Project based Learning (PjBL) to Increase PGSD Students' Creativity

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Article Info	Abstract
	Creativity is the ability to imagine, interpret and express ideas and efforts that have inventiveness for new combinations of previously existing elements so as to improve the quality of students in their self-development. Creativity is important for PGSD students as prospective educators to face the 21st century era. The era of the 21st century demands the implementation of quality learning to facilitate students to develop higher order thinking skills. Learning must be designed in an interesting and innovative way. However, in reality, the creativity ability of students is still low. This happens because of many factors. This research is a Classroom Action Research with 2 cycles with 7 meetings. The subjects of this study were PGSD students in the odd semester of 2023/2024 with a total of 60 students. The results of this study indicate that there are significant changes in students' creativity abilities with Project-based Learning (PjBL). Project-based learning (PjBL) can increase the creativity of PGSD students on indicators of fluency, flexibility, elaboration, and originality to the maximum

Article Info	Abstrak
	Kreativitas merupakan kemampuan mengimajinasikan, menafsirkan dan mengemukakan gagasan serta usaha yang memiliki daya cipta untuk kombinasi baru dari unsur sebelumnya yang sudah ada sehingga diperoleh peningkatan kualitas mahasiswa dalam pengembangan dirinya. Kreativitas penting dimiliki oleh mahasiswa PGSD sebagai calon pendidik untuk menghadapi era abad ke-21. Era abad ke-21 menuntut pelaksanaan pembelajaran yang berkualitas untuk memfasilitasi peserta didik mengembangkan keterampilan-keterampilan berpikir tingkat tinggi. Pembelajaran harus dirancang dengan menarik dan inovatif. Tetapi, pada kenyataanya kemampuan kreatifitas mahasiswa masih rendah. Hal ini terjadi karena banyak faktor. Penelitian ini merupakan Penelitian Tindakan Kelas dengan 2 siklus dengan 7 pertemuan. Subjek penelitian ini adalah mahasiswa PGSD semester gasal 2023/2024 dengan jumlah 60 mahasiswa. Hasil dari penelitian ini menunjukkan jika terdapat perubahan yang signifikan terhadap kemampuan kreativitas mahasiswa dengan Project based Learning (PjBL). Pembelajaran berbasis proyek (PjBL) dapat meningkatkan kreativitas mahasiswa PGSD pada indikator fluency, flexibility, elaboration, dan originality secara maksimal.

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1. INTRODUCTION

Creativity is the ability to imagine, interpret and put forward ideas and efforts that have the power to create new combinations of previously existing elements so as to obtain an increase in the quality of students in their self-development.(Kokotsaki et al., 2016).Creativity can also be explained as the ability to think divergently or how to solve problems through various alternative answers that are equally correct(Manurung et al., 2020).

Indicators of creativity according to Hurlock include fluency, flexibility, elaboration and originality in thinking.(Hotimah, 2020). FurthermorePrasetiyo & Mubarokah (2014)explains that fluency of thinking is the ability to generate many ideas from one's thoughts quickly. In fluency in thinking, what is emphasized is quantity, not quality. Flexibility of thinking (flexibility) is the ability to produce a variety of ideas, answers or questions, being able to see a problem from different points of view, looking for alternatives or different directions, and being able to use various approaches or

points of thought. A creative person is a person who is flexible in thinking. They can easily abandon old ways of thinking and switch to new ways of thinking. Elaboration is the ability to develop ideas and detail the details of an object, idea or situation so that it becomes more interesting. Originality is the ability to come up with unique ideas or the ability to come up with original ideas.

Creativity is important for PGSD students as prospective educators to face the 21st century era. The 21st century era demands the implementation of quality learning to facilitate students developing high-level thinking skills. Learning must be designed in an interesting and innovative way(Taufiqurrahman, 2023). In this context, the role of planned and implemented learning methods and media is very important. However, facts on the ground show that PGSD students' creativity still tends to be low(Muslihasari & Oktiningrum, 2023). This low level of creativity can be seen from the results of observations made during students' work on mind map assignments at the beginning of lectures. Of all the students, more than half made mind maps with simple designs, relationships between single-chain material items, and did not maximize aesthetic elements. There were only less than 20 students who made colorful mind maps, and only 8 students used special themes in their mind maps. Thus, it can be said that around 1/8 of students use elements of creativity in doing this assignment.

This low level of student creativity probably occurs because the learning process in several courses in the PGSD Study Program is generally still centered on lecturers(Oktiningrum, 2022). Most lecturers use lecture methods, question and answer, discussion, giving practice assignments in the learning process, students are less involved in the learning process so that student creativity is not honed. It is necessary to find appropriate learning to increase student creativity in elementary school learning planning courses. One way is through the application of project-based learning (PjBL).

Project-based learning has characteristics including: 1) students make their own decisions within a framework that has been determined together, 2) students try to solve problems whose answers are uncertain, 3) students are encouraged to think critically, solve problems, collaborate , as well as trying various forms of communication, 4) students are responsible for finding and managing the information collected themselves, 5) continuous evaluation is carried out during project implementation, 6) students reflect on the process and results of the project(Hosnan, 2019).

PjBL is a learning model that can develop 21st century skills(Almulla, 2020)(Anazifa & Djukri, 2017).In project-based learning, students are encouraged to be more active in learning. PjBL is a model that emphasizes students being able to learn independently by solving the problems they face and students can also produce a project or real work.(Safriana, 2018). Add,Dian et al., (2015)states that the project-based learning model has enormous potential to create a more interesting and useful learning experience for students. The various benefits of PjBL explained make research entitled "Project-based learning to increase the creativity of PGSD students" important to carry out.

2. RESEARCH METHOD

This research is classroom action research (PTK) which was carried out from 3 October – 12 December 2023 at Raden Rahmat Islamic University which is located at Jalan Raya Mojosari number 2 Kepanjen, Malang district, East Java province. The research subjects were students of the Raden Rahmat Islamic University PGSD study program, participants in the Elementary Learning Planning course for the 2023/2024 gas semester, totaling 60 people. This research consists of 2 cycles. Each cycle consists of 7 meetings. The variable studied is increasing the creativity of PGSD students through project-based learning.The indicator of the success of the action is the percentage of student creativity in the 'good' and 'fair' categories of at least 75%. This research stage uses the Kemmis and Mc Taggart PTK model design which is a development of the Kurt Lewin model. This model consists of three actions, 1) planning, 2) action and observation, and 3) reflection (Figure 1).
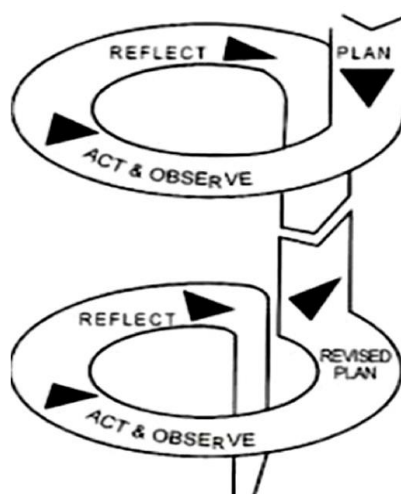
Figure 1. Stages of Classroom Action Research (PTK) based on the Kemmis & Mc.Taggart Model

This research data collection technique was carried out using observation, interviews, questionnaires and field notes. Learning instruments include the Semester Lecture Plan (RPS), lecture contracts, and student creativity assessment instruments in the form ofobservation sheet consisting ofThe 4 components are fluency of thinking, flexibility of thinking, elaboration and originality.Data from research results were processed and analyzed qualitatively.The syntax of project-based learning implemented is: 1) introduction and group project planning; 2) initial research stage for gathering information; 3) creation, development, initial evaluation presentation, and prototype of the artifact; 4) second research stage; 5) Final presentation of development; and 6) publication of products or artifacts (Bender, 2012).

Qualitative data analysis techniques include three components, namely data reduction, data presentation, and drawing conclusions and verification. Data reduction is an activity of summarizing, selecting the main things, focusing on important things, looking for themes and patterns, and removing unnecessary things. Data reduction is carried out through data selection, data simplification, and rough data transformation from field notes. Data presentation is a technique for presenting data in an organized manner, arranged in a relationship pattern, so that it is easier to understand. Drawing conclusions is making decisions supported by valid and consistent evidence.

The data obtained from observing creativity is quantitative data, namely data resulting from student creativity with grades 1-4 which are analyzed descriptively. The criteria used are divided into 4 (four) categories, namely poor, quite good, good and very good.

Table 1. Creativity Criteria

Indicator	Category
3.5 - 4	Very good
2.5 – 3.4	Good
1.5 – 2.4	Pretty good
1.0 – 1.4	Not good

3. RESEARCH RESULTS AND DISCUSSION
3.1.Research result
Pre-cycle

Before implementing the PjBL action, a preliminary study was carried out to determine the creativity of Raden Rahmat Islamic University PGSD students Class of 2022. Creativity scores were obtained from making a mind map about learning planning concepts at the beginning of lectures. Creativity results based on the Hurlock indicator show that fluency is 67% not good and 33% is sufficient. For the flexibility indicator, the results were 53% poor, 32% fair, and 15% good. The elaboration indicators were 48% poor, 50% adequate and 2% good. As for the originality indicator, the result was 76% poor and 24% fair. Overall it can be said that student creativity is still low. Of all the students, more than half made mind maps with simple designs, relationships between single-chain material items, and did not maximize aesthetic elements. There were only less than 20 students who made colorful mind maps, and only 8 students used special themes in their mind maps.

Cycle I

Cycle I PTK consists of 7 meetings. Implementation of cycle I starts from 3 October – 14 November 2023. The task of the cycle I project is to prepare learning instruments in the form of teaching modules for elementary school students. Students were divided into 10 groups, where each group was given the freedom to choose classes, subjects and learning outcomes that would be used as material for making project assignments. Activities carried out at the planning stage are making learning preparations which include RPS, elementary learning planning lecture contracts, and student creativity observation sheets. Based on data obtained from initial observations which showed that student creativity tends to be low, the RPS and lecture contracts were designed with project-based learning (PjBL).

PjBL is implemented through 6 learning steps. The first step is the introduction and planning of the group project. At this stage, students are provided with knowledge about the lecture scheme that will be carried out. After that, students were divided into 10 heterogeneous groups. After the group is formed, group discussion activities are carried out to agree on the selection of classes, subjects and learning outcomes at elementary school level which will be used as project assignments. The second step is the initial research stage for gathering information. At this stage, each group is given the opportunity to conduct literature observations, field observations, or interviews to find information about appropriate learning approaches/strategies/methods/models to be applied based on class choices, subjects, and learning outcomes. The third step is the creation, development, initial evaluation presentation, and prototype of the artifact. This stage is carried out in 3 weeks. Each student in the group designs all the components in the teaching module, then consults with the lecturer to give suggestions for improvement. The fourth step is the second research stage. At this stage students practice teaching modules that have been prepared in a peer teaching scheme. After peer teaching, comments are taken from other group members regarding the appropriateness of choosing the approach/strategy/method/learning model in the teaching module as well as the suitability of practice with the teaching module. The fifth step is the final presentation of development. Each group makes a presentation about the product they have completed in front of the class. Other groups were given the opportunity to provide comments, suggestions and questions regarding the results of the project. The sixth step is the publication of the product or artifact. At this stage, publications are made in the form of peer teaching learning videos on the YouTube platform.

Observation results show that students' fluency of thinking, flexibility, elaboration and originality still tend to be low, but have increased compared to the pre-cycle stage. The fluency indicator obtained was 40% poor, 46% fair, 14% good, and 0% very good. As for the flexibility indicator, it was found that 45% was not good, 42% was quite good, 8% was good, and 5% was

very good. The elaboration indicators showed that 21% were not good, 29% were quite good, 37% were good, and 13% were very good. Originality shows that 64% is poor, 32% is fair, 4% is good, and 0% is very good. These results do not meet the target in the form of success indicators, namely 75% of creativity is at a sufficient and good level.

Overall, the results of the first cycle of the teaching module preparation project went according to plan. Students contribute actively in designing projects to presenting and publishing the results of their projects. The ideas outlined in the project design are in line with field needs, but not many groups are able to put forward original ideas. Almost all groups prepare teaching modules with less innovative learning methods. Most groups choose a contextual approach, but this has not been translated into clear learning models. This proves that the fluency, flexibility, elaboration and originality aspects of students are still low. There needs to be more intensive assistance and guidance from lecturers so that aspects of student creativity can be further developed in cycle II.

Cycle II

Cycle II PTK consists of 7 meetings. The implementation of cycle II starts from 16 November – 27 December 2023. The task of the cycle II project is the preparation of elementary school learning media. Students work in groups as divided in cycle I. Classes, subjects and learning outcomes that will be used as material for making project assignments refer to cycle I as well.

Activities carried out at the planning stage are making learning preparations which include RPS, elementary learning planning lecture contracts, and student creativity observation sheets. Based on data obtained from initial observations which showed that student creativity tends to be low, the RPS and lecture contracts were designed with project based learning (PjBL) with various improvements to its implementation. In cycle II, students are required to fill in a project completion monitoring book and report it every week to the lecturer. This is important to do to maximize interaction between lecturers and students so that lecturers can find out if group problems occur and immediately find solutions to solve them together.

PjBL cycle II is implemented through 6 learning steps as in cycle I. The first step is the introduction and planning of a group project. At this stage students focus on planning the learning media format that will be designed. The target groups and specifications (classes, subjects and learning outcomes) refer to cycle I. The second step is the initial research stage for gathering information. At this stage, each group is given the opportunity to conduct literature observations, field observations, or interviews to find information about the format and specifications of the learning media that will be designed. The third step is the creation, development, initial evaluation presentation, and prototype of the artifact. This stage is carried out in 3 weeks. Each student in the group designs learning media based on appropriate development stages, then consults with the lecturer to provide suggestions for improvement. The fourth step is the second research stage. At this stage students implement the learning media that has been designed and developed and then explore responses about the media to respondents. The fifth step is the final presentation of development. Each group makes a presentation about the product they have completed in front of the class. Other groups were given the opportunity to provide comments, suggestions and questions regarding the results of the project. The sixth step is the publication of the product or artifact. At this stage, the project products are published in the form of posters.

Observation results show that students' fluency of thinking, flexibility, elaboration and originality still tend to be low, but have increased compared to the pre-cycle stage. In the fluency indicator, 18% was found to be poor, 47% was fair, 25% was good, and 10% was very good. As for the flexibility indicator, it was found that 15% was not good, 35% was quite good, 45% was good, and 5% was very good. The elaboration indicators showed that 14% were not good, 31% were quite good, 40% were good, and 15% were very good. The originality indicator shows 32%

poor, 58% fair, 10% good, and 0% very good. Student creativity has increased from cycle I to cycle II and has met the target in the form of success indicators, namely 75% of creativity is at a sufficient and good level. Thus the PTK cycle is stopped. A comparison of the percentage of student creativity indicators in pre-cycle, cycle I and cycle II is presented in Figure 2.
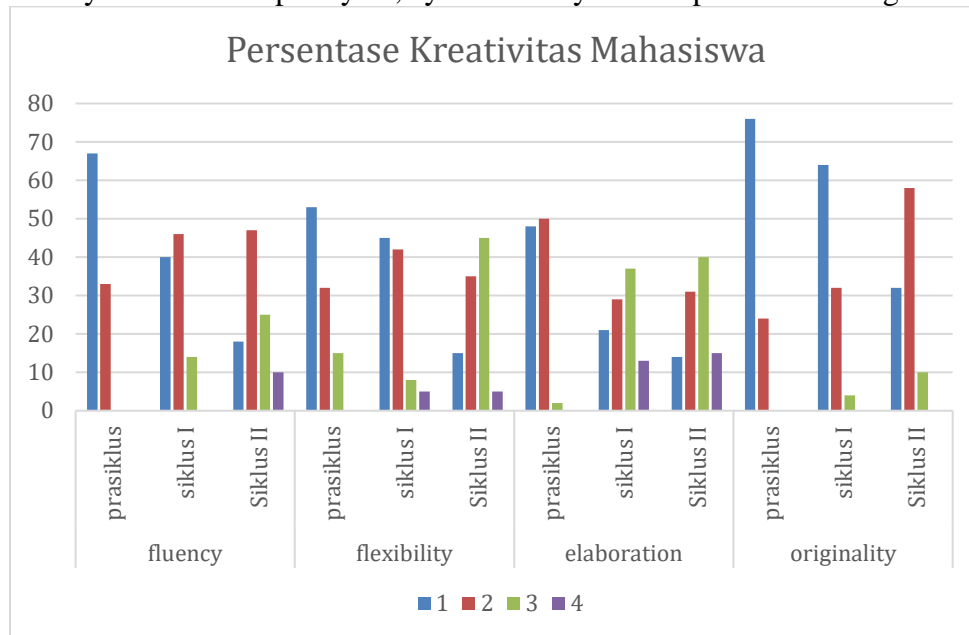

Figure 2. Percentage of Student Creativity in Pre-Cycle, Cycle I and Cycle II

Information:
1. Not good
2. Enough
3. Good
4. Very good

3.2. Discussion

Based on research results, PjBL can increase student creativity. This is in accordance with Hairunisa et al. (2019)which states that PjBL can increase PGSD students' creativity in science learning. Besides thatHamsar (2023)suggests that the PjBL model can increase student learning creativity. PjBL is a learning model that requires skills using the principle of learning by doing. In PjBL learning, students work in real life so as to produce products in a realistic way(Nurhalisa et al., 2021). PjBL provides students with the opportunity to research, plan, design and reflect on the creation of technology projects(Adnyawati, 2011).

The role of the lecturer in project-based learning is as a facilitator and accompanying students(Nainggolan, 2018). Mentoring is carried out by providing suggestions and feedback to improve the project. Feedback is also obtained from other students or other groups when the project design is presented. Peer-evaluation and feedback from lecturers provide opportunities for students to make reflections and improvements on their projects(Wang & Hsu, 2009). Students work together in groups to complete the project design(Hairunisa et al., 2019). Students also create a schedule for completing planned projects. After the product was finished, students presented the product and poster. There are several advantages of PjBL, including:(Kokotsaki et al., 2016): (1) Preparing students for employment, through developing skills and abilities as widely as possible, (2) Increasing student motivation in developing their knowledge and skills

when they complete project assignments, (3) Increasing collaboration to construct knowledge, (4) Improving relationships social and communication skills, group work in projects is very necessary for students to develop and practice communication skills. (5) Increasing student self-confidence so that students feel proud to have achieved something of value outside of the learning class, (6) providing opportunities for students to develop individual learning abilities with various learning approaches.

4. CONCLUSION

Based on the research results, it appears that project-based learning (PjBL) can increase PGSD students' creativity in the indicators of fluency, flexibility, elaboration and originality. The increase in student creativity has exceeded the target of action success indicators of 75% in the fair and good categories. In cycle I, The fluency indicator obtained was 40% poor, 46% fair, 14% good, and 0% very good. As for the flexibility indicator, it was found that 45% was not good, 42% was quite good, 8% was good, and 5% was very good. The elaboration indicators showed that 21% were not good, 29% were quite good, 37% were good, and 13% were very good. Originality shows that 64% is poor, 32% is fair, 4% is good, and 0% is very good. As for cycle II, the fluency indicator obtained was 18% poor, 47% fair, 25% good, and 10% very good. As for the flexibility indicator, it was found that 15% was not good, 35% was quite good, 45% was good, and 5% was very good. The elaboration indicators showed that 14% were not good, 31% were quite good, 40% were good, and 15% were very good. The originality indicator shows 32% poor, 58% fair, 10% good, and 0% very good.

5. ACKNOWLEDGEMENTS

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