Contextual Teaching Learning with Discovery Methods to Increase Motivation, Creativity, and Outcomes Learning science Students in elementary school

Azainil[1], Jumini[2], Usfandi Haryaka[1], Laili Komariyah[1], and Ramadiani[3]

[1] Faculty of Teacher Training and Education Mulawarman University, Indonesia

[2] Teacher of SDN 002 Samarinda Ulu, the city of Samarinda, Indonesia

[3] Faculty of Computer Science and Information Technology Mulawarman University, Indonesia

Email: azainil@fkip.unmul.ac.id

Abstract

The purpose of this Classroom Action research is to increase motivation, creativity and learning outcomes of science by using the Discovery Contextual Teaching Learning method. This research was conducted at SDN 004 Samarinda Ulu. The research subjects of class VI students were 33 students. The study was conducted in 3 cycles; each cycle consisted of 4 stages. The technique of collecting data used observation, tests, and documentation. Data analysis techniques used modes and percentages. The results showed that the use of Contextual Teaching Learning with the Discovery method could increase motivation by the percentage of cycle I: 62.00%, cycle II: 78.00% and cycle III: 82.00%. The Contextual Teaching Learning method Discovery increased student creativity with a percentage of Cycle I: 60.00 %, cycle II: 81.66%, cycle III: 96.00%. Science learning outcomes using the Contextual Teaching Learning Discovery method have increased. This can be seen from the number of student completeness and the percentage of completeness, Cycle I completed 14 students percentage 42.42%, cycle II completed 22 students percentage 66.66% cycle III completed 29 students percentage 87.87%. The learning outcomes of science, using the Contextual Teaching Learning Discovery method, could be seen from the number of student completeness and the percentage of completeness. The conclusion

of this study showed that there is an increase in motivation, creativity and learning outcomes, of science students, using the Discover Contextual Teaching Learning method.

Keywords:

Introduction

The success of learning will be seen in a change from students as well as from the efforts of educators in delivering material. In addition, teachers or educators are also required to be active in the teaching and learning process so that students easily understand, communicate, and can solve problems in their daily life. In the learning process, the teacher always provides education that only requires specific learning outcomes from students. As such, the teacher is reluctant to use methods that will foster a spirit of student motivation and creativity. Sometimes, teacher only uses the same method while delivering content for classroom learning. It is not appropriate if a teacher does not use a variety of methods in presenting the material to be taught. This is because varied methods will increase motivation; creativity can even improve student learning outcomes. Therefore the teacher should use different methods for presenting learning material in the classroom.

According to Suryanti and Rokhim (Suryanti & Rokhim, 2006), contextual learning can overcome the understanding of the concept of hot material. Besides, students can also construct or build an understanding of the concept of heat well.

Balim, A., G. (2009) conducted research with the aim of answering the question "How can teaching science through the Discovery Learning approach influence the progress of student academic achievement, perceptions of acceptance of inquiry into learning skills with retention of knowledge?". This study aims to identify the influence of the discovery learning method on students' perceptions of the acceptance or investigation of learning skills, achievement of

academic values and the value of determined knowledge. This study also examined whether there were significant differences between experimental and control groups in learning unit material if not because of pressure from the level of cognitive and affective learning levels.

The results of observations conducted by researchers at SDN 004 Samarinda Ulu in class VI, had an unsatisfactory value, many students scored under the Minimum Examination Criteria (KKM) around 60.00%. The low result is because the material presentation system is monotonous; it only requires students to memorize, without giving meaningful learning from the learning process. In this situation, students feel bored and quickly forget about memorizing the material they learned in class.

Based on the background of the problem above, the formulation of the problem is whether teacher activity, student activity, motivation, creativity and learning outcomes of science, by using the Contextual Teaching Learning Discovery method on the material for Living Creature Reproduction in class VI Samarinda Ulu 004 Elementary School, can be improved?

In this research, the researcher acts as a teacher to gain a new experience on how a teacher can improve his/her activities, inviting students to actively participate in the learning process of elementary school students. In addition, new experiences and insights have also been found on how to motivate students to grow up when they take part in the teaching and learning process in class. Besides that, students can develop creativity and improve the quality of science learning and learning outcomes using the Discovery Method.

In general, the benefits of this study introduce students to contextual learning (Discovery) methods of discovery to help increase motivation, creativity, and learning outcomes of science. As a matter of consideration for the teacher in determining the method that can be used when the learning process begins, this research will examine how an increase in motivation,

creativity, and learning outcomes of science material, of Animal and Plant Breeding through the Contextual Teaching Learning Discovery method, can be achieved.

Literature review

Motivation to learn

In Maslow's theory (Maslow, 1943), motivation is interpreted as the reason underlying an act carried out by an individual. While Mitchell (Mitchell, 1982) argues that motivation is a process that explains the intensity, direction, and perseverance of individuals to achieve a goal. Siagian (Kadji, 2012) says that motivation is a driver that results in a member of the organization willing to mobilize abilities, in the form of expertise or skills, energy and time to organize various activities that are their responsibility and fulfill their obligations in order to achieve goals and various organizational goals has been determined.

Hamzah B. Uno (Uno, 2016) says motivation and learning are two things that influence each other. Learning is a change in behavior that is mutually permanent and potentially occurs as a result of practice, or reinforced practice, based on the purpose of achieving certain goals.

Based on the opinions above, the researchers took a combination of opinions about the indicators of student learning outcomes motivation. Indicators of student learning motivation are: 1) the desire and desire to succeed, 2) diligently facing the task, 3) the existence of interesting activities in learning, 4) can maintain opinions, 5) good time management. In addition, each researcher adds two sub-items to assess the student's activities according to the current state of the class and does not ignore the indicators that the researcher has taken as reference material to observe student motivation.

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Creativity

Creativity is an ability that reflects fluency, flexibility, and originality in thinking and the ability to collaborate on ideas (Munandar, 2017). Creativity, as a whole personality, is the result of interaction with the environment. Creativity is a characteristic that is owned by an individual that marks the ability to create something completely new or a combination of works that already existed before, into something new. Work is done through interaction with the environment to face problems, and find alternative solutions through divergent ways of thinking (Roeper, G. A., Ruff, 2016).

From some of the opinions above, indicators that will taken as instruments for assessing students' creativity can be developed. These indicators are: 1) have a high motivation, 2) have good memory and attention, 3) dare to express their opinions and beliefs, 4) have initiative,) have broad insight, 6) have a high sense of curiosity, 7) have fun in doing difficult tasks, 8) have high intuition, 9) are full of confidence, 10) love to look for new experiences.

Learning outcomes

The learning process is a very fundamental element in the implementation of each type and level of education (Purwanto, 2014). This means that the success of a goal depends on the learning process. Muhibbin Shah (Syah, 2010) says that learning is a relatively sedentary change that occurs in all kinds / overall behavior of an organism as a result of experience.

Abdurrahman Mulyono (Mulyono, 2009) says that learning outcomes are abilities acquired by children after going through learning activities. The success of learning can be seen from the success of students achieving instructional goals. Benjamin S. Bloom (Bloom B, Englehart M, Furst E, 1956) argues that there are three domains of learning outcomes, namely the cognitive, affective, and psychomotor domains. Bloom also argues that learning outcomes

can be grouped into two types, namely knowledge, and skills. For knowledge, groups consist of facts, procedural, concepts, and principles. While the skills group consists of thinking skills, acting/reacting and interaction skills.

Learning outcomes indicators include:

1) The cognitive domain, namely (1) observation, can show that it can compare, and can connect, (2) The realm of memory, which can be mentioned, and can show. (3) The domain of understanding, including being able to explain, and can define it orally by yourself. (4) application domain, which can provide examples, can be used appropriately.

2) The domain of analysis (careful examination and assessment), which can be explained, can be able to sort out.

3) The synthesis domain (making a mixture of materials and intact), that is, can connect materials so that they become a whole unit, can conclude, and can generalize (make general principles).

4) Internalization (deepening), which is acknowledging, believing, and denying.

5) The realm of characterization (appreciation), which is institutionalizing or revealing, and manifesting in personal and daily behavior.

6) Initiative (psychomotor), namely to move and move skills: skills to coordinate the motion of eyes, hands, feet, and other body members. And verbal and non-verbal expression skills: pronunciation / utter fluency, and piety-panic make physical gestures and movements.

Science Learning

In the KTSP curriculum, it is said that Natural Science (IPA) is related to how to find out about nature in a systematic way, so science is not only mastery of a collection of knowledge in the form of facts, concepts, or principles but also is a discovery process. Science education is

expected to be a vehicle for students to learn about themselves and their surroundings, as well as the prospects for further development in applying their skills in their daily lives. The learning process emphasizes the ability to develop competence in order to explore and understand the natural surroundings scientifically. Natural Science education is directed towards inquiry and in doing so can help students to gain a deeper understanding of the natural environment.

The Natural Sciences are needed in everyday life to meet human needs through solving identifiable problems. The implementation of Natural Science needs to be done wisely so that it does not have a negative impact on the environment. At the SD / MI level, it is expected that there will be an emphasis on learning Salingtemas (Science, environment, technology, and society) directed at learning experiences to design and make work through the application of science concepts and competency in scientific works.

The Fact Of The IPA

All teachers must know why Natural Science is important to be taught at school. There are four reasons why Natural Knowledge Science is included in school lessons, namely:

1. Natural Science is beneficial to the nation because the material prosperity of a nation depends a lot on the ability of the nation to conduct scientific experimentation. This is because Natural Science is the basis of technology, often referred to as the backbone of development. Basic knowledge of technology is Natural Science.

2. Natural Science is a subject that provides opportunities for children to think critically, for example, children are faced with one problem and children are asked to investigate the problems faced according to the material taught.

3. Natural Science is taught through experiments, conducted by children, which means that it is not just memorization.

4. Natural Science subjects have educational values which have the potential to shape the overall personality of the child.

Natural Science trains children to think critically and objectively. Correct knowledge according to the benchmarks of the truth of science, namely objective rationality. Rational means reasonable or logical, and can be accepted with common sense. Objective means according to the object, in accordance with reality, or in accordance with the experience of observation through the five senses.

Contextual Learning

Understanding Contextual Learning

Contextual learning is a system that stimulates the brain to form patterns that embody meaning. This system is appropriate and appropriate in everyday life experienced by students. This contextual learning does not only provide theoretical knowledge but, in contextual learning, students are invited to learn in real terms (Denver, 2016).

Johnson said that Contextual Teaching Learning (CTL) allows students to relate the contents of academic subjects to the context of everyday life to find contextual meanings and to further expand the personal context of students through providing fresh experiences that will stimulate the brain to establish new relationships and discover new meanings (Elaine B Johnson, 2002). Howey R. Keneth defines CTL as learning that enables learning processes where students use an understanding of academic skills, in various contexts, within and outside the school, to solve problems that are simulative or real.

Contextual learning is learning that provides an interactive learning experience for students, namely learning that provides more opportunities to do, try, and experience the teaching and learning process itself. Contextual Teaching Learning is a concept of learning that

can help teachers associate the material they teach with real-world situations of students and encourage students to make connections between what they have and their application in their lives as family members and members of society (Glynn & Winter, 2004). Contextual Teaching Learning system is an educational process that aims to help students see the meaning in the academic material they learn by connecting academic subjects with the contents of everyday life, namely in the context of personal, social and cultural life. Through this contextual learning, students will get more learning experiences to use the information that they get. In this way the learning will be more meaningful, where students directly come into contact with the environment and situations and problems of life that occur in their environment. The material to be taught can be related to the real world in everyday life. So students will feel real learning, not learning in the abstract world.

According to Elaine B. Johnson (Elanie B Johnson, 2007) Contextual is a learning system that is based on the philosophy that students are able to absorb lessons when they capture the meaning in the academic material they receive. Students can grasp the meaning in school assignments if they can associate new information with the knowledge and experience they have had before.

Contextual Learning Scenario

The teacher should create an environment where Contextual Learning is a control tool in the implementation of learning. The main things that should be done are: 1) inviting students to work and find new knowledge and skills; 2) find out about the topic being taught; 3) develop student knowledge through questions; 4) creating small groups used discussion, question and answer; 5) the use of models or illustrations; 6) reflecting on each activity; 7) objective assessment. In the application of contextual learning, the teacher designs and guides all learning

activities in the classroom so that the learning process, step by step, can achieve the expected goals.

Discovery Method

Definition of discovery

Discovery is finding concepts through a series of data or information obtained through observation or experiment. Discovery learning is a cognitive learning method that requires the teacher to be more creative in creating a learning cycle so that students discover their own knowledge. Jerome Bruner (Conway, 2007) argues that discovery learning is in accordance with the search for knowledge actively by humans, and by itself gives the best results. Trying by oneself to find solutions to problems, and the knowledge that accompanies them, produces knowledge that is truly meaningful.

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Benefits of Discovery Learning

The benefits of learning discoveries are: 1) that knowledge lasts longer, 2) discovery learning outcomes have better transfer effects and 3) improved student reasoning and the ability to think freely. David Hammer (Hammer, 1997) says that discovery learning, will arouse students' curiosity, giving the motivation to work continuously until students find the answers they need. Robert Mayer and B. Shader (Mayes, R., Shader, 2014) say learning with discovery methods will be effective if the following things occur: 1) the learning process is carefully structured, 2) students have initial knowledge and skills for learning, 3) the teacher gives the support students need to conduct an investigation.

Materials and Method

Place and time of research

This research was conducted at the Class VI Elementary School 004 Samarinda Ulu in the Field of Natural Sciences, "The Breeding of Living Creatures". This research was conducted from August to September 2016. The activities were carried out twice every week for 33 students.

Cycle Process and Design

The classroom action research, conducted by researchers, consisted of three cycles. These cycles consists of planning, action, observation and reflection.

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Role and Position of Researchers in Research

The research carried out was classroom action research. The research was conducted collaboratively between classroom teachers and researchers. In this case, the researcher also acts as a teacher who runs the learning scenario created by the researcher. The observation process is assisted by an observer.

Intervention Results Expected Action

One of the uses of Class Action Research is the improvement of classroom learning carried out by the teacher by using various methods that are in accordance with the material to be taught, namely by using the Discovery method of motivation, creativity and student learning outcomes can be improved.

Research Instrument

According to Arikonto (Arikunto, 2006), instruments are a tool used by researchers to help collect data so that their work is easier, more careful, and systematic. In this study researchers used instruments with questionnaire sheets, question sheets, and observation sheets.

Data Collection and Analysis Techniques

Data collection techniques used in this study are through the question sheets and observation sheets. The data analysis technique used in this study is qualitative data analysis and quantitative data analysis. Qualitative data analysis is an analysis that manages and analyzes the collected data into systematic, orderly and structured data.

Research Results

Cycle I Research Results

This study consisted of three cycles where the first cycle consisted of three meetings, the second cycle consisted of three meetings and the third cycle consisted of three meetings. Each cycle of the first meeting and the second meeting is conducted using contextual learning (Contextual Teaching Learning) by applying the discovery method. Tests are given at the end of each third meeting, each cycle. The results of observations obtained after the study used contextual learning method of discovery. The results of these observations consisted of observation of motivation, observation of student creativity, and observation of student learning outcomes. Broadly speaking, the percentage of results obtained from this study by applying contextual learning method of discovery, can be seen in table 1 in the first cycle, cycle II, and cycle III.

From Table 1, it can be seen that there is an increase in the Motivation Presentation of students in learning from 62.00% in cycle 1 to 78, 00% in cycle II and to 92.00% in cycle III. The percentage of results obtained from this study by applying Contextual Teaching Learning with the discovery method can be seen in table 4.2 in the first cycle, second cycle, and the third cycle.

Table 2 shows that there is an increase in Student's Creativity Presentation in learning from 60.00% in cycle 1 to 81.66% in cycle II and to 96.00% in cycle III. The outline of the percentage of results obtained from this study by applying contextual learning method of discovery can be seen in table 3 in the first cycle, cycle II, and cycle III.

Based on table 3, namely the table of learning outcomes, students will describe the results of research in each cycle in detail and will be prescribed material for consideration to continue the next cycle. In the first cycle, the average cycle end test obtained the final value of the first cycle of 68.61. If it was presented, it reached 42.42% with fewer criteria. The percentage increase in pre-cycle to the first cycle reached an increase of 3.03%. The meeting in the second cycle average student learning outcomes reached 71.14, with a percentage reaching 66.66% with sufficient criteria. The percentage increase from cycle I to cycle II reached 24.24%. Thus until the third cycle, the average completeness of learning outcomes reached 87.87%. Increased learning outcomes from cycle II to cycle III reached 21.21% with good criteria.

From the three tables mentioned above, the results of the study indicate the use of contextual learning method of discovery can increase motivation. This is seen from the percentage in the first cycle 62.00%, cycle II 78.00% and cycle III 82.00%. Contextual Teaching Learning for discovery methods increases student creativity seen in the first cycle percentage 60.00%, second cycle 81.66%, cycle III 96.00%. Learning outcomes of science using contextual learning methods of discovery also experienced an increase. This can be seen from the number

of student completeness and the percentage of completeness results. The complete first cycle of students was 14 percentage students 42.42%, cycle II as many as 22 students percentage 66.66%, cycle III as many as 39 students percentage 87.87%. Based on the results of this research, it can be concluded that there is an increase in motivation, creativity and learning outcomes of science using Contextual Teaching Learning method of discovery in class VI of SD Negeri 004 Samarinda Ulu.

Conclusion

Increasing science motivation, creativity and learning outcomes can be summarized as follows: 1) Based on the results of the observer's learning, it can be concluded that, the teacher's activities in carrying out the teaching and learning process, each cycle has increased. This can be seen from the steps of contextual learning (discovery) method of discovery (Discovery), with the design of group work skills provided, by the teacher in learning, looks very active, creative and effective. The teacher acts as a facilitator in learning. The teacher can also carry out collaborative learning; student interaction also looks very active. The teacher can also invite students to discuss, present the results of the discussion, provide feedback in group discussions and the teacher can invite students to solve problems; 2) Based on observers 'observations of learning, it can be concluded that the activities of students in participating in learning can be explored, students' abilities have been seen. Students are also able to discuss in groups and be able to express their opinions. In addition, students are also able to interact and students are also able to provide responses to the material delivered by the teacher; 3) Based on the observations observed on learning, it can be concluded that student learning motivation in each cycle has increased. This can be seen from the willingness of students to learn, where students actively pay attention to the teacher's explanation and actively ask questions about the material that has not

been understood. Students are enthusiastic when working together in groups and students dare to argue, are diligent in working on tasks and can manage their time well during the school learning process; 4) Based on observers' observations the researcher obtained data information that illustrated the increase in creativity in students seen in cycle II. In the first cycle, students' creativity is not yet visible, only a few students are indeed creative in the class. Then in the second cycle began to appear to increase the creativity of students at the 2nd meeting. Where students are able to respond to the opinions of friends, students dare to give ideas or proposals to a problem, students are able to solve alternative problems, students are also able to express new ideas delivered with loudly shamelessly, students also dare to defend their ideas and students also have great enthusiasm in finding answers and trying new things. Likewise in the third cycle, all student creativity seems to be greatly improved. The contextual Teaching Learning method of discovery has a positive impact on student learning outcomes. With increasing student learning outcomes in each cycle. It can be seen from the results of the recapitulation of student learning outcomes, namely in the first cycle of student learning completeness only 14 students when completed completeness student learning outcomes only reached 42.42%, in cycle II student learning completeness increased to 22 students, when presented reached 66 66%, in the third cycle the completeness of learning reached 29 students if it was hit by 87.87%.

Table. 1 Percentage of Motivation Recapitulation

Implementation	Average Cycle Final Test	Criteria
Cycle I	62,00%	Less
Cycle II	78, 00%	Well
Cycle III	92,00%	Very good

Table 2. Recapitulation of Creativity Percentage

Implementation	Average Cycle Final Test	Criteria
Cycle I	60,00%	Less
Cycle II	81,66%	Well
Cycle III	96,00%	Very good

Table 3. Recapitulation of Percentage of Learning Outcomes

Implementation	Average Cycle Final Test	Percentage Completeness	Increase Percentage	Criteria
Pre Cycle	-	39,39%	-	
Cycle I	68,61%	42,42%	3,03%	Less
Cycle II	71,14%	66,66%	24,24%	Well
Cycle III	83,37%	87,87%	21,21%	Very goo

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