PROBLEM BASED LEARNING CONCEPTS OF BIOLOGY TO IMPROVE OUTCOMES AND ATTITUDES CARING THE ENVIRONMENT

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ABSTRACT

Education is the main thing to prepare the next generation who are ready to compete in the 21st century. Now, improving the quality of education is needed to face competition in the era of globalization. The learning device is a form of preparation made by the teacher before carrying out the learning process. Teaching preparation is one measure of a teacher's success. Failure in planning is tantamount to planning failure. This implies how important it is to prepare learning through the development of learning tools. The lesson plan is a plan that describes the procedures and organization of learning to achieve a basic competency that has been defined in content standards and described in the syllabus. Learning outcomes can be interpreted as the maximum results that have been achieved by students after experiencing the teaching and learning process in learning certain subject matter. Learning outcomes are not absolutely in the form of values, but can be in the form of changes or improvements in attitudes, habits, knowledge, persistence, fortitude, reasoning, discipline, skills and so on that lead to positive change. Therefore, the curriculum is designed to be able to develop the potential of students into abilities that are increasing in attitudes, knowledge and skills.

Keywords: *problem based learning, biology concepts, outcomes, attitudes, environment*

INTRODUCTION

The world of education today needs a learning adjustment that equips students with 21st century skills. In Indonesia, the curriculum used is the 2013 curriculum. The implementation of the curriculum in schools should provide many direct experiences and opportunities for students to find and build knowledge that is useful for their future lives. In addition, natural science education (IPA) is expected to be a vehicle for students to learn about themselves and their surroundings, as well as the prospect of further development in applying it in everyday life. One of the efforts to improve the quality of science education is through the learning process. The need for developing a science learning model that directs student activities in actively seeking, cultivating, constructing, and using knowledge from various reading literacies is expected to form scientific attitudes and concern for the surrounding environment.

In line with that, caring for the environment is a behavior to preserve the environment by maintaining, managing, and restoring as well as protecting the environment. An attitude of caring for the environment can be shown by trying to prevent damage that occurs in the surrounding natural environment, and striving to repair natural damage that has occurred (Sujana et al., 2018). The process of delivering science learning is expected to solve environmental problems, as well as foster awareness of the inculcation of environmental care in students. This is based on the many problems of environmental damage that occur in the environment. Darajat in Aziz (2013) argues that one of the things that causes environmental damage is that the character of environmental care and responsibility is not properly embedded. The indicators of someone who cares about the environment are: 1) Always preserving the surrounding environment 2) Not taking, cutting or uprooting the plants along the trip 3) Not scribbling, writing on trees, stones rocks, roads or walls 4) Always dispose of garbage in its place 5) Do not burn garbage around the housing 6) Carry out activities to clean the environment 7) Pile up used goods 8). Clean the trash that clogs the drains.

The results of observations in the field of science learning, the material interaction between living things and the environment taught in junior high school (SMP) Negeri 2 Bulik in the learning process has several problems, such as 1) The skills of teachers in preparing Learning Implementation Plans (RPP) are still underdeveloped, namely teachers only using conventional learning to convey the material being taught, 2) During the learning process the teacher only uses the lecture method without being combined with other methods so that learning like this causes a lack of student involvement in the learning process in the classroom but only students who have high abilities can take the lessons well while students who do not have high abilities just watch, 3) Lack of environmental care, 4)

Student learning outcomes are still low. Furthermore, a cooperative attitude towards environmental concern is very important to be applied to students so that a comfortable teaching and learning atmosphere in school is created, especially in the 2013 curriculum, attitude competence is one of the competencies that must be developed, so researchers who care about the environment are very important to be applied to students. Realizing the importance of this subject, teachers are expected to choose the right methods and approaches in optimizing student involvement in the classroom to improve a more meaningful learning process (Syafii and Yasin, 2013). The problem based learning (PBL) is a learning model that challenges students to learn how to learn, work in groups to find solutions to real-world problems. This situation becomes the starting point for learning to understand concepts or principles in solving these problems through investigation and investigation (Fernando et al., 2018; Jaya et al., 2018; Ludang, 2019; Ludang et al., 2007). Seeing the above problems, the researcher took the PBL model to improve learning outcomes and environmental care attitudes of seventh grade students on the interaction of living things with their environment in junior high school students.

LEARNING CONCEPT

Learning Tools

The learning device is a form of preparation made by the teacher before carrying out the learning process. Teaching preparation is one measure of a teacher's success. Failure in planning is tantamount to planning failure. This implies how important it is to prepare learning through the development of learning tools.

Government Regulation (PP) Number 19 of 2005 concerning National Education Standards Article 20, "The planning of the learning process includes a syllabus and a learning implementation plan which contains at least seven lessons, teaching materials, teaching methods, learning resources, and assessment of learning outcomes (Daryanto and Dwicahyono, 2014).

The learning process is a planned activity that the teacher arranges for students to be able to learn and achieve the expected competencies. In line with this definition, if the teacher is going to carry out learning first the teacher must prepare a lesson plan. This lesson plan will later be used as a guiding tool for teachers in carrying out the learning process. Therefore, learning planning must be complete, systematic, easy to apply, but still flexible and accountable (Abidin, 2014).

The learning device is a device used in the teaching and learning process. Therefore, every teacher in an education unit is obliged to arrange learning tools that take place in an interactive, inspirational, fun way, motivating students to

participate actively. The learning tools needed in managing the teaching and learning process can be in the form of a syllabus, lesson plans (RPP), and student activity sheets (LKS).

Learning Implementation Plan (RPP)

The lesson plan (RPP) is a plan that describes the procedures and organization of learning to achieve a basic competency that has been defined in content standards and described in the syllabus. The broadest scope of the Lesson Plan includes 1 (one) basic competency which consists of 1 (one) indicator or several indicators for 1 (one) or more meetings. The term competency standard is no longer known in the 2013 curriculum, a new term has emerged, namely Core competence (Daryanto and Dwicahyono, 2014).

Permendikbud Number 59 of 2014 explains that the Learning Implementation Plan (RPP) refers to the content standard. Learning planning includes the preparation of learning implementation plans and preparation of media and learning resources, learning assessment tools, and learning scenarios. RPP is developed from the syllabus to direct students' learning activities in an effort to achieve basic competence (KD). Every educator in an education unit is obliged to prepare a complete and systematic lesson plan so that learning takes place in an interactive, inspirational, fun, efficient manner, motivates students to actively participate, and provides sufficient space for initiative, creativity, and independence according to their talents, interests, and physical and psychological development of students. RPP is prepared based on KD or sub-themes which are carried out in one or more meetings (Abidin, 2014).

The RPP component consists of several basic elements as outlined in Permendikbud Number 59 of 2014, namely identity, Core Competencies (KI), Basic Competencies (KD), Competency Achievement Indicators (GPA), descriptions of learning materials, learning activities, and media / tools, materials. , and learning resources.

Student Activity Sheets

There are several views that we can use as a reference. As revealed in the General Guidelines for Teaching Material Development (Diknas, 2004), student work sheets are sheets containing assignments that must be done by students. Activity sheets are usually in the form of instructions or steps to complete a task. The task must be clear about the basic competencies to be achieved.

According to another view, LKS is not an acronym for Student Activity Sheets, but student worksheets, namely teaching materials that have been packaged in such a way that students are expected to be able to learn the teaching material independently. From this explanation, we can conclude that LKS is a printed

teaching material in the form of paper sheets containing material, summaries, and instructions for implementing learning tasks that must be done by students, which refers to the basic competencies that must be achieved (Prastowo, 2011).

Prastowo (2011) explains that based on the understanding and initial explanation of the worksheets that we have touched on in the previous section, we can see that LKS has at least four functions as follows:

a. As a teaching material that can minimize the role of educators, but more activate students;
b. As a teaching material that makes it easier for students to understand the material provided;
c. As a short and task-rich teaching material for practice; and
d. Facilitate the implementation of teaching to students

In this case, there are at least four points which are the objectives of the preparation of worksheets according to Daryanto and Dwicahyono (2014), namely:

a. Presenting teaching materials that make it easier for students to interact with the material given;
b. Presenting tasks that improve students' mastery of the material given;
c. Train students' learning independence in giving assignments to students; and
d. Make it easy for educators to give assignments to students

LEARNING EXECUTION

Problem Based Learning (PBL)

Hosnan (2014), Problem Based Learning (PBL) is a learning model with a learning approach to authentic problems so that students can compile their own knowledge, develop higher skills and inquiry, become independent of students and increase self-confidence. Wardhani et al., (2012) said that PBL is a learning model that stimulates students to analyze problems, estimate answers, search for and analyze data and conclude answers to problems.

According to Arends, as quoted in Yokhebed et al., (2012), PBL involves students to think logically and critically, use analogy and divergent thinking, creative integration and synthesis. Students will be faced with authentic problems in everyday life. This situation becomes the starting point for learning to understand concepts or principles in solving these problems through investigation and investigation.

Arends (2008), the essence of PBL presents various authentic and meaningful problems to students, which can serve as a stepping stone for investigation and investigation. PBL is not designed to help teachers convey large amounts of

information to students. Hosnan (2014) PBL is characterized by the use of real-life problems as something that students must learn to train and improve critical thinking and problem solving skills as well as to get important concepts, where the teacher's task must focus on helping students achieve self-directed skills. The most important characteristic of the PBL learning model is the emergence of problems at the beginning of learning.

Trianto (2007) teaching based on problems has the following characteristics:

1. Asking questions or problems.

Problem-based learning organizes teaching around questions and problems that are both socially important and personally meaningful to learners.

2. The PBL model also focuses on interdisciplinary linkages.

3. Learning in PBL is supported through authentic inquiry.

Problem based learning requires students to do

authentic inquiries to find real solutions.

4. PBL requires students to produce certain products in the form of real works that explain the problems they find.

Hosnan (2014), the main goal of PBL is not to convey a large amount of knowledge to students, but to develop critical thinking and problem solving skills as well as develop students' abilities to actively build their own knowledge. Trianto (2007) the implementation of PBL begins with the teacher introducing students to the problem situation and ends with the presentation and analysis of the students' work.

Learning outcomes

Hamalik provides an understanding of learning outcomes as a change in behavior in a person which can be observed and measured in the form of knowledge, attitudes and skills. This change can be interpreted as the occurrence of improvement and development that is better than before and those who don't know become know. Learning outcomes can be interpreted as the maximum results that have been achieved by students after experiencing the teaching and learning process in learning certain subject matter. Learning outcomes are not absolutely in the form of values, but can be in the form of changes or improvements in attitudes, habits, knowledge, persistence, fortitude, reasoning, discipline, skills and so on that lead to positive change.

In principle, the disclosure of ideal learning outcomes includes all psychological domains that change as a result of student learning experiences and processes. The main key to obtaining measurements and data on student learning outcomes is knowing the outline of the indicators associated with the type of achievement to be expressed or measured.

Learning outcomes can be said to be successful if they have achieved educational goals. Where educational goals based on student learning outcomes can generally be classified into three, namely: cognitive aspects, affective aspects, and psychomotor aspects (Dimyati and Midjiono, 2006).

1) Cognitive aspects

The classification of cognitive domain goals by Bloom suggests that there are 6 (six) classes / levels, namely:

a) Knowledge, in this case students are asked to recall one or more simple facts.

b) Comprehension, namely students are expected to be able to prove that they understand simple relationships between facts or concepts.

c) Use / application, here students are required to have the ability to select or select certain generalizations / abstractions (concepts, laws, propositions, rules, methods) appropriately to be applied in a new situation and to apply them correctly.

d) Analysis, is the student's ability to analyze complex relationships or situations or basic concepts.

e) Synthesis, is the student's ability to combine the main elements into a new structure.

f) Evaluation, is the student's ability to apply the knowledge and abilities they already have to assess a case.

In the teaching and learning process, this cognitive aspect is the most prominent and can be seen directly from the test results. Where here educators are required to carry out all these goals. This can be done by educators by including these elements in the questions given. The questions given to students must meet the elements of goals in terms of cognitive, so that students can achieve the expected learning objectives.

2) Affective aspects

The affective domain goals relate to the hierarchy of attention, attitudes, rewards, values, feelings, and emotions. Kratwohl, Bloom, and Masia suggest that the taxonomy of cognitive domains includes 5 categories, namely receiving, responding, assessing, organizing, and characterizing.

3) Psychomotor aspects

Psychomotor goals relate to motor skills, manipulation of objects or activities that require nervous and bodily coordination. Kibler, Barket, and Miles proposed a taxonomy of the psychomotor domain that includes striking body movements, precise coordinated movements, nonverbal communication devices, and speaking ability. In the teaching and learning process, it is not only cognitive aspects that must be considered, but also affective and psychomotor aspects. To see the success of these two aspects, educators can see it in terms of the attitudes and skills performed by students after carrying out the teaching and learning process.

Environmental Care Attitude

In terms of environmental care, there are three key words, namely attitude, care, and environment. Therefore, the nature of environmental care can be seen from the basic assumptions of understanding attitude, care and the environment and the relationship between the three. The first word is attitude. Various experts provide different definitions of the nature of attitudes. However, the current Social Psychologists classify attitudes in two approaches as follows. The first approach is the tricomponent approach. The tricomponent approach views attitudes as a combination of affective, behavioral, and cognitive reactions to an object that organizes individual attitudes (Azwar, 2002). The second approach is a form of dissatisfaction with the tricomponent approach. This approach views the concept of attitude only in the affective aspect. The second approach defines attitudes as affect or judgments about positivity and negativity towards an object (Azwar, 2002).

Azwar (2002) explains that attitude is a response to conditioned social stimuli. Individuals will respond in certain ways to received stimuli. This response is a form of individual readiness. Azwar (2002) classifies responses into three types, namely cognitive responses (perceptual responses and statements about what is believed), affective responses (sympathetic nervous responses and affection statements), and behavioral or conative responses (responses in the form of actions and statements about behavior). By looking at just one of the three forms of response, a person's attitude can already be known.

The concept of attitude itself has given rise to various understandings among psychologists. Elmubarok (2008) states that attitude is a form of evaluation of feelings and potential tendencies to react which is the result of the interaction between cognitive, affective, and conative components that react with each other in understanding, feeling and behaving towards an object. Yaumi (2014) states that attitude is a kind of readiness to react to an object in certain ways. Social attitudes are formed from the social interactions experienced by individuals. In social interaction, there is a mutual influence between individuals with one another, there is a reciprocal relationship which also influences the behavior patterns of each individual as a member of society.

Environmental care is understood as an attitude and action that always seeks to prevent damage to the natural environment around it, and develop efforts to repair natural damage that has occurred. Yaumi (2014) argues that caring for the environment is an attitude and action that seeks to prevent damage to nature in the natural environment around it, and develop efforts to repair natural damage that has occurred. Students who care about the natural environment will feel comfortable if the environment is clean, beautiful, and neat. They are friendly with nature, not destroy and exploit it.

Loving the environment means preserving the functions of the environment which includes policies for environmental management, utilization, development, maintenance, restoration, supervision and control. Yaumi (2014) states that caring for the environment is an exemplary attitude that aims to create harmony, harmony, and balance between humans and the environment, creating environmental people who have attitudes and actions to protect and foster the environment, realize natural resource use prudent, protected by the Unitary State of the Republic of Indonesia against the impact of business and / or activities outside the territory of the country that cause environmental pollution and / or damage.

Yaumi (2014), students are expected to be actively involved in environmental management in accordance with applicable laws and regulations such as: Maintaining the preservation of environmental functions and preventing and overcoming pollution and destruction; Provide true and accurate information regarding environmental management; Pioneering the importance of maintaining a clean environment and improving the interaction of living things with the environment that has already been polluted; Providing ingenious solutions to develop a comfortable, clean, beautiful and tidy environment; Maintain and inform the need to preserve the school, household, and community environment by simply utilizing flora and fauna.

The lack of environmental care for students is evidenced by the behavior of students who do not care about their school environment. During recess, students throw food scraps in the garden in front of the class. Not only paper waste, plastic waste, they tuck their bottles in between plants in the garden. This situation occurs in the classroom, where the class can see trash in the desk drawer. There is plastic waste, torn paper, leftover pencil sharpener, and rotting food due to forgetting to take out the trash. Cultivating an attitude of caring for the environment from an early age, this attitude will be carried to adulthood and children will contribute to preserving the environment. Ideally, schools as educational institutions should instill student character, one of which is an attitude of caring for the environment.

Nurwanti (2011) argues that caring for the environment is an attitude and action that seeks to prevent damage to the natural environment around it, and develop efforts to repair natural damage that has occurred. These efforts should start from yourself and be done from small things such as disposing of garbage in its place, planting trees, saving electricity and fuel usage. If these activities are carried out by everyone, a clean, healthy environment will be obtained and there will be savings on non-renewable natural resources.

Indicators of environmental care, revealed by Nurwanti (2011) that environmental care in schools can be seen from 1) the cleanliness of classrooms is maintained, 2) the availability of organic and non-organic trash cans, 3) economical use of practical materials, and 4) handling of chemical waste from

practical activities. The instrument in this study consisted of a set of test questions in the form of descriptions that measure learning achievement. While the non-test instrument was a research questionnaire using a Likert scale in the form of a checklist to measure students' environmental care attitudes given to students before treatment (pretest) and after treatment (posttest). Non-test instruments are developed based on predetermined indicators. Indicators of environmental care include (1) respect for nature, (2) responsibility for nature, (3) cosmic solitude, (4) compassion and concern for nature, (5) not harming nature, and (6) the simple Life. (Keraf, 2010).

Sony in Mahlianurrahman (2017), the characteristics of environmental care include; (1) respect for the environment, (2) the principle of responsibility, (3) the principle of solidarity, (4) the principle of compassion, (5) the principle of not destroying, (6) the principle of living simply and in harmony with nature, (7) the principle of justice, (8) the principles of democracy, and (9) the principles of moral integrity. Teachers really need to instill in students an attitude of respect, prevent damage, protect the environment so that it remains sustainable, and can be used sustainably as an effort to foster students' caring attitude towards the environment.

CONCLUSION

The curriculum is designed to be able to develop the potential of students into abilities that are increasingly increasing in attitudes, knowledge and skills. This curriculum is implemented so that learning activities can use student-centered principles, develop creativity, create pleasant and challenging conditions, are loaded with values, aesthetic ethics, logic, kinesthetics, and provide diverse learning experiences. In fact, there are still many students who experience difficulties in concept processing so that they have difficulty solving problems related to learning material. This is because students only learn to memorize the theory, not deep exploration. This has resulted in teacher centered, passive learning and has not been able to improve students' creative thinking skills. This learning model, in addition to making students think creatively in psychomotor activities, can also foster a sense of social care that focuses on being sensitive to others.

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