

The Influence of Constructivism Learning Model on Students' Knowledge Competencies in Biology Learning at MTSS Nurul Haq Semurup

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Abstract - The purpose of this study was to determine the knowledge competency of students in biology learning at MGTsS Nurul Haq. This research was conducted in April 2019. This type of research is quasi-experimental research. This type of research is quasi-experimental research. The population in this study were all eighth grade students of MTs Nurul haq Semurup 2018/2019 Academic Year consisting of three classes namely class VIIIA, VIII B and VIII C. The sample used in this study was class VIII students consisting of two classes namely class VIII A, VIII B, researchers took samples through purposive sampling technique. The instruments used were tests. Data analysis was performed using the t test. The findings show that there is a significant difference between the biology competencies of students in the experimental class and the control class, where the biological competence of students in the experimental class is higher than in the control class. The average value of biological competence of students in the experimental class was 83 and in the control class 76.5. So, it can be concluded that biology learning by using the Learning Model Constructivism assisted by mind map can improve student competence in aspects of knowledge.

Keywords - Constructivism Learning, Knowledge Competency.

I. INTRODUCTION

Education according to law Number 20 of 2003 is a conscious and planned effort so that students can actively develop their potential so that they have religious spiritual strength, personality, intelligence, and skills needed by themselves and society. The purpose of education is to help students use knowledge in school to explain phenomena that occur in everyday life (Cagatay. 2013: 30-37). Education is a conscious effort to educate, develop and enhance human resources. Human resources are the main capital in facing the development of technology and science. Learning is a process of knowledge construction, Jerome Brunner in (Romberg and Kaput, 1999).

Learning is not transferring that which is outside of him, but learning more about how the brain processes and interprets new experiences with the knowledge that they already have in a new format. Students who have initial knowledge of the subject matter will more easily accept and shape, and develop new knowledge.

Biology is one of science learning that requires students to think more creatively and independently. Biological material is related to nature widely and systematically, so that biology is not only mastery of a collection of knowledge in the form of facts, concepts, or principles but also a process of observation and discovery (Ministry of National Education, 2003). The aim of biology subjects according to the Ministry of National Education (2006: 451)

is to form positive attitudes, foster scientific attitudes, develop experiences to ask questions, develop thinking skills and develop mastery of biological concepts.

Given the importance of the role of biology and in accordance with the biology learning above, then the biology learning process in the classroom should be interesting, fun and student-centered. Biology learning involves students seeking extensive sources of information from various sources. Students should enthusiastically raise their hands to answer questions or contribute their thoughts, give opinions or ideas, think critically, analytically, and logically so as to create an effective learning atmosphere. This is reinforced by the opinion of Warsita (2008: 289) about effective learning, namely (1) students become reviewers who are active in their environment through observing, comparing, finding similarities and differences and forming concepts and generalizations based on similarities found, (2) the teacher provides material as the focus of thinking and interacting in the learning process, (3) student activities are fully based on the study, (4) the teacher is actively involved during the learning process, and (5) learning techniques that vary.

The right learning model can increase pleasure in learning, foster motivation in working on tasks that also allow students to achieve good learning competencies (Aunurrahman, 2009: 143). Aunurrahman's opinion is also supported by Tarhan (2013: 184-204) that the learning model increases understanding in understanding the material studied and Zaduqisti (2014: 181-191) which states that the learning model is able to make students active in learning, so learning becomes more valuable, meaningful and able to improve learning competencies possessed by students. Based on observations made at MTs Nurul haq and interviewing researchers with two biology teachers at MTs Nurul Haq Semurup, namely Ms. Nina Rianti S.Pd. and Ms. Rika Diana Putri, S.Pd, the biology learning process has not gone as expected, it is known that student learning competencies are still low, Low causal factors of biology learning competencies are learning dominated by teachers, lack of teacher interaction with students and students with students and lack of variations in learning models so that students are passive and less participate in the learning process in class VIII MTs Nurul Haq Semurup. The results of the daily average value of students have not yet reached the Minimum Satisfaction Criteria (KKM), which is 75.

This can not be separated from the scientific abilities of students. Students tend to still accept all what the teacher explains. The teacher has tried to explain the material by

giving examples of questions, assignments and exercises to students after explaining the subject matter. But there were still many students at the time of training who were imitating their work. This has an effect on the lack of good interaction in the implementation of biology learning.

Efforts can be made to activate and improve student achievement in learning, one of which is to make changes to strategies, learning models, and try new efforts that are better able to involve students or the students' keatifi in biology learning. Based on this description, one of the learning strategies that is thought to be suitable for increasing students' understanding of the concept of biological material is the application of Mind Map constructivism learning models.

According to constructivism theory, learning is an active process of students in shaping meaning based on what they already have. Students who learn will form cognitive schemes, categories, concepts and structures in building knowledge. All knowledge possessed is the result of construction from someone. When someone gets that information, information is processed to digest then stored in a meaningful form, as new knowledge.

Based on the explanation above, it is interesting to conduct a study entitled "Analysis of constructivism learning models on students' knowledge competencies in biology learning at MTsS Nurul Haq Semurup".

II. RESEARCH METHOD

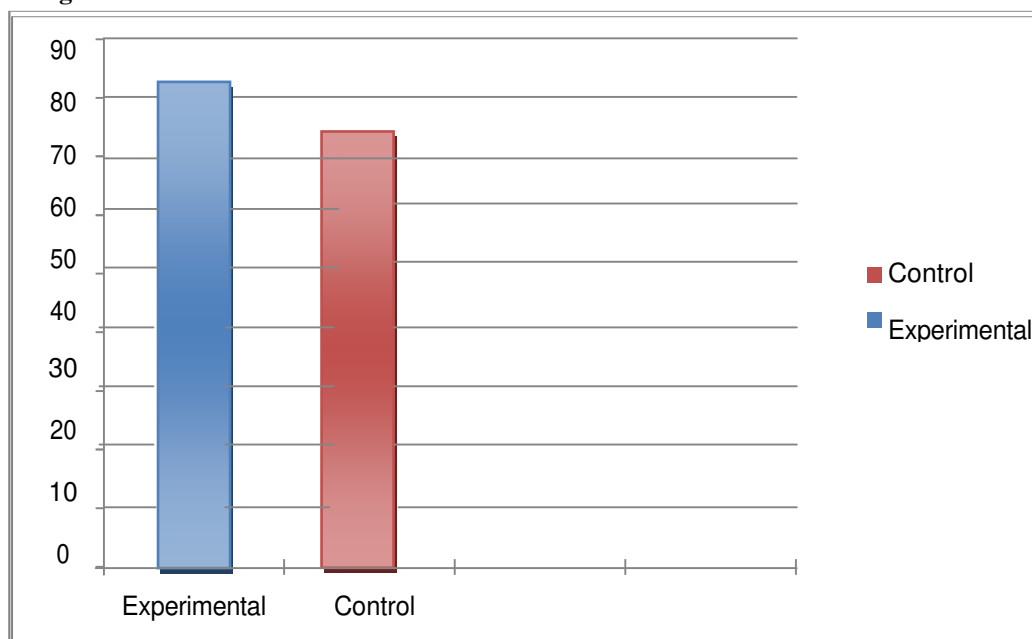
This research is a quasi-experimental study. The population in this study were all class VIII MTs Nurul haq Semurup 2018/2019 Academic Year consisting of three classes namely class VIIIA, VIII B and VIII C. The sample used in this study was class VIII students consisting of two classes namely class VIII A, VIII B, the researcher took samples through a purposive sampling technique. The samples in this study were Class VIII A (experimental class) and VIII B (Control class). The instrument used is a test. Data analysis was performed using the t test.

III. RESULTS AND DISCUSSION

Table 1. Data on the Average Value of Student Knowledge Competence

Class	Average Score
Experimental	83
Control	76,5

Average scor



Graphic I. Average score of student attitude competency

Table II. Affective competence value

NO	Experiment	Control
1	75	67
2	80	75
3	79	67
4	77	72
5	83	74
6	75	75
7	79	76
8	86	76
9	88	79
10	76	77
11	78	79
12	80	81
13	81	76
14	82	72
15	88	78
16	82	77
17	85	79
18	90	76
19	92	85
20	87	78

21	90	76
22	86	80
23	82	79
24	91	82
Average	83	76,5

The assessment of student knowledge competency is done using test questions. Based on Table 1. and Graph 1 above, it is clear that the average competency score of students in the experimental class is higher than in the control class, namely 83 in the experimental class and 76.5 in the control class. This shows that the competency domain of students in the experimental class using Constructivism learning models is higher than the control class using conventional models. based on high low initial abilities. This is because the problem-based learning model is a learning approach that presents contextual problems, thus attracting students' attention to learning.

According to constructivism theory, learning is an active process of students in shaping meaning based on what they already have. Students who learn will form cognitive schemes, categories, concepts and structures in building knowledge. All knowledge possessed is the result of construction from someone. When someone gets the information, information is processed to digest and then stored in a meaningful form, as new knowledge.

Learning that uses the constructivism approach requires that someone educator is able to create learning in such a way that students can be actively involved with the subject matter through social interactions that are interwoven in the classroom. Student activities in constructivism learning can be done by observing phenomena, collecting data, formulating and testing hypotheses hypotheses, and collaborating with others (Schunk, 2012: 324).

The learning process in constructivism learning models and initial abilities is assisted by the mind map which is one form of independent learning and groups provided, which can be used to attract the attention of students to be more critical and understand concepts. Mind maps are given to each group, adjusted to the learning model used. Mind maps are distributed in each group containing problems and questions related to learning material. This makes it easy for students to have group discussions and collaboration with each group, and make them more active in learning.

Mind Map is a way of organizing and presenting concepts, ideas or other information in the form of diagrams using a combination of images (symbols), colors and lines that connect each other to the mapped concepts. It aims to help students see a material as a whole (holistic) knowledge so that it can be remembered quickly and efficiently. Making mind maps usually starts with determining the main topic placed in the middle then equipped with subtopics that explain the main topics that are placed around the main topic and connected by lines. Each subtopic will be given relevant information (Widura, 2013: 11). The presence of mind maps attracts the attention of children to read because the mind map which consists of various elements of color, images and lines, is a stimulus that attracts the child's attention to see it. Images and colors in the mind map, in addition to attracting attention, images also function as objects of real thinking help

Widodo (2004) states that constructivism learning consists of 5 sequential stages, namely: 1) Introduction: The stage of preparing learners to participate in learning activities. 2) Exploration: The stage of identification and activation of the learner's initial knowledge. 3) Restructuring: The stage of restructuring the learner's initial knowledge to form the expected concept. 4) Application: The stage of applying concepts that have been built in different contexts / conditions or in everyday life. 5). Review and Evaluation: The stage of reviewing what has happened to the learner is related to a concept / learning.

Constructivism based learning provides an opportunity for students to express ideas explicitly by using the language of their own students, share ideas with their friends, and encourage students to give explanations about their ideas. Constructivism based learning provides experiences that relate to ideas that students already have or design activities adapted to students' initial ideas so students expand their knowledge of phenomena and have the opportunity to assemble phenomena, so students are encouraged to distinguish and combine ideas about phenomena that challenge students.

Constructivist learning gives students the opportunity to think about their experiences. This can encourage students to think creatively, imaginatively, encourage reflection about models and theories, introduce ideas at the right time.

Constructivism based learning provides opportunities for students to try new ideas so students are encouraged to gain self-confidence by using various contexts, both known and new and finally motivating students to use various learning strategies. Constructivist learning encourages students to think about changing their ideas after realizing their progress and giving students the opportunity to identify changes in their ideas.

In other words, the learning process in the two sample classes namely the experimental class and the control class had significant differences. The experimental class using the application of constructivism learning models has an average value of competence in the aspect of knowledge better than the average value of the knowledge class of the control class using conventional learning models.

IV. CONCLUSION

On the results of the study, it can be concluded that the analysis of constructivism learning models on the competency of students' knowledge on biology learning based on mind map significantly influences students' competencies because it can improve their biological competencies.

RECOGNITION

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