

Implementing Discovery Learning Model to Improve Students' Creative Thinking Skills

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Abstract: One alternative learning model is discovery learning, which is a discovery learning model for understanding concepts, meanings, and relationships through an intuitive process that finally concludes; this learning is assumed to be able to improve students' creative thinking skills. This study aims to see the implementation of the discovery learning model to enhance students' creative thinking skills. The methods used in this study, observation methods and data recording, were carried out during the learning process through observation using observation sheets and video recording by implementing a technician recording using a mobile phone. The shooting is done thoroughly, and then editing will be done on several events that are considered essential. The results of this study show that lesson study includes plan (planning), do (implementation), and see (reflection) activities. The first lesson study activity is a plan (planning) regarding goal setting, fundamental competency analysis, syllabus, adequate location and time, selecting the correct learning method and model for predetermined material, and preparing a learning implementation plan. The second lesson study activity (the implementation) is done to apply learning strategies to students based on the analysis of student characteristics and experiences and the achievement of learning indicators on light material and its properties. The third activity of the lesson study is see (reflection) on the cognitive, affective, and psychomotor aspects of grade V students of SD Negeri 1 Bagik Payung who have met the achievement of competency indicators.

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Introduction

Education is a mirror of the progress of the nation; a nation will be said to be advanced if education is carried out as well as possible; good education is education that not only

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prepares students for a profession or position but should also prepare students to be able to solve problems faced in everyday life; thus education must have a clear goal that education must be directed to produce humans who quality that has competitiveness, besides that education, is also an effort to improve the quality of human resources (HR) both physical, mental and spiritual which in general education aims to educate the nation's life (Hermanto, 2020; Suwartini, 2017).

A good quality of education is required to realize national development in education following the development of science and technology, art, community development, and development needs (Fahrurrozi & Mohzana, 2020; Sulastri et al., 2020). The success of educational development is determined by various factors, including teacher competence and the existence of a curriculum that "up to date" With the development of the times (The Gospel and Romance, 2017). The curriculum is one of the factors that influence the success of education in addition to teacher factors, facilities and infrastructure, learning environment, and factors that come from within students (Rahman, 2022). The curriculum is a tool to achieve educational goals, so it is essential to structure the education system (Julaeha et al., 2021).

Efforts to further improve student learning success can be done through efforts to improve the learning process (Ekayani, 2017). The teacher is the frontline in this learning improvement process, namely by setting the right learning model; students are the target of the learning process, so in choosing and determining the learning model must be adjusted to existing conditions and circumstances, learning efforts should be Refocus in students (Nanda et al., 2022). Learning should be implemented with an effective learning model to obtain better results (Harefa, 2023). Therefore, good teaching skills are also needed to master the learning model; a mental attitude is also necessary to improve teaching ability (Lestari, 2020).

One alternative learner model is discovery learning, which is a discovery learning model to understand concepts, meanings, and relationships through intuitive processes that eventually conclude, this learning is assumed to be able to improve students' critical thinking skills (Syahbana, 2012). The independent curriculum prioritizes differentiated learning; hence the application of learning discovery is very significant (Handayan, 2023). In differentiation learning, students learn according to their needs. Direct experience and the learning process become the main benchmark in its implementation, on the other hand discovery learning is a learning model that secures the process more than the result (Nugraha et al., 2017).

As long as education still exists, problems will always arise and people will not stop talking and debating about its existence, ranging from fundamental-philosophical matters to technical operational matters (Sumarni, 2008). Most of the discussion about education is mainly focused on finding the best way to achieve quality education to create reliable human resources, both in academic, socio-personal, and vocational fields (Purwati, 2011). One of the problems or topics of education that has recently been interesting to discuss is Lesson Study, which emerged as an alternative to overcome the problem of learning practices that have been seen as less effective (Devi et al., 2020; Puryanto & Japa, 2023). As is understandable that for a long time the practice of learning in Indonesia generally tends to be done conventionally, namely through oral communication techniques (Default, 2018). This kind of conventional learning practice is more likely to emphasize how teachers teach (teacher-centred) rather than how students learn (student-centred), and overall the results we can understand which do not

contribute much to improving the quality of student learning processes and outcomes (Default, 2018). Changing the habit of learning practices from conventional learning to student-centered learning is not easy, especially among teachers who belong to the laggard group (resistors of change or innovation) (Susanti et al., 2023). In this case, lesson study can be used as an alternative to encourage changes in learning practices in Indonesia in a much more effective direction (Karimah &).

Lesson study as a model used for teaching guidance for students, because in that model collaborative, collegial and mutually beneficial work is developed in learning (mutual learning) (Rahmawati, 2014; Mulyana, 2007), so activities lesson study Can be used to organize, train and guide students in activities lesson study Can be used to organize, train and guide students in learning activities (Purwantoro, 2023; Sanjaya & Ratnasari, 2021). For this reason, the implementation of activities is carried out through lesson study Use learning models discovery learning to improve teaching skills and quality of learning in schools (Rozhana & Harnanik, 2019).

Research Method

This lesson study activity is carried out in two cycles where the first cycle will be held on Monday, January 8, 2024 and the second cycle will be carried out on January 15, 2024, at SD Negeri 1 Bagik Payung. The time of lesson study activities that take place in each cycle has been carried out with Plan, Do and See stages. Details of lesson study activity time can be described in the following activity table.

Table 1. Time of Lesson Study Activities

Activities	I	II
Plan	December 26 2023	January 12, 2024
Do	January 8, 2024	January 15, 2024
See	January 8, 2024	January 15, 2024

The techniques used to collect data in this study are adjusted to the type of data taken, namely (1) observation, which is an observation or recording of activities carried out systematically, aiming to observe behavior and activities during the learning process; (2) rubrics, describing the criteria of assessment used to assess or grade the results of student work; (3) tests, to measure student learning outcomes; and (4) documentation, taking pictures by researchers to strengthen the data obtained in learning activities.

The data analysis techniques used in this study are quantitative and qualitative descriptive. The data obtained from the test results in descriptions and multiple choice are quantitative data. This data is presented in the form of numbers, while qualitative data is data derived from the results of observation sheets or teacher and student checklists in the form of an explanation or description. Validity and reliability tests were carried out to guarantee this study's multiple-choice question instruments and fill-in-the-box. A good question instrument must be qualified, valid and reliable.

The method of observation and data recording carried out in this activity during the learning process through observation using observation sheets and video recording. In the

implementation of a technician recording using a mobile phone. The shooting is done thoroughly and then editing will be done on several events that are considered important.

Result and Discussion

This activity involves collaboration between students in planning, teaching, and evaluating lessons together. This lesson study at SD Negeri 1 Bagik Payung has a scope and target of activities that focus on improving the quality of teaching and learning. The following are some aspects of the scope and target of lesson study activities at SD Negeri 1 Bagik Payung.

Implementation of Lesson Study

Implementation of Cycle I

Actions in cycle I begin with the "Plan" (planning) stage, designing learning using a predetermined learning model. The next "Do" stage (implementation) stage is applying the discovery learning learning model using the lesson study method. This activity occurs during one face-to-face meeting or 2 hours of lessons. The implementation of this learning is carried out by one model teacher in charge of teaching or being a facilitator of learning and 4 observers in charge of observing the learning process. The last stage is the "See" stage, which is the stage of reflecting on learning outcomes.

a. Plan

We design learning with discovery learning models to improve students' creative thinking skills. Needs Analysis and Division of Main Tasks: Planning begins with activities to analyze the needs and problems faced in learning, then together, find solutions to solve the problems found. Conclusions from the analysis of needs and issues must be considered in preparing lesson plans and implementing lesson studies. After conducting a needs analysis, it is determined what main tasks must be made and shared with each member. The distribution of functions is adjusted to the planning of place, time, material topics, lesson plans, preparation of model teachers in teaching, and observers. The divisions include Siti Salmiyatun Mariani: Model Teacher; Sabahanuddin: Observer Jalaluddin: Observer; Bq. Jauziati, Observer Muh. Zulhifzi Nurullah: Observer

The lesson study was conducted at SD Negeri 1 Bagik Payung class V with the material "Seeing because light hears because of sound. The selection of materials is adjusted to the ongoing learning schedule at school. The methods include lectures, questions and answers, demonstrations, and practices. The learning model applied is discovery learning on Light and its Nature.

Determining the Topic of the Material: The material in this lesson study activity is "Seeing because light hears because of sound". The selection of materials is adjusted to the ongoing learning schedule at school. The methods carried out include lectures, questions and answers, demonstrations, and practices. The learning model applied is discovery learning on Light and its Nature.

A critical part in preparing this lesson study is learning planning and all the tools that must be present in the learning that will be carried out; therefore, the Teaching Module or RPP is prepared as a learning tool that is adjusted to the syllabus that already exists in the independent curriculum. The following plan activities are carried out as shown below.



Figure 1. Cycle I Plan Stage Activities

b. Do (Execution)

At this stage, the implementation of the Lesson Study aims to implement the learning design. In the implementation process, one teacher acts as an executor and the other teacher as an observer. The focus of observation is not on the appearance of the teacher who teaches but instead directed at student learning activities guided by procedures and institutions that have been agreed at the planning stage. Observers are not allowed to interfere with the learning process.

Based on the lesson plan that has been prepared, the model teacher carries out learning in a predetermined class. At the same time, other members act as observers, who observe the learning process using research instruments that have been developed. Thus, the necessary data collection is carried out for reflection along with implementing the learning process.

The lesson study was conducted in grade V of SD Negeri 1 Bagik Payung in Bagik Payung village, Suralaga District on Monday, January 8, 2024 at 08.30-09.50 WITA. Activities are carried out in groups following the division of main tasks predetermined at the Plan stage. Siti Salmiyatun Mariani, S.Pd as a model teacher, while Sabahanuddin, Jalaluddin, Muhammad Ali Muis, Baiq Jauziati and Zulhifzi Nurulloah as observers.

The results of the analysis of the characteristics of grade V students of SD Negeri 1 Bagik Payung have high curiosity, activeness, and enthusiasm in asking questions and providing answers related to the material.

Based on the results of the analysis, the right learning model for the implementation of lesson study is the discovery learning model. This is because students still need guidance in the implementation of learning.

Observer consists of 4 students who observe the interaction between students, students with teachers, and students with others using observation instruments in observation sheets prepared previously and compiled together.

Observers are not only assessors or evaluators of model teachers, but observers must also be able to learn from the learning that takes place. In this lesson study activity, from beginning to end, recording is carried out through videos and photos, which are used for documentation purposes and further analysis of materials.

This recording and taking photos does not interfere with the learning process. Observers record student learning behavior during learning, for example about student comments or discussions and try to include the name of the student concerned, the process of constructing student understanding through student learning activities.



Figure 2. Stage Activities Do Cycle I

c. See (Reflection)

The see stage or learning reflection is carried out directly after the do stage is completed on January 8, 2024. At the see stage, the lesson study implementation team discusses all activities carried out at the do stage. Based on observations made by observers, the do stage that has been carried out has the following results. First, Cognitive (Knowledge) Knowledge students can achieve learning indicators, namely measuring and comparing the length of objects. Second, Affective (Attitude) The assessment of the observed attitude is responsibility. The indicator takes measurements and answers questions on the Student Worksheet in groups. All members of the compact group completed the measurement and poured it into the Student Worksheet that had been provided. After that, in groups, present it in front of the class. Based on observer observations, one student was not compact in completing group assignments from the teacher. It is known that the child is included in children with special needs (ABK). Third, students' Psychomotor (Skills) Skills in group work are observed according to indicators. Students have not mastered on the indicators of presenting measurement results. For this reason, students need to be re-explained about the steps in the presentation of group assignments. Observer comments on learning using the discovery learning model are contained in the observation sheet of each observer attached to this lesson study report.



Figure 3. Stage See Activities Cycle I

Implementation of Cycle II

The implementation of cycle II activities is more focused on improving students' ability to think creatively on the Light and its Nature material, with the timeliness of completing group assignments on Student Worksheets (LKPD), and the process of delivering the results of group assignments through the presentation method.

Cycle II is carried out during one face-to-face meeting and by one model teacher tasked with teaching and being a facilitator during the learning process.

a. Plan

Lesson Study Objectives Designing learning with discovery learning models to improve students' creative thinking skills. Needs Analysis and Division of Main Tasks: Planning begins with activities to analyze the needs and problems faced in learning, then together, find solutions to solve the issues found. Conclusions from the analysis of needs and problems must be considered in preparing teaching modules or lesson plans and implementing lesson studies. After conducting a needs analysis, it is determined what main tasks must be made and shared with each member. The distribution of tasks is adjusted to the planning of place, time, material topics, lesson plans, preparation of model teachers in teaching, and observers. The divisions include: Siti Salmiyatun Mariani: Guru Model Sabahanuddin: Observer Jalaluddin: Observer Bq. Jauziati: Observer, Muh. Zulhifzi Nurullah: Observer

The lesson study was conducted at SD Negeri 1 Bagik Payung class V with "Seeing because light hears because of sound". The selection of materials is adjusted to the ongoing learning schedule at school. The methods carried out include lectures, questions and answers, demonstrations, and practices. The learning model applied is discovery learning on Light and its Nature.

Determining the Topic of the Material, The material in this lesson study activity is "Seeing because light hears because of sound". The selection of materials is adjusted to the ongoing learning schedule at school. The methods carried out include lectures, questions and answers, demonstrations, and practices. The learning model applied is discovery learning on Light and its Nature.

Preparation of Teaching Modules following Learning Outcomes in the Independent Curriculum, One important part in the preparation of this lesson study is learning planning and all the tools that must be present in the learning that will be carried out, therefore the Teaching Module / RPP is prepared as a learning tool that is adjusted to the syllabus that already exists in the independent curriculum, In this case the RPP improvement process is carried out referring to the learning outcomes on Cycle 1.



Figure 4. Cycle II Plan Stage Activities

b. Do (Execution)

At this stage, the implementation of lesson study aims to implement the learning design. In the implementation process, one teacher acts as an executor and the other teacher as an observer. The focus of observation is not on the appearance of the teacher who teaches, but rather directed at student learning activities guided by procedures and institutions that have been agreed at the planning stage. Observers are not allowed to interfere with the learning process.

Based on the lesson plan that has been prepared, the model teacher carries out learning in a predetermined class, while other members act as observers, who observe the learning process using research instruments that have been developed. Thus, along with implementing the learning process, the necessary data collection is carried out for the sake of reflection.

The lesson study was carried out in grade V of SD Negeri 1 Bagik Payung in Bagik Payung Village, Suralaga District on Monday, January 15, 2024 at 08.30-09.50 WITA. Activities are carried out in groups in accordance with the division of main tasks that have been predetermined at the Plan stage. Siti Salmiyatun Mariani, S.Pd as a model teacher, while Sabahanuddin, Jalaluddin, Muhammad Ali Muis, Baiq Jauziati and Zulhifzi Nurulloh as observers.

The results of the analysis of the characteristics of grade V students of SD Negeri 1 Bagik Payung have high curiosity, activity, and enthusiasm in asking questions and providing answers related to measurement material using meter media. In this case, students seem to be very excited and cheerful in following learning. The ability to think creatively of students also increases when using learning media in the learning process

Observer consists of 4 students who observe the interaction between students, students with teachers, and students with others using observation instruments in observation sheets prepared previously and compiled together.

Observers are not only assessors or evaluators of model teachers, but observers must also be able to learn from the learning that takes place. In the process of this lesson study

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activity, from beginning to end, recording is carried out through videos and photos, which are used for documentation purposes and further analysis of materials.

This recording and taking photos does not interfere with the learning process. Observers record student learning behavior during learning, for example about student comments or discussions and try to include the name of the student concerned, the process of constructing student understanding through student learning activities.



Figure 5. Stage Activities Do Cycle II

c. See (Reflection)

The see stage or learning reflection is carried out directly after the do stage is completed on January 15, 2024. At the see stage, the lesson study implementation team discusses all activities that have been carried out at the do stage. Based on observations made by observers, the do stage that has been carried out has the following results. **First**, Cognitive (Knowledge), Knowledge students are able to achieve learning indicators, namely measuring and comparing the length of objects. In cycle 2, there was an increase in students' creative thinking skills. **Second**, affective (attitude)

The assessment of the observed attitude is a responsibility. The indicator carries out measurements and answers questions on the Student Worksheet in groups. All members of the compact group completed the measurement and poured it into the Student Worksheet that had been provided. Students take turns measuring their friend's height using a meter. Based on observer observations, students show an increase in positive attitudes during learning. **Third**, students' Psychomotor (Skills) Skills in group work are observed according to indicators. Students have mastered the indicators in presenting assignments appropriately and well. **Fourth**, observer comments on learning using the discovery learning model Observer comments that are contained in each observer's observation sheet are attached to this lesson study report.



Figure 6. Stage Activities See Cycle II

In cycle I of learning process activities or at stages Do shows that students still do not look active and their creative thinking ability is still not too significant, so the model teacher carries out reflection to plan the process Plan In cycle II several improvements were made by changing the methods used and learning materials. Next on the stage Do Cycle II student activities have been seen to be very active, collaboration between groups has been active in addition to students' creative thinking skills have increased significantly, this can be seen from the results of observations by observers. In line with the results of research conducted by, (Cintia et al., 2018) implementation Learning Model discovery learning can improve students' creative thinking skills and thematic learning outcomes. Not only that, other findings were made by, (Rohim & Susanto, 2012) Test analysis *Gain* Normalized gives high improvement results for students taught using the model *discovery* Guided and minor for students taught using the discussion method. The study results can conclude that applying the learning model discovery guide can improve students' creative thinking skills. Some other findings also found that Application of learning models discovery learning can improve students' creative thinking skills, (Dea & RAHMAWATI, 2021; Safitri & Mediatati, 2021).

Conclusion

Based on the implementation of learning that has been done, it can be concluded first, the discovery learning model is considered quite effective in the implementation of learning in the classroom, because this learning model is more demanding for students' ability to be able to cooperate with others, discovery learning It is a student-centred learning process and the teacher is only a facilitator. Students play an active role in the learning process to search, investigate, process and discover new knowledge concepts in problem solving, so that students can develop their knowledge and skills. So that students can solve their own problems and find knowledge, skills and attitudes in the learning process, The application of the discovery learning model aims to develop the way students learn actively in the learning process, as well as overall students can increase creativity in thinking critically in finding ways and principles to solve their own problems, so that the learning results obtained are

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easily understood. Second, the implementation of lesson study in science subjects in Class V of Elementary School 1 Bagik Payung has gone well.

Based on the description above, conclusions were obtained, among others, Lesson study includes plan (planning), do (implementation), and see (reflection) activities; The first activity of lesson study is a plan (planning) regarding goal setting, basic competency analysis, syllabus, determining adequate location and time, selecting the right learning method and model for predetermined material, and preparing a learning implementation plan; The second activity of lesson study is do (implementation) of learning strategies applied to students based on the analysis of student characteristics and experiences and the achievement of learning indicators in the measurement material; The third activity of the lesson study is see (reflection) on the cognitive, affective, and psychomotor aspects of grade V students of SD Negeri 1 Bagik Payung have met the achievement of competency indicators.; In general, the implementation of lesson study has gone well, this is seen from most students actively participating in the learning process.

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