implementation of learning using animation media that has been developed in the experimental class and without using animation media in the control class, it is obtained the average post-test learning outcomes of the subject evaluation of HB chemistry students in the experimental group 79.5 and in the control group 75. From the average value The average can be seen that students who are taught by using animation media that have been developed have a higher average value than students who are taught without using animation media that has been developed. The difference in student learning outcomes is shown by the average learning outcomes between the two classes in the study. The results of t count of 0.02111> t table of -2.008, then Ho is rejected. Increased student learning outcomes in the experimental class by 70.6% and an increase in student learning outcomes in the control class by 63.4%.

This research is related to the research of Zeeshan Bhatti, et al (2017) who found that with the help of multimedia, various complex phenomena and theories can be explained and taught easily and well. Furthermore, it is also said that the use of multi media is important in education.

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M.Sangin, et al (2008) also found that learning scores using animation media were higher than those without animation. But the findings contradict the previous findings, found by Schnotz W, et al (1999) that there are adverse animation effects in collaborative learning, although true, animation gives good results as an external representation of dynamic collaborative learning but only under certain conditions. Furthermore, it is also said that animation reduces the amount of verbalization associated with learning material and enhances verbalization about animated shows. Side effects, this can damage the social process that can inhibit social interaction between students. Research Ratna Kumala, et al (2018) found that flash animation can improve learning outcomes, where the learning outcomes of classes using flash animation are higher than without using flash, with a contribution of 64%. While the results of research Juminah, et al (2019) show that further learning motivation increases with the help of Adobe Flash media, where the average motivation is 94.25 (SD = 6.29), then increases after being given information services with Adobe Flash to 294.25 (SD = 9.57). The t-test results showed that Adobe Flash assistance was effective in increasing motivation to learn high school students (t (7) = 51,396, p <0.01). The results of Luluk Alawiyah's research (2014) found that using Flash media in learning English gave more attention to the learning process. This study also concluded that there were significant differences before and after using flash media in teaching, teachers and students gave positive responses, so flash media was very effective in the learning process.

4. Conclusion and Recommendation

1) There is an influence of flash-based animation media that has been developed to improve learning outcomes of Chemistry EPHB courses, where the learning outcomes of EPHB Chemistry courses of students taught by using flash-based animation media that have been developed are better than student learning outcomes taught without using animation media undeveloped
2) Percent increase in learning outcomes of EPHB Chemistry courses for students taught using flash-based animation media which has been developed by 70.6% while increasing student learning outcomes taught without using animation media that have been developed by 63.4%.
3) The development of flash-based animation media on the learning of Chemistry Process Evaluation Process and Learning Outcomes can improve student learning outcomes better.
4) It is expected that the Evaluation team lecturers use flash-based animation media in Evaluation and HB Chemistry lectures.

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