

CHAPTER I INTRODUCTION

1.1. Background

Learning is a complex thing that happens to everyone and lasts a lifetime. Signs a learned their complex behavioral changes including changes in the cognitive, psychomotor and affective. Basically, the concepts in biology are abstract concepts, therefore need a high imagination power including structure, function, growth, taxonomy, distribution, and evolution which sometimes have a lot of foreign terms that are not easy to pronunciation even harder to remember the students, one of them is ecosystem. In fact many student not interested to learn which ultimately can only be stored in short term memory only. While the purpose of the learning process not only to the short term memory to long term memory but students (Amaliah, 2011).

Meanwhile writing is a process of delivering ideas, thoughts, and feelings through a letter system. Writing also encourage students to communicate thoughts, feelings and make his thoughts reflected in written form, so that students will be remembered in long time period. Therefore things done by creating an interesting note creative learning students pour the material he had heard from a teacher on an interesting note will make a repeating back to the memory of his brain so that the material presented teachers can survive long in the brain. For that we need the involvement of the various organs of the body from the ear (Audio), eyes (visual), and hand (kinetic) the make information Easier to understand (Arsyad, 2011). Proverb of Cofemicus I hear I forget, I see I remember, I do I Understand. This Strengthens the assumption that the rate of retention of the material will be higher when students are conditioned to learning more real. Research Magnessen (de Potter, 2002) Explains that we remember 1% of the read, 20% of that in the hearing, 30% of the visits, 50% of the Heard and seen, 70% of what is said, and 90% of what is said and done.

Based on preliminary observation in SMAN 11 Medan based on data research, the mean values obtained pretest score of students in the experimental class before it is treated by using mind mapping techniques is 40.92 with a standard deviation of 11.61 and the value of pretest students in the experimental class before it was treated by using notes write and and stacking technique is 39.09 with a standard deviation of 11.89, the result is showed that $L_{count} < L_{tabel}$ thus concluded that the data from the both pretest distribution were normal. It is indicated that learning outcomes of students in this ecosystem topic is low. While the low learning outcome caused of students easy to forget the learning material that has been taught, so that student is difficult to answer the post test question. The other result after homogeneity test $F_{count} < F_{tabel}$ or $(1.05 < 1.73)$ can be concluded that learning outcomes for the two classes have similar variance (homogeny) can represent the entire population.

The researcher observation retention too students are low, due to when teacher review the topic and ask question about the topic has been explained the least student answered and ask students very low frequency, very few students were asked because the other students did not remember the material which is repeated by the teacher. Student memory retention is the ability store abstraction concepts in cognitive structure which is still owned by the student after the lapse of time from the provision material (Dwi, 2011). The low student retention is one of the problems that often faced by teacher because the learning process will run slow so the determined target failure to achieve. After investigeted deeply it found that student have messy note about this topic, and based on the interview to two students, they said that teachers do not give students the opportunity to write, techniques note students who are less attractive and less creative, make lazy students re-read his notes, so that the absence of reinforcement retention process, and mind mapping as a learning technique is still something new for teachers.

Therefore, teachers have choosed a model and appropriate learning techniques in order to better engage students optimally in cognitive, affective, and psychomotor learning outcomes in order to reach a satisfactory and have long-

term memory. The difficulty in studying biology, especially in memorizing can be overcome by making the shape of a unique and creative notes. When compared with the form of notes that only the form of writings, which are equipped with color notes and drawings will be helping students understand the material being taught by the teacher.

Thus, it can be assumed that in fact most students do not apply techniques that suitable to their learning styles by which effectively and more quickly to understand the material being taught teachers. To overcome this, it can be done by applying methods and techniques such as learning proper technique mind mapping and notes write and stacking.

Mind mapping media based on Buzan (1994) present information that connect with central topic, in form of keyword, image, and symbol and picture so the information can quickly and efficiently learned and remember. Mind mapping can make students more active and creative and only students who are actively involved as disadvantage of mind mapping technique. Other research result conducted by Yulika (2012) stated that mind mapping can increase student's learning outcome until 36.18% in the first cycle and 47.29% in the second cycle. The research conducted by Arisdea, T (2008) , the use of mind mapping have the influence to the improvement of learning outcomes was 33.89%, learning retention for one week was 44.95% and learning retention for two weeks was 40.15%. Posttest mean value in the control class and each class experiment at 72.49 and 84.78. While about notes write and stacking technique can make students easier to remember a problem when students read what he was thinking at the time and emotionally satisfying students and help students get into the emotional memory of students, but in the notes write and stacking technique students only using one colour to make notes.

Mind mapping and notes write and stacking will help students understand the material and ideas on paper with clear, complete and interesting so that students can understand most of the information in a shorter time and will store it in memory of the brain in the long term, which in turn learning difficulties can be

minimized and the amount of detail information could not be included as disadvantage of notes write and stacking technique. Based on the above students problem , the research with the title "The difference of Students Learning Outcome and Memory Retention Between Mind Maps and Notes Write and Stacking (NWS) Techniques at Ecosystem Topic Grade X SMAN 11 Medan Academic Year 2014/2015" has been done.

1.2. Problem Identification

Based on the background,the problems are identified as follows :

1. Mind mapping as a learning technique is still something new for teachers.
2. Students make notes are less attractive and less creative, make lazy students re-read his notes.
3. When teacher review the topic and ask question about the topic has been explained only two students answered.
4. Students learning outcome in two class very low, The ability test of early (pre-test) both classes given at the beginning of the study which aims to determine whether the basic understanding are of students in the same

1.3. Problem Limitation

Due to large of problem identification,the researcher limit the problems only about learning outcome, retention, mind map, and notes write and stacking (NWS) on topic ecosystem.

1.4. Research Question

Based on the problem identification, the problems that will be discussed are:

1. Is there any difference of learning outcome between students taught by using mind maps and notes write and stacking techniques at ecosystem topic in class X IPA SMAN 11 Medan Year 2014/2015 learning?

2. Is there any difference of retention between students taught by using mind maps and notes write and stacking techniques at ecosystem topic in class X IPA SMAN 11 Medan Year 2014/2015 learning?

1.5. Research Objectives

The research objectives is to know :

1. To know the difference of learning outcome between students taught by using mind maps and notes write and stacking techniques at ecosystem topic in class X IPA SMAN 11 Medan Year 2014/2015 learning
2. To know the difference of retention between students taught by using mind maps and notes write and stacking techniques at ecosystem topic in class X IPA SMAN 11 Medan Year 2014/2015 learning

1.6. Research Significance

The research results are expected can be beneficial, both theoritically and practically as follows :

1. Inform the biology teacher in selecting effective recording techniques to improve the quality of student learning of the material taught.
2. Adding the experience for researchers as prospective teachers about the use of appropriate methods and techniques to be applied so that the students can understand more information related to the material being taught and can survive in the long term.
3. As a guideline for other researchers in creating an effective learning model biology so as to create an active learning environment and conducive.

1.7. Operational Definition

1. Learning outcome is the students' post test cognitive score, range 0-100, as a result of students' answer on the post-test made for the students comprised of 30 multiple choice questions.

2. Retention is students' score on a test similar to the post-test but the students were tested 7 days after post-test. The score range between 0-100.
3. Mind mapping is one way to organize and present concepts, ideas, tasks or other information in form of radial-hierarchic non linear diagram and present information that connects with central topic, in form keyword, image, and symbol and picture and color.
4. Write notes and stacking techniques is derived from the word written is writing a note which means listening to what the teacher or other person as he wrote points - the main point, namely the preparation of records while stacking means write down the thoughts and impressions that appear on the self that is being submitted by teachers

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