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Effect of Use of Handout that is Completed by Map Images of the Concept of Learning Competence Biology of Students in Class VIII, SMPN 31 Padang School Year 2013/2014

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Abstract - Teaching and learning process in SMP 31 Padang is still teacher centered. Instructional media use less variable, and the results of their study are still under minimum completeness criteria. This study aimed to determine the effect to the *handout* that comes with pictorial concept map of learning competencies Biology eighth grade students of SMP Negeri 31 Padang. This study is an experiment with *purposive cluster sampling*. The cognitive test instruments in the form of multiple choice questions. Non test instrument on the affective and psychomotor form of motivation questionnaire, observation sheet activities, and student assignment assessment sheet. Based on the analysis of data on the average cognitive learning outcomes experimental class 87.33 and control class 75.34. In the Uji-t is obtained t- hitung 4.80 and 1.67 t-tabel. In the affective domain of student motivation in the experimental class 89% and control class 83.46%. Activity of students in the first meeting of the experimental class 64.37%, and the second meeting 63.12%. In the first class meeting control 29.50%, and the second meeting 23.93%. In the psychomotor, the average student assignments in the experimental class 63,60 and control class 34,86. Based on the data analysis it can be concluded that the use of a *handout* that comes with pictorial concept maps affect the learning competencies Biology at the second semester of eighth grade students at SMP Negeri 31 Padang.

Keyword - *Teacher Centered, Handouts, Pictorial Concept Maps, and Learning Competencies.*

I. INTRODUCTION

Ideal learning is a process learning that illustrates interactive activities that have educational value. According to Lufri (2007: 1) for the occurrence good deep educational interactions learning needs to be known to various required requirements such as: approaches, methods, conditions, facilities and infrastructure, and recognize developments intellectual, psychological and biological students. Efforts that can be made by the teacher to achieve this one of them by choosing learning media right and in accordance with the material to be taught to students. Based on the results author's observations and interviews with Biology teacher class VIII Mrs Dewi Maryeni, S.Pd. and Mr. Irwan, S.Pd. at SMP Negeri 31 Padang at November 13, 2013 known that Biology learning activities are on Class VIII is still dominated by teachers. Worksheet used by teachers and students the picture is still limited in meaning, for example contained in the material yet all represented, not colored, lacking clear and difficult to understand, apart from that yet equipped with illustrated concept maps. Still lack of motivation, and activity students in learning, as well as learning outcomes Biology students 2012/2013 school year in plant motion material is still below KKM determined is 76.

Material that is considered difficult on the eyes Biology lessons at 31 Padang Public Middle School class VIII semesters II is motion material in plants, in the material students expected to be able to identify various kinds of motion in plants. These problems require teachers to use learning media in accordance with the material and

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objectives expected to be more easily understood by student. Besides using teaching media in the form of student worksheets and textbooks students can also using the media in the form of *handouts* that equipped with illustrated concept maps, *handouts* will make it easier for students follow the learning process because students do not have to take notes when the teacher provide an explanation. In accordance with the the results of research conducted by Renocha (2012) that " *handouts* can be complementary material shortages provided in textbooks as well as those provided in a verbally by the teacher, making it easier students in understanding the subject matter which ultimately improves learning outcomes ". *Handouts* used in learning process using maps pictorial concept. Concept maps are one note technique in understanding subject matter made easier. In accordance with the results of Islamic research (2012) that "illustrated concept maps help students remember more easily and understand the material. This research aims to find out the influence Biology learning media in the form *handouts* that are equipped with concept maps illustrated learning competence Biology students of class VIII State Junior High School 31 Padang 2013/2014 school year.

II. RESEARCH METHODS

This research was conducted at April-May 2014 in class VIII semester II of the 2013/2014 school year at Padang 31 Middle School. This type of research is experimental research with *The Static Group Comparison* method *Design* described by Muri (2005: 229). The research procedure consisted of three part namely the preparation, implementation, and evaluation. Test instrument used in the cognitive realm of choices double with four *options* totaling 38 items the test instrument is a matter of choice double tested on a class different. Order of the test instrument to be a good measuring tool, it is necessary analysis of the questions is done through the validity of the test, difficulty index, difference power, and question reliability (Arikunto, 2009: 70-218). Non-test instruments in the affective domain in the form Motivational questionnaire and observation sheet student learning activities observed through two *observers*. Non test instrument on psychomotor domain in the form of assessment sheets student assignments with five indicators. Technique

Analysis of the data used in the realm cognitive through the test of normality, test Homogeneity and Hypothesis Test with using the two-average test (Sudjana, 2005: 249-250). Data analysis techniques in the affective domain using percentage formulas and criteria stated by Riduwan (2009: 89). In the psychomotor domain, data are obtained through homework done by students in the form of a concept map that is equipped with drawings according to individual creativity student. Analysis of data from observations done by adding up the total score the concept map assignments students get from each indicator. Total score obtained converted to value by formula and the criteria stated by Riduwan (2009: 89).

III. RESULTS AND DISCUSSION

The use of *handouts* that include with a concept map illustrated in class experiments are proven to improve student learning competencies. This increase caused by the selected media in delivering material in accordance with student needs and learning objectives which is expected. Pictorial concept map contained in the grow *handout* the same perception between students one with other students. Students become easy to understand and communicate to the teacher and to other students. *Handout* can complement the lack of material inside textbooks or given orally by the teacher, making it easier for students understands the material and improves results learning (Renocha, 2012). Research result from the three realms of learning can be seen in Table 1.

Student learning competencies in the realm cognitive can be seen based on the results analysis of student answers on the final test. Score- average Biology learning outcomes of students in the class the experiment obtained an average test score end of 87.33, and students in the control class obtained a final test average score of 75.34. Based on the normality test obtained data normally distributed, because L 0 <L second t sample class, and homogeneity test results F arithmetic <F table then the variance of these two classes homogeneous. In the normality test and test homogeneity of data from both samples proven to be normally distributed and have homogeneous variance, then do it Hypothesis testing with the t-test. From the results of the t-test at the 0.05 level, the value of t arithmetic is obtained 4.80 and the price of t table 1.67. Based on test the hypothesis obtained by price comparison t count with the price of t table 4.80: 1.67 means t arithmetic > t table, so the hypothesis can be accepted.

Moving on from previous student grades it is known that eight students are in the experimental class has not yet reached the KKM study. After being given treatment only two students in the experimental class who not complete. Percentage of completeness in class previous experiments were 75% and after the treatment is given increases to

93.75%. Fixed control class using learning media in the form Conventional LKS. Previously seventeen students in the control class get grades in Under the KKM, around 51.43% of students are successfully reached the KKM. Based on the results final test there are 14 students who have not yet reached the KKM, and around 21 or 60% of students score above KKM.

Table 1. Results of Student Competency in Sample Classes

No	Competence Study	Parameter	Treatment		Information
			Experiment	**Control**	
1.	Cognitive Domains	Test average	87,33	75,34	**Experiment>** Kontrol
		Normality Test	L_0= 0,0611	L_0= 0,0748	$L_0 < L_t$ (Normal)
			L_t= 0,1566	L_t= 0,1496	$L_0 < L_t$ (Normal)
		Homogeneous Test	F_h = 0,32	F_h= 0,32	$F_h < F_t$ (Homogeneous)
			F_t = 1,84	F_t = 1,84	$F_h < F_t$ (Homogeneous)
		Hypothesis Test	t_h = 4,80	t_h = 4,80	$t_h > t_t$
			t_t = 1,67	t_t = 1,67	Then H_1 is accepted
2.	Affective Domain	Motivation	89 %	83,46 %	**Experiment> Control**
		Activity	Meeting I 64,37%	Meeting I 29,50%	
			Meeting II 63,12%	Meeting II 23,93%	**Experiment> Control**
3.	The realm Psychomotor	Average Student Work	63,60	34,86	**Experiment> Control**

Analysis that can be seen from the data Student achievement test is improved learning outcomes in the classroom experiment. This increase is due in experimental class using teaching materials in the form of a *handout* equipped with illustrated concept map. *Handout* selection equipped with illustrated concept maps cause students to be more motivated in study. Students look more focused, students read material before learning take place and more directed learning on the expected learning goals. The keenness of students in learning is also visible when answering questions that are given the teacher after students are asked to read the material in the *handout*.

Handouts that are equipped with maps pictorial concepts help the teacher and students in communicating material, students look very enthusiastic and motivated to follow each stage Learning Activities. Display *handout* which is interesting as it is color and complete picture causes students focus more on the learning process. The sentence used is also not too long, so students are easier understand the material contained within *handout.* Through curiosity *handouts* students towards the material will increase, so students become motivated to learn and keep learning.

During the learning process, researchers see and feel the atmosphere of student learning in the experimental class is livelier, where students are involved intellectually and emotionally. Students show the attitude that learning is a need that needs to be obtained. The proof is that students look more quickly at what the teacher explains, students dare to repeat what the teacher has to say in their own language, and students are able to answer questions given by

the teacher. Teachers are so difficult to stimulate so that all students are actively involved in learning.

Students in the reading experiment class material before class starts, ask the missing material understood. In addition, students are also seen enthusiastic in answering teacher questions. The answers given by students are clear and refer to the learning objectives. This matter certainly not inseparable from learning interactions created by teachers and students. Because, during the learning process the teacher must be able to foster an atmosphere interesting learning so students are active ask questions, and express opinions.

Broadly speaking, students in class experiments show how to learn which positive, although researchers still feel there are difficulties in managing 32 people students from the experimental class. This happened because there are still brave students disturb other students from being focused to learn, like giving comments which deviates from the material discussed at class meetings, so provoke other students not to be serious. Success or failure of course learning influenced by the object being target. Because, the success of process learning depends on several factors that can affect activities learning system processes including is the teacher factor, student factor, means, tool and available media, and factors environment.

Unlike the control class using conventional LKS, this class gets below grade point average the experiment is 75.34. There are four twelve students or about 60% of students who are did not reach the KKM, was not reached KKM students in the control class because of students less reading references other than LKS used. The proof at the time of the teacher give students questions yet able to answer as well as students at experimental class. When the teacher reviews a little bit about the material at the meeting previously only a few students who is able to remember and answer without seeing a note. Students also seen hesitant in answering questions, some students answer by looking source books like worksheets and notes, the answer given is still fixed on student worksheet language. Condition this certainly causes a learning atmosphere become less meaningful, because at basically students feel they have to memorize the material is in accordance with what is written in the worksheet.

In the Affective domain there is motivation student learning in the experimental class use the completed *handout* with pictorial concept maps have an average percentage of 89%. Motivation on students in the control class 83.46%. Based on processing Biology learning motivation questionnaires on the four aspects of the indicator filled in by students there are differences in average percentage Biology students' affective scores from motivation students when studying.

In the experimental class obtained affective competence in the aspect of interest has a percentage of 89.99%, relevant aspects 91.49%, 86.33% expectation aspects, and at satisfaction aspects 88.16%. Average percentage average overall student motivation is 89%. Student motivation in class the control obtained an average percentage student motivation 83.46%, which is on the aspect of interest has a percentage of 84.71%, relevant aspects 85.14%, expectation aspects 81%, and on the 83% satisfaction aspect. Percentage both sample classes show that average percentage of student motivation better experiments. Motivation is power that moves, directs one's activity, and motivation has close association with interest (Mudjiono, 2002: 42).

Difference in average motivation between experimental classes with control class caused by in the experimental class use teaching materials in the form of *handouts* which is equipped with a concept map picture that is more interesting study. Through a questionnaire filled out by students illustrated that students feel happy present in class, students listen and listen to the teacher's explanation with really, interested in learning, and students try to prepare themselves by reading the material before the lesson begins.

Students feel the learning of Biology made easier by using *handouts* that are equipped with concept maps pictorial. Students also really hope on other learning is carried out with the same teaching material but still adapted to the material. Students too feel more concentrated and determined in paying attention to every motion material in plants that are inside *handout*. Students gain knowledge which is quite extensive, and students are helped in understand the motion material of plants. Besides that, students also claim to be able to make conclusion after the learning process done.

Student's state that with use a *handout* that has map pictorial concepts become faster understand and comprehend material. Student feels the need to repeat the lesson at home. Material of motion in plants provided through *a handout* that equipped with illustrated concept maps declared appropriate and suitable for the purpose learning. Students enjoy learning with use *handouts,* and feel satisfied by using *handouts* that equipped with illustrated concept maps. As a result students recognize that with a *handout* equipped with illustrated concept maps

students prefer read a lot of Biology books relevant to the subject matter taught the teacher.

Based on the depiction obtained from filling out the motivation questionnaire it can be concluded that motivation initiating change in each individual. Through *handouts* that are equipped with student concept maps find it easier in learning. *Handouts* serve as reminders subject matter taught, facilitate and provide assistance information or learning material for students (Prastowo, 2011: 80).

Based on the observation sheet student activities in the experimental class given a *handout* that comes with illustrated concept map at meeting I obtained an average percentage of 64.37%, at the second meeting 63.12%. This average shows that student activities are in high learning process. Meeting I in the control class students acquire average percentage of 29.50%, meeting II 23.93%. Student assignments in the experimental class have an average value of 63.60, and at control class has an average value of 34.86.

The above results show that experimental class students have a percentage higher average activity during learning process is done. Enthusiasm Students during the learning process are use teaching materials in the form of *handouts* which is equipped with a concept map pictorial takes place students in the class more active experiments. Student pay attention to the teacher's explanation with fine, don't do other activities, spontaneously work when given a task.

Student interaction with the teacher in the class student experiments look bolder and right in answering that question given the teacher in accordance with the objectives learning. Student interaction with other students seen when students instructed the teacher to read the *handout*. This interaction generally occurs in students who sit my seat they communicate and tend to exchange ideas at the time they look, read, find what that they got from the *handout*. Students in the experimental class look brave in expressing opinions at the time answer the question given. If the answers given by students it is incomplete, it is seen other students give their responses to complete answer. Students brandishing his hands to participate in conclude the lesson. Some students responding to conclusions conveyed her friend.

Overall it looks that students appreciate their friends at the time the material has been delivered by the teacher. The courage of students in this activity certainly influenced by the process obtained at the time of core activities. There is a *handout* equipped with illustrated concept maps as a teaching medium providing assistance information or learning material as grip for students, enrich student knowledge, and supporting material other teaching or as an explanation of teacher (Prastowo, 2011: 80).

Students in the control class look not yet dare to argue or add his friend's answer. Student tend to agree right away with everything the answers given by other students appear additional or response. Student in the control class also not seen yet able to conclude the material with own will after learning done. Even if there are students are students appointed by the teacher, meaning that there has not been any student activity during learning takes place.

In the psychomotor realm seen through assignments made by students. In class the experiment obtained an average value 63,60, and the control class has a value an average of 34.86. This shows that the task or skill is students have in the experimental class are in good criteria, and class controls are within the criteria that still are low.

Difference in the average grade of assignments on the psychomotor domain is caused due to experimental class students are more enthusiastic follow the learning process. Student in the experimental class it looks more passionate about doing that task given the teacher. This urge arises because every meeting is in the process learning in the teacher experiment class use a *handout* that has a map pictorial concept. As a result more students understand and are helped in doing assignments given by the teacher. Based on tasks that have been collected are seen that students in the experimental class are more understand how to make maps concepts that fit the learning objectives.

Students in the experimental class are numbered 32 students. There are twelve people students who get grades in very good criteria, nine students in good criteria, four students in sufficient criteria, and seven students' very low criteria. Students who are get average in low criteria caused by not doing instructions given by the teacher.

Different from students in the class control, not all students fully understand how to make maps the concept of plant motion material. Thing this is seen from 35 students in the class controls there are twenty one students who are get an average psychomotor with sufficient criteria, four students get a score in the low criteria, and ten students get grades in very low criteria. Another obstacle the researchers found when assessing student-generated products are students' seriousness in responding teacher instruction.

IV. CONCLUSIONS AND SUGGESTIONS

A. *Conclusion*

Based on research results has been done then it can be concluded that use of learning media in the form of a *handout* equipped with illustrated concept maps improve Biology learning competencies for class VIII students SMP Negeri 31 Padang in the school year 2013/2014.

B. *Suggestion*

Some suggestions that researchers can convey for consideration towards change is better going forward is a teacher at Padang 31 Junior High School, especially Biology subject teachers are expected able to use and vary learning media on material different. Increase in the number of LCD units projectors available at school, so teachers and students are easier and don't have to waiting for their turn to use it. The application of handouts that are equipped with illustrated concept maps can improve Biology student learning competency if the teacher is able to manage students in class in the right way and time. For other interested researchers continue this research is expected to apply on different schools and materials.

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