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EFFECTIVENESS OF CAMTASIA MEDIA ON THE CHEMISTRY LEARNING OUTCOMES AND THE STUDENTS CREATIVITY IN THE LEARNING OF SALT HYDROLYSIS

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ABSTRACT

Chemistry is an abstract subject. It requires an effective learning media to help students to understand the subject. Camtasia, a unique learning media, is an option for this purpose. This study aimed to compare the learning outcome and creativity of the students group taught with Camtasia based media and students group taught without media in learning the salt hydrolysis. The results showed the significant difference in students learning outcome and creativity between the two groups. The learning outcome and creativity of students taught with Camtasia based media ($85,20 \pm 6,103$ and $81,98 \pm 7,106$) were significantly higher compare to the learning outcome and creativity of students taught with conventional method ($78,60 \pm 5,222$ and $78,88 \pm 5,761$).

Kata Kunci: Camtasia based media, learning outcome, creativity, salt hydrolysis.

INTRODUCTION

Chemistry is one subject that are loaded with concept, ranging from simple concepts to more complex concepts and abstract, to learn it is indispensable the correct understanding of the basic concepts that build the concept. One of the purpose of learning or achievement chemical substance of the study is to give provision for students to be able to think, act and work scientifically, to understand chemistry concepts and apply them to everyday life. In order for students to learn and understand the material chemistry concepts more meaningful we need a strategy and appropriate learning media and capable of increasing understanding, skill and creativity of students in solving problems.

One solution that can be used to overcome the lack of understanding and increase student learning outcomes and creativity is to use learning media. The appearance of the media has a significant role in the process of lecture. Because in these activities obscurity material submitted can be aided by appearance the media as a link.

Difficulty matter or materials delivered to students, can be simplified with the help of the media. Even abstractness material or materials may be concretized by the presence of media. Students will be easier to understand the material being taught by lecturers with helping by media.

Because it was a lecturer required to be more creative, imaginative and communicative to create or find a variety of media for students. One element of media that can be applied is a video. Video has many advantages such as: media can make abstract concepts more concrete, can display motion sped up or slowed, and even can also be step by step, so it is more easily observed, to show it in detail a process or an object, and make the presentation more attractive, so that the learning process more fun.

Nowadays many tutorial videos circulating on the Internet that is usually used for a learning software that can be used in the computer world, one of which is by using Camtasia software. Using Camtasia software one can instantly create a video tutorial itself without the



need for tools or other video recording medium. Camtasia software is also equipped with multiple video output formats that can be adapted to our video player wills.

Making video tutorials by using Camtasia software must have been widely known in the world of computers and the Internet. However, its use in education is still not much. Utilization of media with the help of Camtasia previously been done by Nursono and Arifin (2012), which indicates that the medium of learning physics with the help of a decent used Camtasia to media teachers and students learning independently. After testing in small classes also showed interest in students with the learning media. For the results of the evaluation at the end of learning also showed a good value.

Efforts to improve student results to be optimized, requires lecturers to use appropriate learning media in optimizing the lecture, therefore lecturers are required to be able to adapt to the needs of students, including creativity in the possession of students with the development of technology in creating a better learning outcomes and optimal. One of them using or applying Camtasia-based learning media in presenting teaching materials.

Concept Learning

Psychologically, learning is a process of change is a change in behavior as a result of interaction with the environment in meeting their needs (Slameto, 2010). The new paradigm in the world of adult education is to create meaningful learning process, understanding learning more emphasis on the notion of learning by the expert or experts constructivism. According to the theory or understanding of constructivism in Sardiman (2009), learning is defined as an active process of students to reconstruct meaning, something whether it be text, dialogue, physical experience and others.

Furthermore, according to experts in the constructivist Personal (2009), defines learn the meaning of the event or experience that is experienced by the individual. Learning event will take place more effectively if students in direct contact with the object being studied and there in the neighborhood. Education should be seen as an ongoing process of reconstruction experience is continuous.

Students construct new knowledge through events experienced at any time. Giving meaning to the knowledge acquired through the accumulation of meaning to events experienced. While in Trianto (2011), experts constructivists assume that the only tool available for someone to know something is senses. Someone interact with objects and environment to see, hear, smell, touch, and taste. It appeared that the more knowledge refers to one's experience of the world than the world itself.

Learning Achievement

Learning is a process that is characterized by a change in a person. Changes as a result of the learning process can be demonstrated in a variety of forms such as changing knowledge, understanding, attitudes and behaviors, skills, skills and abilities, reaction power, the power uptake, and other aspects of your individual (Sudjana, 2009). Nasution (2009), explains that the main purpose of learning is to learn what it was useful later on, which helps a person to be able to learn continuously with an easier way. Dick and Reiser was quoted as saying by Nasution (2009), says that the learning outcomes are the abilities of the students as a learning activity.

According Sudjana (2009), learning outcomes are the abilities of the students after receiving their learning experience. While Reigeluth Keller was quoted as saying in Uno (2009), states that the learning outcomes are all the effects that can be used as an indicator of the value of the use of a method under different conditions. This effect can be deliberately



designed effect, because it is the result of learning is the desired effect and can also be tangible effects as a result of the use of certain teaching methods. Further according Sardiman (2009), characteristic of meaningful learning outcomes are durable, genuine and authentic. Learning outcomes achieved should always bring knowledge and understanding reactions or answers that can be understood and accepted by the mind.

Learning Kreativity

Creativity is one of the key skills that play an important role in human life and is the result of the interaction between the individual and the environment. Creativity is defined differently by experts based on their respective viewpoints. The difference this perspective generates a variety of definitions of creativity with a different emphasis.

According Munandar (2009), creativity is the ability to create new combinations based on data or information based on the data or information provided, find many possible solutions to a problem that the emphasis is on quality, efficiency and diversity of answers that reflect the fluency, flexibility and originality in thinking and the ability to elaborate an idea. Philip (2008), explains that creativity is a process that produces something new, whether an idea or an object in a form or a new arrangement.

In the world of education, Torrance defines creativity as the process of understanding the difficulties, problems, gaps in information, the elements are separated, and incompatibility; formulate the problem clearly; suspect or formulate hypotheses about the deficiencies, examine the allegations and possibly fix it and test it or reformulate the problem; and finally communicating the results (Nurlaelah, 2009). Torrance, argued that creative thinking as a process that involves elements of originality, fluency, flexibility and elaboration (Filsaime, 2008). These four characteristics of creative thinking, fluency, flexibility, originality and elaboration gives an overview of the process of creative thinking that will help a person to create creative ideas and resolve certain problems in the process of life.

Camtasia based Media

The term comes from the Latin media is the plural of "medium" which means Harfia intermediary or introduction. General meaning is anything that can distribute information from the information source to the receiver of information. The learning process is also essentially a process of communication, so that the media used in learning called learning media.

A good media can enhance creativity, analytical thinking skills, solve complex problems and solve real problems in nature (Akca, 2009). Along predictably rapid development of science and technology, especially in the field of electronics, telecommunications and information, as well as computer technology, one of the media that can be used in the lecture is based instructional media Camtasia.

Camtasia Studio is a software (software) developed by TechSmith Corporation specialized field of multimedia. This software can be used to create multimedia-based learning media and elearning. Camtasia Studio is a packaged application program for recording, editing, and publishing in making a video presentation on the screen of the computer. Camtasia Studio is software to capture the screen display, with additional audio and video, can also be used to record the results of a Power Point presentation into a video format.

Camtasia Studio can assist and train teachers or lecturers in communicating and interacting with the audience. Camtasia Studio has the ability to record sounds that exist in layers including desktop activities, PowerPoint presentations, voice narration, and webcam video (Aripin, 2009). Camtasia Studio is a complete solution for creating video profesional



and PC desktop activity quickly. Anyone can record and create a full-motion video lessons or presentations with certainty, and publish it in the format of their choice (TechSmit, 2005).

RESEARCH METHODOLOGY

The study was conducted at the Department of Chemistry, Department of Chemistry Education, Faculty of Mathematics and Natural Sciences, State University of Medan. The study sample consisted of two groups: the experimental group was taught by camtasia based learning media and the control group was taught without learning media. Samples were selected purposively and performed cluster random sampling.

This research was quasi-experimental. The method used in this research is the method of experimental design pretest-posttest control group design. The instrument used is the achievement test on the material salt hydrolysis and verbal creativity test. The test results of study first tested to determine the validity, reliability, level of difficulty and different power test questions. While verbal creativity test has been tested extensively by Munandar 1977 and has been declared valid and reliable.

Data analysis techniques used in this study is in the form of descriptive analysis techniques and inferential analysis. Descriptive analysis techniques intended to describe the research data include the mean, median, mode, variance and standard deviation. Statistical analysis of inference was performed to test the hypothesis. Data analysis was done with the help of SPSS 20 program. Prior to hypothesis testing, prerequisite data was first tested using normality test using One Sample Kolmogorov-Smirnov Test (Z) and homogeneity of data using Levene's Test. Hypothesis testing by using Independent Sample T Test technique.

RESEARCH RESULT

Description Data Student Learning Results

Student learning outcomes in both experimental and control classes on salt hydrolysis materials are described in Table 1 below.

Table 1. Description Data Student Learning Results

	CLASS MEDIA CAMTASIA	CLASS WITHOUT MEDIA
N	40	40
Mean	85.20	78.60
Median	85.00	80.00
Mode	88	80
Std. Deviation	6.103	5.222
Variance	37.241	27.272
Minimum	70	68
Maximum	98	90
Sum	3408	3144

Table 1 above, it can be explained that the average learning outcomes of experimental class students taught by Camtasia-based learning media of 85.20 with standard deviation of 6.103. Student learning result of control class which taught without using media obtained mean equal to 78,60 with standard deviation 5,222.



Description Data Creativity Student Learning

Student creativity data on both experimental class and control class on salt hydrolysis material are described in Table 2 below.

Table 2. Description Data Creativity Student Learning

	CLASS MEDIA CAMTASIA	CLASS WITHOUT MEDIA
N	40	40
Mean	81.98	78.88
Median	81.00	78.00
Mode	84	81
Std. Deviation	7.105	5.761
Variance	50.487	33.189
Minimum	69	69
Maximum	97	91
Sum	3279	3155

Table 2 above, it can be explained that the average creativity score of students learning experimental class taught with Camtasia-based learning media of 81.98 with standard deviation of 7.105. Student learning creativity of control class which is taught without using media is obtained on average equal to 78,88 with standard deviation 5,761.

Normality test

Data normality was tested using the One Sample Kolmogorov-Smirnov Test technique. Normality test results, shown in Table 3.

Table 3. Data Normality Test Results

		LEARNING RESULTS		CREATIVITY LEARNING	
		MEDIA CAMTASIA	WITHOUT MEDIA	MEDIA CAMTASIA	WITHOUT MEDIA
N		40	40	40	40
Normal Parameters ^a	Mean	85.20	78.60	81.98	78.88
	Std. Deviation	6.103	5.222	7.105	5.761
Most Extreme Differences	Absolute	.127	.131	.102	.119
	Positive	.091	.119	.088	.109
	Negative	-.127	-.131	-.102	-.119
Kolmogorov-Smirnov Z		.802	.827	.644	.752
Asymp. Sig. (2-tailed)		.541	.502	.802	.624

a. Test distribution is Normal.

Table 3 above, it can be concluded that the data of learning outcomes and student learning creativity both taught by Camtasia-based learning media (experiments) and students taught without learning media (control) has distribution of normal distributed data with probability value or sig. > 0.05.

Homogeneity Test

Testing of data homogeneity was tested by Levene's Test technique. The results of the homogeneity test of the data are summarized in Table 4.



Table 4. Data Homogeneity Test Results

		Levene Statistic	df1	df2	Sig.
Learning Result	Based on Mean	.594	1	78	.443
	Based on Median	.624	1	78	.432
	Based on trimmed mean	.624	1	78	.432
Kreativity	Based on Mean	2.011	1	78	.160
	Based on Median	1.806	1	78	.183
	Based on trimmed mean	2.010	1	78	.160

Table 4 above, it can be explained that the results of testing the homogeneity of data with Levene's Test for based on mean techniques for learning result data (postes) obtained probability value or sig value. of $0.443 > 0.05$ and for learning creativity data obtained sig value. of $0.160 > 0.05$ so it was concluded that both groups of samples came from a homogeneous population.

Hypothesis Test

To know the effect of application of Camtasia based learning media to student learning result and creativity, hypothesis test is done by technique of Independent Sample T-Test. The results of the analysis are summarized in Table 5.

Table 5. Hypothesis Test Results

		t-test for Equality of Means						
		T	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
							Lower	Upper
Learning Result	Equal variances assumed	5.197	78	.000	6.600	1.270	4.072	9.128
	Equal variances not assumed	5.197	76.181	.000	6.600	1.270	4.071	9.129
Kreativity	Equal variances assumed	2.143	78	.035	3.100	1.446	.221	5.979
	Equal variances not assumed	2.143	74.289	.035	3.100	1.446	.221	5.979

Based on the data in Table 5 above, it can be explained that:

1. For data postes or student learning outcomes obtained t value of 5.197 with the value of Sig. $0.000 < 0,05$ so it can be concluded that there is significant influence of application of Camtasia based learning media to student's chemistry learning result on salt hydrolysis study.
2. For student creativity data obtained t value of 2.143 with Sig value. of $0.035 < 0.05$ so it can be concluded that there is a significant effect of the application of Camtasia-based learning media to student learning creativity on salt hydrolysis learning.



DISCUSSION

The result of the research findings after the analysis showed that the students' chemistry learning result which was taught by using Camtasia-based learning media ($85,20 \pm 6,103$) was higher than the student's chemistry learning result which was taught without using media ($78,60 \pm 5,222$). This also shows the influence of the application of Camtasia-based learning media compared to non-media learning of the students' chemical learning outcomes in salt hydrolysis learning. The existence of this influence is also evidenced from the results of the first hypothesis testing where the t-value of 5.197 with the value of Sig. $0.000 < 0,05$ so statistically receive H_a or reject H_o . Thus, it can be concluded that there is a significant effect of the application of Camtasia-based learning media to the students' chemical learning outcomes in salt hydrolysis learning.

The findings of the research after the analysis also showed that students' learning creativity taught by using Camtasia based media ($81,98 \pm 7,106$) was higher than the students' learning creativity taught without using media ($78,88 \pm 5,761$). This also indicates the influence of the application of Camtasia-based learning media than learning without media to the creativity of student learning on salt hydrolysis learning. The existence of this effect is also evidenced from the results of the second hypothesis testing where the t-value of 2.143 with the value of Sig. of $0.035 < 0.05$ so that statistically accept H_a or reject H_o . Thus, it can be concluded that there is a significant effect of the application of Camtasia-based learning media to the creativity of student learning on salt hydrolysis learning.

CONCLUSION

Based on the results of hypothesis analysis and testing, then obtained some conclusions as follows: (1) There is a significant influence on the application of Camtasia-based media to the students' chemical learning outcomes in salt hydrolysis learning. This can be seen from the average of student learning outcomes taught by using Camtasia-based learning media ($85,20 \pm 6,103$) higher than result of chemistry study of student group taught without using media ($78,60 \pm 5,222$), (2) There is a significant influence on the application of Camtasia-based media to students' learning creativity in salt hydrolysis learning. This is seen from the average score of students' learning creativity taught by using Camtasia-based learning media ($81,98 \pm 7,106$) higher than student learning creativity taught without using media ($78,88 \pm 5,761$).

REFERENCES

- [1] Akcay, B. 2009. Problem-Based Learning in Science Education. *J. Sci. Educ*, 6(1):26-36.
- [2] Aripin. 2009. *Step by step membuat video tutorial menggunakan Camtasia Studio*. Bandung: Oase Media.
- [3] Filsaime, D.K. 2008. *Menguak Rahasia Berpikir Kritis dan Kreatif*. Jakarta: Prestasi Pustakaraya.
- [4] Hartono, 2008. *Statistik Untuk Penelitian*. Yogyakarta: Pustaka Pelajar.
- [5] Munandar, U. 2009. *Pengembangan Kreativitas Anak Berbakat*, Jakarta: Rineka Cipta.
- [6] Nasution, S. 2009. *Berbagai Pendekatan dalam Proses Belajar & Mengajar*. Jakarta: Bumi Aksara.
- [7] Nurlaelah, E., 2009, Pengembangan Bahan Ajar Struktur Aljabar yang Berbasis Program Komputer dan Tugas Resitasi Untuk Meningkatkan Kreativitas. http://www.wordpress.com/mind_mapping/mk.ellah/14/.



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- [8] Nursono, H., dan Arifin, A. 2012. Pemanfaatan *Microsoft Excel* Untuk Media Pembelajaran Fisika Pokok Bahasan Gerak dengan Bantuan Camtasia Studio 4. *Jurnal Elektronik*. (2)1:102-127
- [9] Philip, P. 2008. *Kiat Menjadi Orang Kreatif*, Yogyakarta: Maximus
- [10] Pribadi, B.A. 2009. *Model Desain Sistem Pembelajaran*. Jakarta: Dian Rakyat
- [11] Sardiman, A.M. 2009. *Interaksi dan Motivasi Belajar Mengajar*. Jakarta: Rajawali Pers.
- [12] Slameto. 2010. *Belajar dan Faktor-faktor yang Mempengaruhinya*. Jakarta: Rineka Cipta.
- [13] Sudjana. 2006. *Metoda Statistika*. Bandung: Tarsito.
- [14] Sudjana, N. 2009. *Penilaian Hasil Proses Belajar Mengajar*. Remaja Rosdakarya Offset, Bandung.
- [15] TechSmit. 2005. *Camtasia Studio Show The World*. Amerika.
- [16] Trianto. 2011. *Mendesain Model Pembelajaran Inovatif-Progresif: Konsep, Landasan, dan Implementasinya Pada Kurikulum Tingkat Satuan Pendidikan (KTSP)*. Jakarta: Kencana.
- [17] Uno, H.B., 2009. *Model Pembelajaran Menciptakan Proses Belajar Mengajar yang Kreatif dan Efektif*. Jakarta: Bumi Aksara.