Impact behavior CTL (Contextual Teaching and Learning) Through Media Mind Maping in High School

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ABSTRACT

This study aims to improve learning outcomes for students in class X IPA 6 with CTL (Contextual Teaching and Learning) as the model used along with mind mapping media on ecology material. This type of research is PTK (Classroom Action Research) with two cycles. The subjects in this study were all students in class X IPA 6, totaling 30 people. In this study, to measure the learning outcomes of students, an evaluation tool was used, namely a test in the form of 10 multiple choice items and 5 essay items on ecology material. In cycle I, the average score of learning outcomes was 64.17 with a classical percentage of 40% and in the mind mapping assessment, 15 students did not understand how to make mind mapping. Due to not having achieved classical completeness in cycle I, it continues to cycle II with an average learning result of 81.83 accompanied by a classical percentage of 86.67% and in the mind mapping assessment it shows that 30 students already understand in making mind mapping. Therefore this research is said to be successful because it has achieved more than 80% of the classical percentage, so it can be concluded that the implementation of CTL (Contextual Teaching and Learning) with mind mapping media can improve student learning outcomes in the learning process in Biology subjects, especially Ecology material for participants class X IPA 6 SMA Negeri 3 Tondano. 67% and in the mind mapping assessment it showed that 30 students had understood the making of mind mapping. Therefore this research is said to be successful because it has achieved more than 80% of the classical percentage, so it can be concluded that the implementation of CTL (Contextual Teaching and Learning) with mind mapping media can improve student learning outcomes in the learning process in Biology subjects, especially Ecology material for participants class X IPA 6 SMA Negeri 3 Tondano. 67% and in the mind mapping assessment it showed that 30 students had understood the making of mind mapping. Therefore this research is said to be successful because it has achieved more than 80% of the classical percentage, so it can be concluded that the implementation of CTL (Contextual Teaching and Learning) with mind mapping media can improve student learning outcomes in the learning process in Biology subjects, especially Ecology material for participants class X IPA 6 SMA Negeri 3 Tondano.

Keywords :*ContextualTeachingandLearning, Impact CTL, Behavior LearningOutcomes*

INTRODUCTION

Behavior Learningisanactivitythatiscloselyrelatedtostudentsandtheirteachers. In learning activities a teacher is required to be able to create an active response of students when the learning process takes place with this active response showing one indicator that student learning outcomes are increasing. Improving student learning outcomes, one of the components of success is the learning model applied by the teacher. According to Helmiati (2012) the learning model is a form of learning that is illustrated from beginning to end which is presented in a special way by teachers or educators. So, we can see that the learning model is a powerful weaponforteacherssothatlearningactivitiescanrunoptimally.

The learning model generally functions to change the behavior of students with what is expected, but not only that the learning model also functions as: First, guidance where both students and teachers have guidelines on what should be done in learning activities to achieve learning goals. Second, developing a curriculum which

can help and develop the existing curriculum at the educational stage. Third, the specification of learning tools where examples of teaching instruments change the behavior of students according to what is set. The last is providing input and improving the teaching given by the teacher, which means that this evaluation will make learning even better than before. (Ahyar Dasep, 2021)

There are various types of learning models in the world of education. Of the many types ofexistinglearningmodelsofcourseonlyone will be chosen by the teacher. In choosing a learning model, it certainly requires consideration, the considerations that exist in choosing a learning model are the goals to be achieved, suitability with learning materials or materials, the point of view of students (level of maturity, interest-talent and learning style), as well as non-technical characteristics (use of one model ormore, valueeffectivenessorefficiency) (Rusman, 2018).

The useofan appropriate learning model occurs because the teacher clearly knows his students both in terms of abilities, motivation, interests – talents, what they need, the required learning environment, learning styles and personal characteristics so that it has an impact on the emergence of an interactive classroom atmosphere, critical thinking, creative, able to solve problems, high curiosity from students, motivated to make assignments or homework, and understand lessons in a structured, comprehensive manner, all of which show an increase in learning outcomes, especially the cognitive aspects. That way the teacher has succeeded in establishing a learning model thatisrighton target.

1. CTL Learning Model

a. Definition of the CTL Model

Elaine B. Johnshon in (Rusman, 2017) expressed her opinion that the contextual learning model/CTL is a learning system that involves the brain in associating lessons with the real lives of students so that learning is more meaningful. Associating lessons with real life is done by studying them directly, using illustrations, learning resources and especially good learning media which of course is connected to real life so that learning becomes interesting and benefits are immediately felt like understanding in a shorterperiodoftimethanusual.

b. CTL Model Components

This CTL model has seven main components, including: first, constructivism is characterized by students being able to construct the new knowledge they have when learning takes place. Second, inquiry is characterized by seeking information about subject matter either carried out alone by students or in groups. Third, questioning is marked by growing the curiosity of students which results in the emergence of questions. Fourth, the learning community is marked by the division of students into several groups to collaborate or discuss the assignments givenbytheteacher.

Fifth, modeling is marked by presenting illustrations, examples, or models that can provide new understanding to students through linkages with real life. Sixth,

Reflectionismarkedby reflection in each learning meeting. And seventh, authentic assessment

(markedbytheteacher making an objective assessment for each student basedontheabilityofstudentsthroughtests) (Dianisa, 2020).

c. CTL Model Steps

The steps of the CTL model are (Ernawati etal, 2021);

1. ***Modeling***namely giving instructions or directions to students.
2. **Questioning** thatis give chance participant educate Forexplore by asking questions.
3. ***Learning community*** thatis all participanteducate joined ingroups and participate in them.
4. ***Inquiry***thatis, studentscan find or identify the material being studied.
5. **Constructivism**namelybeingableto find their own understanding based on learning resources and linking it to the real life of students.
6. **reflection**namelystudentsprovideconclusions about the material that has been studied.
7. ***Authenticassessment***,studentsgetanobjectiveassessmentofthe learning process that has been implemented.

d. Advantages of the CTL Model

In a book on learning models, Octavia (2020) states the advantages of the contextual model or CTL are as follows: it produces meaningful and real learning because it is based on real life relationships. Furthermore, learning allows the growth of a strong understanding of concepts in students and the productivity of students

becauseofthehigh attitude of seeking to know by asking questions to understand the subject matter. Then real experiences must be presented by the teacher using appropriate examples, models and media.

Thenthis model is student-centered so that it triggers activeness, critical and creative attitudes during learning. In addition, the subject matter can be found by students themselves becausetheycanfindit in theirdailylives.

2.1.1 Media MindMapping

1. UnderstandingMindMapping

Mindmappingorconceptmapsis a techniquethatutilizestheabilitytoexpressexistingideas in themind in theformof notes usingkeywords as well as pictures, numbers, colorlogicwhichhaveanimpactonimprovingstudentlearning. Tony Busanstatedthathumans are moresophisticatedthancomputers, thisisrelatedtotheconceptmappingtechniquewiththetheoryofradiantthinking (a thinkingtechniquewhichis in accordancewiththeworkofbraincellsthat are connectedtoeachotherwith visual learningstyles) in the human brainwheretheuseofconceptmappingcontinuestothisday. this (Swardama, 2013).

The uses of mind mapping are as follows: collecting the necessary data systematically, the convenience that is obtained from mappingifyouwanttoreviewwrittenideasandideas,simplifyingthecomplicated, namely making ideas easy, accelerating and understanding learning more because of the interrelationships between existing topics, filtering information that is important and fit the purpose, and the emergence of creativity because this activity sharpens the brain's work (Swardama, 2013). From the existing explanations regarding mind mapping, of course, the technique that has many benefits andthecharacteristicsthatdominateitiscreativebrainwork.

2. AdvantagesandStepstoMakeMindMapping

The advantages of mind mapping consist of eight, namely: being able to improve performance in knowledge management, being able to utilize brain work processes, having interrelationships between ideas that result in various ideas and information appearing, arousing creativity, simplicity and ease of execution,

beingabletorecall data quickly. easily available when needed, attractive and easy to catch the eye because of its systematic, colorful form and tucked in illustrations/pictures, and lastly big data can be seen easily because of its systematicity anduseofwordsthat are onlyimportant (Swardama, 2013).

After knowing the advantages possessed by mind mapping, the explanation then moves on to the steps for

making a mind map, which starts with preparing the materials needed including: plain white paper with a size that fits the needs of the subject matter and the position is horizontal, writing instruments such as pens, pencils or markers with various colors and variations in the thickness of the ink lines, the brain to convey important and purposeful ideas, and the imagination thatmakesmindmappinglookattractiveandcolorful (Swardama, 2013).

The stepsfor making a mind map include (Suparno & Juri, 2020):

1) Starting from the center of the paper with the aim of giving the brain freedom to express ideas / ideasthatarise.

2) Use picturesbesideideasto add understanding totheideas/ideassothey are interestingto study.

3) Use colors that make the ideas in the mindmappingcomealivean creativeandfunthoughtsemerge.

4) Connect the main branches to the central image and also connect the second, third, fourth level branches and so on so that the brain will work to connect between the branches to make it easier to understand and understand the ideas / ideaslisted.

5) Makethelinescurved so that they are not monotonous.

6) Use onekeyword per line.

7) Using a picture that fits in each branch to clarify the keywords written.

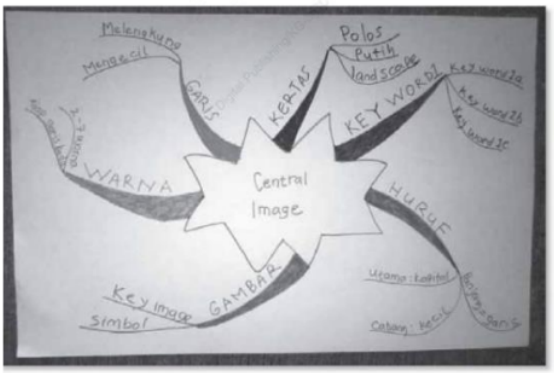

*Figure 2.1*Example ofMindMapping

Source: Swardama Doni. 2013. Application of Mind Mapping in the Learning Curriculum. Jakarta: Elex Media Service.

So that it can be concluded that the steps for implementing CTL using mind mapping media on the material of ecosystem components are intended so that a learningatmospherecancreate a funandeasyatmosphere.

understoodbystudents. Systematic should not be forgotten so that learning objectives can be achieved.

2.1.4 Ecology Material

Ecology is a science in which there are mutually dependent interactions that occur between living things and their environment in an ecosystem. An ecosystem is a system characterized by an inseparable relationship between the componentscontainedtherein, namelybioticandabioticcomponents (Irnaningtyas, 2013).

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1. Ecosystem Components

Ecosystems can be arranged because there are components that make it up. Based on the type of components are divided into two types, among others:

A. Abiotic Components

The abiotic component consists of chemical and physical components acting as a medium for ongoing life which includes air, water, soil, mineral salts, sunlight, temperature, humidity, anddegreeofacidity (pH) (Irnaningtyas, 2013).

B. Biotic Components

Everything that exists on earth and is included in the parts of living things is a biotic component. This biotic component is dividedintotwoparts, namely as follows (Irnaningtyas, 2013).

1. Autotrophic Component

This component consists of unicellular and multicellular organisms that have chlorophyll which allows them to carry out the process of photosynthesis, for example ferns, algae, to mosses and acts as the main producer of the ecosystem.

RESEARH METHODS

3.1 Types of research

The typeofresearch used in this research is PTK (Classroom Action Research) or known as classroom action research. The parts in the class action implementation scheme include: planning, implementing, observing and finally reflecting.

The researchlocationtook place at SMA Negeri 3 Tondano which is located on the East Parking Road at Maesa Tondano Kembuan Stadium, Minahasa Regency, North Sulawesi Province.
The research was carried out in the 2021/2022 Academic Year in the even semester of February for two weeks with four meetings to be precisein class X IPA 6 SMA Negeri 3 Tondano.
The research subjects were all students of class X IPA 6 SMA Negeri 3 Tondano.
In this research, theobject is the implementation of CTL with mind mapping media to improve student learning outcomes at SMA Negeri 3 Tondano.

In this first stage it begins with preparing learning activities carefully by providing the necessary equipment such as: syllabus, lesson plans, observation sheets and tests/evaluations in the form of multiple choice questions and essays listed in the appendix. This planning stage, if seen from the reference, namely lesson plans in learning activities, is by implementing the CTL model and mind mapping media on Ecology material. Data analysis in this study consists of two parts consisting of quantitative andqualitative data analysiswhichwillbeexplained as follows:

1. Quantitative data analysis: The learning completeness of students based on the K13 curriculum obtained from the test/evaluation results is said to be complete if it reaches 75% and classically

2. 80% is carried out through an analysis process using the following formula. (Arikunto, 2011)

Information :

$$P = \frac{}{N} x$$

P = Learning outcomes/acquisition of students classically

f = Number of students who study thoroughly individually

N = Number of students as a whole

3. Qualitative data analysis: the observation sheet that has been filled in by the observer (biology teacher at SMA Negeri 3 Tondano) is the qualitative data used in evaluatingthetwocyclesthat were carriedout.

RESULTS

The purpose of this classroom action research is to improvethelearningprocess

in class X IPA 6 SMA Negeri 3 Tondano. In order to improve the learning process, it requires actions that were previously carefully planned so that the results are maximized. Maximum results are not immediately obtained by carrying out one cycle, but it is better if the implementation is carried out in cycles. The number of cycles in PTK (Classroom Action Research) depends on whether or not there is an increase in individual learning outcomes, especially the classical percentage, when it is reached, the cycle is stopped. Based on Appendix 13 page 88 that the learning outcomes of cycle I had not reached the required classical completeness percentage, therefore this research was continued to cycle II. In cycle II the learning outcomes have met or even exceeded the percentage of classical completeness, therefore this cycle was stopped. Table 4.3 also shows an increase in the percentage of completeness that occurred from cycle I tocycle II.

Cycle I was held on 15 February and 18 February 2022 with the materials provided, namely ecosystem components, interactions between components, energy flow and ecological pyramids. Based on Table 4.1 and Appendix 13 page 88, it shows that good results have not been achieved in cycle I and even tend to be low. This can be seen from the number of students who have not completed individually more than those who have completed and the percentage of classical completeness is 40%. From the data in attachment 14 page 89, in the mind mapping assessment itself, there were 5 students who got very good scores, while 5 students got good grades, 10 students got pretty good grades and 15 other students got poor grades, so it can be concluded that there are still many who do not understandtheprocessof making a mind map.

The learningoutcomes in cycle I were not satisfactory because the students did not pay close attention to the teacher's explanation. Then only a few groups brought colored pencils for mind mapping work even though the giving of color was included in the assessment component. Some students are active, but most are not active because they are embarrassed and afraid to ask questions in learning, so in the next cycle the author reminds that further learning is expected to pay more attention to the teacher's explanation, bring the necessary equipment, and for students who are not active, they are given motivation and feedback by appreciating and provide suggestions for the results of their mind mapping work. Sotherefore,

In cycle II which was held on 22 February and 25 February 2022 with material on productivity, community dynamics, and biogeochemical cycles, it is known from Table 4.2 that there were 26 students with average grades and percentages of classical completeness, namely 81.83 and 86 .67%. While there are 4 students who have not finished yet and will be given a remedial program, by giving the same questions to the 4 studentssothatallfourofthemmayachieving a KKM score of 75. Good results are also shown in attachment 16 page 91, namely as many as 20 students got very good scores while 10 other students got good grades. So it can be concluded that all students already know how to make mind mapping which has an impact on increasing learning outcomes. In this waytheimplementationofcycle II wasdeclaredsuccessful.

From the data from this study it shows that the implementation of CTL (Contextual Teaching and Learning) with mind mapping media can improve student learning outcomes in Biology subjects, especially Ecology material in class X IPA 6 SMA Negeri 3 Tondano.

This research is in line with research conducted by Yenty & Fepryana (2016) where the CTL model also strengthens the inculcation of concepts in students in Mathematics Subjects, if according to Irwandi (2012) that CTL with one of its components, namely the free learning community improves learning outcomes in Bengkulu State High School, while Putri and Ritonga (2021) said that CTL as a learning model can improve student learning outcomes with a significant influenceat Kemala Bhayangkari 2 RantauprapatPrivateHighSchool.

Relatedresearchthatuses the CTL model both at the SMP level Sari, et al (2019) states that research using the CTL model has a positiveimpactonlearningoutcomesatMTs Bangkalan.

At the elementary level, according to Saidi (2018), the CTL model increases learning outcomes at SDN 1 Simpang Peut using the classical CTL model with 36 students or 90%. Only 4 peopleor 10% have not finished

The research results related to mind mapping media are also in line with the results of research conducted by Soleha, et al (2019), that mind mapping media at SMP Negeri 38 Semarang has aninfluenceonlearningoutcomes.

Meanwhile, Milenia, etal (2022) stated that research usingmindmapping mediamadestudentsmoreactiveand participated in learning in Class X Languageof SMAN 1 Batu.

Anggreini (2017) that there is an increase in the understanding of students at SMP 1 Muhammadiyah 1 Jember with research using CTL and mindmapping media with a classicalpercentageof 88%.

Based on the explanation above, it is very clear that the CTL model with mind mapping media is recommended to be implemented in learning as long as it looks at the situation and conditions in the class. Because the CTL model makes students understand and understand the subject matter with meaningful interrelationships from everyday life. And also this mind mapping media that is efficient, creative, interesting and effective and fosters student activity during learning. This research has a positive impact on student learning outcomes in Class X IPA 6 SMA Negeri 3 Tondano.

CONCLUSSION

The conclusions from the results of this study are: Impact of CTL (Contextual Teaching and Learning) with Mind Mapping media can improve student learning outcomes in the learning process in Biology subjects, especially Ecology material in class X IPA 6 students at SMA Negeri 3 Tondano.

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