

## Implementation of The Project Based Learning Model Lesson Study on Creativity, Abilitycreative Thinking, and Learning Outcomes

Nuraini<sup>1</sup>, Zainul Afwan<sup>2\*</sup>, Sofian Sauri<sup>3</sup>, Zohiri Ahmad<sup>4</sup>, Tuti Wahyuningsih<sup>5</sup>, Syarifah Aulia<sup>6</sup>, Muhammad Anwar<sup>7</sup>

<sup>1</sup>Faculty of Mathematics and Natural Sciences, Universitas Hamzanwadi, Selong, Indonesia

<sup>2\*</sup>SMK Islam Tahfizh Kerongkong, Selong, Indonesia

<sup>3</sup>MA-Al-Jamil Bare Eleh, Selong, Indonesia

<sup>4</sup>Mts Mu'allimat NWDI Pancor, Selong, Indonesia

<sup>5</sup>SDN 1 Terara, Selong, Indonesia

<sup>6</sup>Faculty of Mathematics and Natural Sciences Universitas, Hamzanwadi, Selong, Indonesia

<sup>7</sup>SMPN 2 Keruak, Selong, Indonesia

\*Corresponding Author. Email: [zainulafwan080@gmail.com](mailto:zainulafwan080@gmail.com)

**Abstract:** Application of the Project Based Learning (PjBL) Model Based on Lesson Study on Creativity, Creative Thinking Ability, and Learning Outcomes of Class II-B Students at SDN 1 Terara on Measuring Instrument Material. Based on the results of observations that have been made using students' learning practices in the field of Mathematics study in SDN 1 Terara for the 2023/2024 Even Semester Academic Year shows that students experience difficulties in mastering learning material on the subject of Measuring Instruments. Project Based Learning (PjBL) collaborated with Lesson Study (LS) is applied in this approach because LS is believed to be successful in improving learning practices. This implementation includes three aspects, namely: (a) Plan (Learning Planning), namely how a teacher designs learning so that students can learn actively. (b) Do (Learning Implementation) Implementation of learning that has been designed in the previous stage, where one teacher acts as a model and another teacher as an Observer of the learning. (c) See (Learning Reflection) After carrying out learning activities and observations, all parties involved reflect to discuss the learning that has been carried out and complete the parts that are still considered lacking.

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## Introduction

Thrilling and Hood (1999) stated that in the 21st century high quality human resources are needed who have expertise, are able to work together, think at a high level, are

creative, skilled, understand various cultures, are able to communicate and are able to learn throughout life (life-long). long learning). So in learning, students are not only required to be active, but also creative in solving all problems given by the teacher or problems found by the students themselves.

After conducting observations at SDN 1 Terara class II-B, the results showed that students experienced difficulties in the learning process in class, especially in Mathematics in the Measuring Instruments material. This learning difficulty is caused by the monotonous learning pattern of lectures and in the learning process students do not play an active role.

One way to make students play an active role in learning so that they get good learning results is to use the Project Based Learning (PjBL) learning model. The learning model is not born and develops by itself, but has a certain theoretical basis. The learning theory that underlies the project based learning model is a. Theoretical PjBL Support Project-based learning is also supported by constructivist learning theory which relies on the idea that students build their own knowledge in the context of their own experiences. b. Empirical PjBL Support The implementation of PjBL has shown that this model is able to enable students to experience a meaningful learning process, namely learning that is developed based on constructivism.

Currently, students' metacognitive skills and creative thinking abilities have not been developed much in learning in schools, especially with the implementation of the new curriculum, namely using the 2013 curriculum to carry out learning in all subjects. According to Slavin (2006), metacognitive is knowledge about self-learning own knowledge or knowledge of how to learn, while metacognitive skills are methods for learning, studying, or solving problems. Metacognitive benefits is to emphasize self-monitoring and responsibility. Students can self-regulate by planning, directing and evaluating (Morzano, 1988). To realize national development in the field of education in accordance with developments in science and technology, arts, community development and development needs, good quality education is required. (Fahrurrozi & Mohzana, 2020; Sulastri et al., 2020). The success of educational development is determined by various factors, including teacher competency and the existence of a curriculum that is "up to date" with current developments (Hambali & Luthfi, 2017). Curriculum is one of the factors that influence educational success in addition to teacher factors, facilities and infrastructure, learning environment and factors that originate from within the students. (Rahman, 2022). The curriculum is a tool to achieve educational goals, so that in structuring the education system the curriculum has a very important role (Julaeha et al., 2021).

Efforts to further increase student learning success can include efforts to improve the learning process (Ekayani, 2017). Teachers are at the forefront of this learning improvement process, namely by determining the right learning model, students are the targets of the learning process, so in selecting and determining learning models it must be adapted to existing conditions and circumstances, learning efforts should refocus on students (Nanda et al., 2022). The learning carried out should be carried out using an effective learning model in order to obtain better results (Harefa, 2023). Therefore, good teaching skills are also needed by mastering learning models, apart from that, a mental attitude is also needed to improve or improve teaching abilities. (Lestari, 2020).

One alternative learning model is discovery learning which is a disclosure or discovery learning model, namely understanding concepts, meanings and relationships

through an intuitive process to finally arrive at a conclusion, this learning is assumed to be able to improve students' ability to think critically (Syahbana, 2012). The independent curriculum prioritizes differentiated learning, so the application of discovery learning is very significant (Handayani, 2023). In differentiated learning, students learn according to student needs. Direct experience and the learning process are the main benchmarks in its implementation, on the other hand, discovery learning is a learning model that strengthens the process rather than the results. (Nugraha et al., 2017).

As long as education still exists, during that time problems regarding education will always arise and people will never stop talking and debating about its existence, starting from matters of a fundamental-philosophical nature to matters of a fundamental nature. Operational technical (Sumarni, 2008). Most of the discussions about education are primarily focused on how to find the best way to achieve quality education in order to create reliable human resources, both in the academic, socio-personal and vocational fields. (Purwati, 2011). One of the educational problems or topics that has recently been interesting to discuss is lesson study, which has emerged as an alternative to overcome the problem of learning practices which have been seen as less effective. (Devi et al., 2020; Puryanto & Japa, 2023). As is understood, learning practices in Indonesia have long tended to be carried out conventionally, namely through oral communication techniques (Tambunan, 2018). Conventional learning practices of this kind tend to emphasize how teachers teach (teacher-centered) rather than how students learn (student-centered), and overall the results can be understood as not contributing much to improving the quality of student learning processes and outcomes. (Tambunan, 2018). Changing learning practice habits from conventional learning to student-centered learning is not easy, especially among teachers who are classified as laggards (resisting 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 towards a much more effective direction, (Karimah & Setiyani, 2019).

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

## Research Method

This lesson study activity was carried out in two cycles where the first cycle was carried out on Thursday, January 4 2024 and the second cycle was carried out on Friday January 6 2024 at SD Negeri 1 Terara. The time for lesson study activities which take place in each cycle has been carried out in the stages of Plan, Do and See. Details of the time for lesson study activities can be described in the following activity table.

Table 1. Time for Implementing Lesson Study Activities

Activity	I	II
Plans	January 1, 2024	January 2, 2024

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Do	January 4, 2024	January 6, 2024
See	January 10, 2024	January 11, 2024

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The techniques used to collect data in this research are adapted to the type of data taken, namely (1) observation, which is observing or recording activities carried out systematically, aimed at observing behavior and activities during the learning process; (2) rubric, describing the assessment criteria used to assess or level 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 research are quantitative and qualitative descriptive techniques. Data obtained from test results in the form of descriptions and multiple choices is quantitative data. This data is presented in the form of numbers, while qualitative data is data that comes from the results of observation sheets or teacher and student checklists in the form of explanations or information. To guarantee the multiple choice and filled-in questions instruments in this research, validity and reliability tests were carried out. A good question instrument must meet the requirements, namely, be valid and reliable.

The method of observation and data recording used in this activity during the learning process is through observation using observation sheets and video recording. During the implementation, a technician recorded using a cellphone. The pictures are taken thoroughly and then editing will be carried out on several events that are considered important.

## Result and Discussion

From the results of research conducted by I Gusti Agung Sinta Diarini, et al (2020) entitled "Application of the Project Based Learning Learning Model Based on Lesson Study Through Online Learning to Determine Critical Thinking Abilities and Learning Outcomes" The results of data analysis on critical thinking skills and student learning outcomes in cycle I and cycle II tend to show good development, the application of the online Project Based Learning model provides new experiences for all students. Thus, the implementation of the Project Based Learning model has a good impact on students and new experiences that students have never encountered in terms of learning.

This activity involves collaboration between teachers in planning, teaching and evaluating lessons together. Lesson study at SD Negeri 1 Terara has a scope and target of activities that focus on improving the quality of teaching and learning. The following are several aspects of the scope and targets of lesson study activities at SD Negeri 1 Bagik PayunTerara in class II-B as the class used to apply the model raised in the title of this activity.

Implementation of Lesson Study

Implementation of Cycle I

Actions in cycle I begin with the "Plan" stage, namely the activity of designing learning using a predetermined learning model. The next stage, the "Do" (implementation) stage, is the application of the discovery learning model using the lesson study method. This activity is carried out during one face-to-face meeting or 2 class hours. This learning is carried out by one model teacher who is tasked with teaching or being a learning facilitator

*Interdisciplinary Journal of Education Vol. 2, No. 1 (March 2024)*

and 4 observers who are tasked with observing the learning process. The final stage is the "See" (reflection) stage, namely the stage of reflecting on learning results.

### a. Plan (Planning)

#### Lesson Study Objectives

Designing learning using the Project Based Learning model to improve students' creative thinking abilities. Needs Analysis and Distribution of Main Tasks, Planning begins with the activity of analyzing the needs and problems faced in learning, then together we look for solutions to solve the problems found. Conclusions from the analysis of needs and problems are part of what must be considered in preparing the lesson plan and implementing lesson study. After conducting a needs analysis, it is determined what main tasks must be created and distributed to each member. The division of tasks is adjusted to the planning of place, time, material topics, lesson plans, model teacher preparation in teaching, and observers. The divisions include: Zainul Afwan: Model Teacher; Zohiri Ahmad : Observer; Tuti Wahyuningsih, Observer; Sofyan Sauri, Observer; Syarifah Aulia: Observer.

Determining the Place and Time of Implementation, lesson study was carried out at SD Negeri 1 Terara class II-B with the material taken being the types and ways of using measuring instruments in Mathematics subjects. The methods used include discussion, question and answer, demonstration, and practice. The learning model applied is Project Based Learning on Measuring Instruments material.

Preparing Teaching Modules in Accordance with Learning Achievements in the Independent Curriculum. One of the important parts in preparing for this lesson study is learning planning and all the tools that must be present in the learning that will take place, therefore Teaching Modules or RPPs are prepared as learning tools that are adapted to the syllabus. is already in the independent curriculum.



Photo 1. of Planning Activities (Plan)

### b. Do (Implementation)

At this stage, the implementation of lesson study aims to implement the learning design. In the implementation process, one teacher plays the role of implementer and the

*Interdisciplinary Journal of Education Vol. 2, No. 1 (March 2024)*

other teacher acts as an observer. The focus of observation is not on the teacher's teaching performance, but is more directed at student learning activities guided by the procedures and instruments that have been agreed upon at the planning stage. Observers are not permitted to interfere with the learning process.

Based on the learning plan that has been prepared, the model teacher carries out learning in a predetermined class, while other members act as observers, observing the learning process using research instruments that have been developed. Thus, at the same time as the learning process is carried out, data is collected that is needed for reflection purposes.

The results of the analysis of the characteristics of class II-B students at SD Negeri 1 Terara have a sense of creativity and are able to complete and produce products and ask questions and provide answers related to the material.

Based on the results of the analysis, the appropriate learning model for implementing lesson study is using the Project Based Learning model. This is because students still need guidance in implementing learning.

The observers consisted of 4 students who made observations of interactions between students, students and teachers, and students and others using observation instruments in observation sheets that had been 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 activity, from start to finish, video and photo recording is carried out which is used for documentation and further analysis.

Recording and taking photos does not interfere with the learning process. Observers record student learning behavior during the lesson, for example student comments or discussions and make efforts to include the name of the student concerned and the process of constructing understanding students through student learning activities.



Photo 2. Learning Implementation Activities (Do)

### c. See (Reflection)

The see stage or learning reflection is carried out immediately after the do stage is completed, namely on January 8 2024. In the see stage, the lesson study implementation team discusses all the activities that have been carried out in the do stage. Based on observations

*Interdisciplinary Journal of Education Vol. 2, No. 1 (March 2024)*

made by the observer, the do stage that has been implemented has the following results. First, Cognitive (Knowledge) Students' knowledge is able to achieve learning indicators, namely taking measurements and comparing the length of objects. Second, Affective (Attitude) Assessment of observed attitudes is a responsibility. Indicators carry out measurements and answer questions on the Student Worksheet in groups. All group members complete the measurements together and put them into the Student Worksheet that has been provided. After that, as a group, present it in front of the class. Based on the observer's observations, there was 1 student who was not united in completing the teacher's group assignment. It is known that the child is a child with special needs (ABK). Third, Psychomotor (Skills) Students' skills in group work that are observed are in accordance with the indicators. Students have not yet mastered the indicators of presenting measurement results. For this reason, students need to be given another explanation regarding the steps in group assignment presentations. Observer Comments Observer comments on learning using the Project Based Learning model are contained in each observer's observation sheet which is attached to this lesson study report.



Photos 3. Reflection Activities (See )

### Implementation of Cycle II

The implementation of cycle II activities is more focused on increasing students' abilities in building creativity in Measuring Instruments material, with timely completion of 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 is carried out by one model teacher who is tasked with teaching and being a facilitator during the learning process.

#### Plans (Planning)

Lesson Study Objectives Designing learning using the Project Based learning model to increase creative abilities and solve problems and get results. Needs Analysis and

*Interdisciplinary Journal of Education Vol. 2, No. 1 (March 2024)*

Distribution of Main Tasks, Planning begins with the activity of analyzing the needs and problems faced in learning, then together looking for solutions to solve the problems found. Conclusions from the analysis of needs and problems are part that must be considered in preparing teaching modules or lesson plans and implementing lesson study. After conducting a needs analysis, it is determined what main tasks must be created and distributed to each member. The division of tasks is adjusted to the planning of place, time, material topics, lesson plans, model teacher preparation in teaching, and observers.

Preparation of Teaching Modules in Accordance with Learning Achievements in the Independent Curriculum. One of the important parts in preparing for this lesson study is learning planning and all the tools that must be present in the learning that will take place, therefore Teaching Modules / RPPs are prepared as learning tools that are adapted to the syllabus. is already in the independent curriculum. In this case the process of improving the RPP is carried out referring to the learning outcomes in cycle 1.

**a. Do (Implementation)**

At this stage, the implementation of lesson study aims to implement the learning design. In the implementation process, one teacher plays the role of implementer and the other teacher acts as an observer. The focus of observation is not on the teacher's teaching performance, but is more directed at student learning activities guided by the procedures and instruments that have been agreed upon at the planning stage. Observers are not permitted to interfere with the learning process.

Based on the learning plan that has been prepared, the model teacher carries out learning in a predetermined class, while other members act as observers, observing the learning process using research instruments that have been developed. Thus, at the same time as the learning process is carried out, data is collected that is needed for reflection purposes.

Lesson study held in class II-B of SD Negeri 1 Terara in Terara Village, Terara District on Friday, January 6 2024 at 08.30-09.50 WITA. Activities are carried out in groups in accordance with the division of main tasks that have been previously determined at the Plan stage.

**b. See (Reflection)**

The see or reflection learning stage is carried out immediately after the do stage is completed, namely on January 10 and 11 2024. In the see stage, the lesson study implementation team discusses all the activities that have been carried out in the do stage. Based on observations made by the observer, the do stage that has been implemented has the following results. First, Cognitive (Knowledge), students' knowledge is able to achieve learning indicators, namely taking measurements and comparing the length of objects. In cycle 2, it was seen that there was an increase in students' creative thinking abilities. Second, Affective (Attitude)

The assessment of observed attitudes is a responsibility. Indicators carry out measurements and answer questions on the Student Worksheet in groups. All group members complete the measurements together and put them into the Student Worksheet that has been provided. Students take turns measuring their friend's height using a tape measure. Based on the observer's observations, there was an increase in positive attitudes shown by students during learning. Third, Psychomotor (Skills) Students' skills in group work that are observed are in accordance with the indicators. Students are able to master the indicators in presenting assignments appropriately and well. Fourth, Observer Comments on learning using the



discovery learning model. Observer comments are contained in each observer's observation sheet which is attached to this lesson study report.

## Conclusion

Based on the implementation of learning that has been carried out, it can be concluded firstly, the Project Based Learning learning model is considered quite effective in implementing learning in the classroom, because this learning model demands more on students' ability to be able to collaborate with other people, Project Based Learning is a learning process that is centered on students and teachers only become facilitators. Students play an active role in the learning process to search, investigate, process and discover new knowledge concepts in solving problems, so that students can develop their knowledge and skills. So that students can solve their own problems and discover knowledge, skills and attitudes in the learning process. The application of the Project Based Learning model aims to develop ways for students to learn actively in the learning process, and overall students can increase creativity in thinking critically in finding ways and principles to Solve problems yourself, so that the learning results obtained are easy to understand. Second, the implementation of lesson study in Mathematics in Class II-B Terara Elementary School 1 has gone well, although there are several obstacles that need to be corrected in the next lesson. Based on the explanation above, conclusions can be drawn, among others, Lesson study includes plan activities (planning), do (implementation), and see (reflection); The first lesson study activity is a plan (planning) regarding determining objectives, analyzing basic competencies, syllabus, determining adequate location and time, selecting appropriate learning methods and models for the material that has been determined, and preparing a learning implementation plan; The second lesson study activity is doing (implementing) the learning strategies applied to students based on analysis of student characteristics and experiences as well as the achievement of learning indicators in the measurement material; The third lesson study activity is to see (reflect) on the cognitive, affective and psychomotor aspects of class II-B students at SD Negeri 1 Terara who have met the competency indicators; In general, the implementation of lesson study has gone well, this can be seen from the fact that the majority of students actively participate in the learning process.

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