

Correlation of Problem Based Learning Model and Discovery Learning Model with the Development of Creativity and Motivation of Students



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ABSTRACT: This study aims to determine the correlation of Problem-Based Learning Model and Discovery Learning Model with students' creativity and learning motivation. This research uses a quantitative approach of correlation type. . The sample in this study used purposive sampling, namely grade 6 with a total of 40 students, consisting of 19 students at SD Negeri Awu Awu and 21 students at SD Negeri Wingkoharjo. Data collection using observation sheets and questionnaire statements. Data analysis in this study used Product moment Correlation Test and t-Independent Test.

The results of this study indicate that there is a significant correlation between the application of the Problem-Based Learning learning model and the learning creativity of students at SD Negeri Awu Awu with a pearson correlation value = 0.660 and a p-value (sig-2tailed) of 0.002. There is a significant correlation between the application of the Problem-Based Learning learning model and student learning motivation at SD Negeri Awu Awu with a pearson correlation value = 0.834 and a p-value (sig-2tailed) of 0.000. There is a significant correlation between the application of the Discovery Learning learning model and students' learning creativity at SD Negeri Wingkoharjo with a pearson correlation value = 0.660 and a p-value (sig-2tailed) of 0.001. There is a significant correlation between the application of the Discovery Learning learning model and student learning motivation at SD Negeri Wingkoharjo with a pearson correlation value = 0.501 and a p-value (sig-2tailed) of 0.021. There is no significant difference between creativity and motivation of students in the application of both learning models with a significance value of 0.064 for learning creativity and with a significance value of 0.477 for learning motivation.

KEYWORDS: Problem-based Learning, Discovery Learning, Learning Creativity, Learning Motivation

I. INTRODUCTION

Learning from the point of view of interactional theory is defined as the process of interaction of students with educators and learning resources in a learning environment. Based on this concept, learning is considered to have good quality if the interactions that occur are multi-directional, namely teacher-learner, student-teacher, student-learner, student-learning resources, and student-learning environment (Nurdyansyah & Fahyuni, 2016). In this concept, the implementation of the learning process in elementary schools is carried out interactively, inspiring, challenging, fun, motivating students to play an active role, and providing sufficient space for initiative, creativity and independence according to the talents, interests, and physical and psychological development of students.

In the 21st century, the learning process requires learners to have several high-level thinking skills, namely critical thinking skills. Critical thinking skills are skills that are focused on making decisions, analyzing, evaluating, a problem that can be accounted for. Critical thinking skills are important for students to train responsibility and train skills in analyzing and solving various problems (Nasihani et al., 2020). PJOK learning in schools has a very important role, where students are given the opportunity to be directly involved in various learning experiences. PJOK learning can improve the cognitive abilities of students, besides that PJOK subjects are very important in supporting psychomotor abilities. By doing various physical activities, students can grow and develop properly according to their age. Because in the subject of PJOK taught how to do activities to support children's health. In physical education sports and health there is a goal called movement skills. These movement skills can mean non-sporting movements and movements for exercise. Motion for exercise, for elementary school children, does not mean that elementary school children must be trained for high achievement, but elementary school children must be prepared according to their stage of development, and their stage of maturity (Iqbal et al., 2021). Educators are required to be able to package learning materials

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in the form of effective and efficient learning media according to the characteristics and provisions of the applicable curriculum, so that students are interested in following the learning provided by the teacher and can increase students' creativity. The success of the curriculum lies largely with the teacher. The teacher factor emphasizes how the teacher makes a lesson plan which is related to the learning model and media that will be given to students. The learning model is defined as a conceptual framework that describes systematic procedures in organizing learning experiences to achieve specific learning objectives, and serves as a guide for learning designers and teachers in planning and implementing learning activities.

In solving obstacles in the physical education learning process, the application of learning models can be carried out in order to create maximum learning outcomes. The learning model is one of the important components in determining the success of learning including its application in physical education. learning physical education or PJOK. (Nopiyanto, 2020) revealed that boredom that continues to develop in students can affect motivation and learning outcomes. For this reason, it is necessary to make efforts to improve the learning process so that it can increase the motivation and learning outcomes of students. One of the learning models is an important component that must be used in learning. The application of learning models in PJOK is expected to be able to increase student attention, motivate students to enthusiastically carry out activities in the PJOK learning process and can benefit in the form of values tucked away during learning, especially attitude values (Agustryani, 2020). (Indrayogi, 2022) revealed that providing the right learning model to increase students' understanding of movements in jumpsihat gymnastics. One of them is by using an inquiry learning model. A learning model is needed to develop skills and the ability to use knowledge based on existing main tasks, especially for creative work in real life. The results of field observations conducted by researchers revealed that in learning PJOK in this upper grade elementary school there are two learning models applied, namely Problem-Based Learning and Discovery Learning learning models. The results of observations reveal that if the PJOK teacher applies this because it best affects learning outcomes in locomotor, non-locomotor and manipulative components, especially in volleyball learning. In line with the results of the observations made. Some literature reviews on learning models reveal that in learning PJOK there are several models that are considered the best applied to increase learning creativity and learning motivation including Problem-Based Learning and Discovery Learning. The Problem-Based Learning model is suitable for supporting students' analytical thinking skills because the Problem-Based Learning model emphasizes a problem process with one of its approaches, namely investigation so that the learning process becomes meaningful. The application of the Problem-Based Learning model was chosen because it requires students to be active in the investigation and problem-solving process in learning. Problem-Based Learning is learner-centered learning and empowers learners to conduct research, integrate theory and practice, and apply knowledge and skills to develop feasible solutions to solve a problem (Cavicchia, et al., 2018); (Bindayna & Deifalla, 2020). Problem-based learning begins after the teacher provides a problem scenario taken from a daily life problem (Kassymova, et al., 2020); (Ulger, 2018); (Tsatsé & Sorensen, 2021); (Kassem, 2018: 3). After the problem identification process is complete, learners should try to solve the scenario problem using prior knowledge and existing knowledge. In line with this statement (Estrada, 2017) revealed that Problem-Based Learning is a good approach used in solving learning problems because this approach is centered on students to think critically to solve the problems faced. (Prabandaru, Lismadiana, & Nanda, 2020) revealed that learning using Problem-Based Learning is a good approach in overcoming physical education learning problems. Furthermore, it is revealed that Problem-Based Learning is a learning approach model by letting students solve problems faced by themselves with the help of teachers of course. Because in the learning environment students are directly involved in investigating and finding solutions to problems, so that in the end students are helped to become independent learners who can help themselves, in solving problems faced (Mushlihuiddin, 2018: 697). According to (Wasonowati et al, 2014) the Problem-Based Learning model at the stage with the presentation of the problem, then students search and analyze the problem through direct experiments or scientific studies. Through these activities, students' scientific thinking activities and processes become more logical, organized and thorough, making it easier to understand concepts. Through problem-based learning, learners can evaluate the investigation process of real problems. This model can attract students to be more enthusiastic and active in the learning process and can train students to think critically (Aini et al., 2021). This process is expected to help learners to activate prior knowledge and elaborate through discussions with peers, explaining to themselves and others, and answering questions. Elaboration is expected to promote cognitive and motivational self-regulation and enhance lifelong learning skills (Saqr et al., 2018). By going through this process, students will go through a learning process that can increase students' learning motivation and creativity. Discovery Learning itself has an understanding. Discovery Learning is learning that encourages students to investigate on their own, find and build on past experiences and knowledge, use intuition, imagination, and creativity, and seek new information to find new facts, correlations, and truths (Mile, 2021). Darsana (2022) explains that the Discovery Learning model is part of the scientific approach and has advantages when compared to other approaches because the learning process consists of five main learning experiences, namely; a) observing, b) questioning, c) gathering information, d) associating, and e)

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communicating. The Discovery Learning Model requires students to be more active and creative in learning a subject matter (Arifudin, Wilujeng, & Utomo, 2016). So this model is very relevant to be used in the learning process, where it will be better if in learning students can learn independently accompanied by the teacher. In using the Discovery Learning model, the teacher only gives problems to students, and students try to solve the problems independently. At the data collection stage, when exploration takes place the teacher also provides opportunities for students to collect as much relevant information as possible to prove whether or not the hypothesis at this stage functions to answer questions or prove the correctness of the hypothesis. Thus students are given the opportunity to collect various relevant information, read literature, observe objects, interview with sources, do their own tests and so on. From this stage students learn actively to find something related to the problem at hand, thus inadvertently students connect the problem with the knowledge they already have. So that at this stage it becomes the main stage in increasing students' learning creativity. In addition, in the process of collecting information from various sources, students can find new experiences that have never been done by students so that students' motivation will increase to solve problems well.

Based on the background that has been stated above, the researcher is interested in conducting research with the title "Correlation of Problem-Based Learning Model and Discovery Learning Model with the Development of Creativity and Motivation of Learners".

II. METHOD

This research uses a quantitative approach with a correlation type, using data collection methods through observation and questionnaires, this is based on instruments, data collection processes, and quantitative data analysis, or in the form of numbers and ends with a generalization process. This study sought to provide an overview of the application of two learning models, namely Problem-Based Learning and Discovery Learning, besides that this study will also see significant developments in terms of learning creativity and learning motivation from students after the application of Problem-Based Learning and Discovery Learning learning models. Correlation analysis was conducted using SPSS 25 application to produce more accurate data. Data analysis is concluded by describing in the form of a systematic and sequential discussion.

Time and Place of Research

This research was conducted in November 2023 at SD Negeri Awu Awu and SD Negeri Wingkoharjo.

Population and Research Sample

The population in this study were all students in grades one to six at SD Negeri Awu Awu and SD Negeri Wingkoharjo, totaling 239 students.

The sample in this study used purposive sampling technique. purposive sampling is a technique that requires consideration in selecting samples or techniques for selecting samples using certain criteria. The criteria determined in sampling in this study are classes whose learning uses the 2013 curriculum; classes that use Problem-Based Learning and Discovery Learning learning models. So it can be determined that the research sample is grade VI students of SD Negeri Awu Awu with a total of 19 students and SD Negeri Wingkoharjo with a total of 21 students. SD Negeri Awu Awu with Problem-Based Learning model treatment while SD Negeri Wingkoharjo with Discovery Learning model.

Research Instruments and Data Collection Techniques

1. Data Collection Technique

The data collection step in this study is that the researcher contacts the PJOK teacher at both elementary schools, then asks for help to conduct lessons using both learning models, then the researcher fills out the observation sheet on the application of both learning models during learning. After the learning is complete, students are given a questionnaire sheet to fill in according to the learning experience that has been carried out with the PJOK teacher to measure the learning creativity and learning motivation of students.

Data Collection Instruments

The data collection instruments in this study were observation sheets and questionnaires. Observation sheets to identify aspects of the application of both learning models, while questionnaires are used to measure the results of students' learning creativity and learning motivation.

Research Data Analysis Technique

The data obtained from the results of the study were then categorized to determine the level of creativity and learning motivation of students. Mardapi in A Taufiq, Gigih Siantoro, Amrozi Khamidi (2021) that the guidelines for categorizing variable scores adapted to research use the ideal mean value and standard deviation. To find out the Ideal Mean (Mi) and Ideal Standard

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Deviation (SDi) values, first calculate the Ideal Mean (Mi): $\frac{1}{2}(X_{Maksimal} + X_{Minimal})$ and Ideal Standard Deviation (SDi): $\frac{1}{6}(X_{Maksimal} + X_{Minimal})$. Guidelines for categorizing the level of learning motivation can be seen in the table as follows:

| Category | Formula |
|-----------|--------------------------|
| Very High | $X \geq (Mi + SDi)$ |
| High | $Mi \leq X < (Mi + SDi)$ |
| Low | $(Mi - SDi) \leq X < Mi$ |
| Very Low | $X < (Mi - SDi)$ |

After categorization, the data obtained in this study will be analyzed for hypothesis testing using the Product moment correlation test and the T-independent test (t-independent test). The product moment correlation test, also known as Pearson correlation, is one of the statistical methods used to measure the level of relationship or correlation between two variables on an interval or ratio scale.

III. RESEARCH RESULT

This research was conducted at SD Negeri Awu Awu and SD Negeri Wingkoharjo. The sample in this study were grade VI students of SD Negeri Awu Awu and SD Negeri Wingkoharjo which amounted to 188. This study uses product moment correlation data analysis and t-Independent test. The description of the research data obtained by each variable in detail is described as follows:

a. Correlation of the Application of the Problem-Based Learning Model with the learning creativity of students at SD Negeri Awu Awu.

| | | PENERAPAN_PBL | KREATIVITAS BELAJAR |
|---------------------|---------------------|---------------|---------------------|
| PENERAPAN_PBL | Pearson Correlation | 1 | .660** |
| | Sig. (2-tailed) | | .002 |
| | N | 19 | 19 |
| KREATIVITAS BELAJAR | Pearson Correlation | .660** | 1 |
| | Sig. (2-tailed) | .002 | |
| | N | 19 | 19 |

Based on the results of the correlation test between the application of the Problem-Based Learning Model (Penerapan_PBL) and the learning creativity of students at SD Negeri Awu Awu, a Pearson correlation coefficient of 0.660 was obtained. A significant correlation coefficient indicates a strong positive relationship between the application of the Problem-Based Learning Model and students' learning creativity. In addition, the p-value (Sig. 2-tailed) of 0.002 shows that the value is smaller than the commonly used significance level (for example, $\alpha = 0.05$ or 95% confidence). This indicates that there is enough statistical evidence to support a significant relationship between the application of the Problem-Based Learning model and students' learning creativity at SD Negeri Awu Awu.

b. Correlation between the Application of Problem-Based Learning Model and Students' Learning Motivation at SD Negeri Awu Awu.

| | | PENERAPAN_PBL | MOTIVASI BELAJAR |
|------------------|---------------------|---------------|------------------|
| PENERAPAN_PBL | Pearson Correlation | 1 | .834** |
| | Sig. (2-tailed) | | .000 |
| | N | 19 | 19 |
| MOTIVASI BELAJAR | Pearson Correlation | .834** | 1 |
| | Sig. (2-tailed) | .000 | |
| | N | 19 | 19 |

Based on the results of the correlation test between the application of the Problem-Based Learning Model (Penerapan_PBL) and student learning motivation at SD Negeri Awu Awu, a Pearson correlation coefficient of 0.834 was obtained. A significant

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correlation coefficient indicates a very strong positive relationship between the application of the Problem-Based Learning Model and students' learning motivation. In addition, the p-value (Sig. 2-tailed) of 0.000 indicates that the value is smaller than the commonly used significance level (for example, $\alpha = 0.05$ or 95% confidence). This indicates that there is enough statistical evidence to support a significant relationship between the application of the Problem-Based Learning Model and students' learning motivation at SD Negeri Awu Awu.

c. Correlation between the Application of Discovery Learning Model and Students' Learning Creativity at SD Negeri Wingkoharjo

| | | Correlations | |
|---------------------|---------------------|------------------------------------|------------------------|
| | | Penerapan Discovery Learning | Kreativitas Belajar |
| Penerapan | Pearson Correlation | 1 | .660** |
| Discovery Learning | Sig. (2-tailed) | | .001 |
| | N | 21 | 21 |
| Kreativitas Belajar | Pearson Correlation | .660** | 1 |
| | Sig. (2-tailed) | .001 | |
| | N | 21 | 21 |

Based on the results of the correlation test between the application of the Discovery Learning Model and the learning creativity of students at SD Negeri Wingkoharjo, the Pearson correlation coefficient is 0.660. A significant correlation coefficient indicates a strong positive relationship between the application of the Discovery Learning Model and students' learning creativity. In addition, the p-value (Sig. 2-tailed) of 0.001 shows that the value is smaller than the level of significance generally used (for example, $\alpha = 0.05$ or 95% confidence). This shows that there is enough statistical evidence to support the existence of a significant relationship between the application of the Discovery Learning model and students' learning creativity at SD Negeri Wingkoharjo.

d. Correlation between the Application of Discovery Learning Model with Students' Learning Motivation at SD Negeri Wingkoharjo

| | | Correlations | |
|------------------|---------------------|--------------|------------------|
| | | Penerapan DL | Motivasi Belajar |
| Penerapan DL | Pearson Correlation | 1 | .501* |
| | Sig. (2-tailed) | | .021 |
| | N | 21 | 21 |
| Motivasi Belajar | Pearson Correlation | .501* | 1 |
| | Sig. (2-tailed) | .021 | |
| | N | 21 | 21 |

Based on the results of the correlation test between the application of the Discovery Learning Model and the learning motivation of students at SD Negeri Wingkoharjo, the Pearson correlation coefficient is 0.501. A significant correlation coefficient indicates a strong positive relationship between the application of the Discovery Learning Model and students' learning creativity. In addition, the p-value (Sig. 2-tailed) of 0.021 shows that the value is smaller than the level of significance generally used (for example, $\alpha = 0.05$ or 95% confidence). This shows that there is enough statistical evidence to support a significant relationship between the application of the Discovery Learning model and students' learning motivation at SD Negeri Wingkoharjo.

e. Differences between Learning Creativity and Learning Motivation of Learners in the Application of Problem-Based Learning and Discovery Learning Models

1) The Difference Between Learning Creativity Between the Two Learning Models

| Variabel | Significance Value |
|--|--------------------|
| Learning Creativity of Learners on the application of Problem-Based Learning model at SD | 0,064 |

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| | |
|---|--|
| Negeri Awu Awu and SD Negeri Wingkoharjo who apply Discovery Learning model | |
|---|--|

Based on the results of statistical testing, it can be seen that the significance value is $0.064 > 0.05$, which means that there is no significant difference in the learning creativity of students in the application of the Problem-Based Learning learning model at SD Negeri Awu Awu and SD Negeri Wingkoharjo which applies the Discovery Learning learning model.

2) The Difference Between Learning Motivation Between the Two Learning Models

| Variabel | Significance Value |
|---|--------------------|
| Students' Learning Motivation in the application of the Problem-Based Learning learning model at SD Negeri Awu Awu and SD Negeri Wingkoharjo which applies the Discovery Learning learning model. | 0,477 |

Based on the results of statistical testing, it can be seen that the significance value is $0.477 > 0.05$, which means that there is no significant difference in student learning motivation in the application of the Problem-Based Learning learning model at SD Negeri Awu Awu and SD Negeri Wingkoharjo which applies the Discovery Learning learning model.

DISCUSSION

a. Correlation of Problem-Based Learning Model Application with students' learning creativity at SD Negeri Awu Awu.

The results showed that there was a significant correlation between the application of the Problem-Based Learning Model and the learning creativity of students at SD Negeri Awu Awu, obtained a Pearson correlation coefficient of 0.660. A significant correlation coefficient indicates a strong positive relationship between the application of the Problem-Based Learning Model and students' learning creativity. In addition, the p-value (Sig. 2-tailed) of 0.002 shows that the value is smaller than the commonly used significance level (for example, $\alpha = 0.05$ or 95% confidence). This indicates that there is enough statistical evidence to support a significant relationship between the application of the Problem-Based Learning Model and learning creativity. Theoretically, there are several reasons why a significant correlation indicates a strong positive relationship between the application of the Problem-Based Learning Model (PBL) and participants' learning creativity. students at SD Negeri Awu Awu. The Problem-Based Learning model provides opportunities for learners to be actively involved in the learning process with a focus on problem solving. In this context, when learners face problem situations that are relevant to real life, they are required to find solutions independently through exploration, discussion and collaboration with classmates. The Problem-Based Learning model encourages learners to develop critical thinking, analytical and problem-solving skills. With complex problem situations, learners are faced with the challenge of gathering information, analyzing various related factors, and formulating appropriate solutions. Through Problem-Based Learning, learners are invited to analyze situations, identify problems, and design appropriate solutions. This ability is important in understanding and improving performance in various aspects of physical education (Setyosari & Sumarmi, 2017). In this case, students will be required to think critically so that it will foster the creativity of students who will issue ideas in solving problems.

b. Correlation between the Application of Problem-Based Learning Model and Students' Learning Motivation at SD Negeri Awu Awu.

The results showed that there was a significant correlation between the application of the Problem-Based Learning Model and the learning motivation of students at SD Negeri Awu Awu, obtained a Pearson correlation coefficient of 0.834. The significant correlation coefficient indicates a very strong positive relationship between the application of the Problem-Based Learning Model and students' learning motivation. In addition, the p-value (Sig. 2-tailed) of 0.000 indicates that the value is smaller than the commonly used significance level (for example, $\alpha = 0.05$ or 95% confidence). This indicates that there is enough statistical evidence to support a significant relationship between the application of the Problem-Based Learning Model and learning motivation.

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Theoretically, there are several reasons why a significant correlation indicates a very strong positive relationship between the application of the Problem-Based Learning Model (PBL) and students' learning motivation at SD Negeri Awu Awu. The Problem-Based Learning Model provides opportunities for learners to be actively involved in the learning process with a focus on problem solving. In this context, when learners face problem situations that are relevant to real life, they are required to find solutions independently through exploration, discussion and collaboration with classmates. One of the advantages of the Problem-Based Learning model is that students can feel the benefits of learning because the problems faced by children are associated with real life, this can increase motivation and interest in the material being studied (Santiani, Sudana, Tastra, 2017). Through the application of the Problem-Based Learning Model, learners are faced with problem situations related to the context of their daily lives. This allows learners to see the connection between the material learned and their own lives, so that it can increase learners' motivation and interest in learning. By actively engaging learners in a relevant and meaningful learning process, the Problem-Based Learning Model can strengthen emotional attachment and enhance the learning process. learners' intrinsic motivation towards learning. Learners who are highly motivated to learn allow high learning outcomes as well, meaning that the higher the motivation, the more intensity of effort and effort made, the higher the critical thinking ability. The following are things that have been well done by teachers and students in the application of the Problem-Based Learning learning model at SD Negeri Awu Awu:

1. Teachers play an active role in preparing learning and all learners can follow it.
2. The teacher provides an explanation related to the learning objectives and outlines the scope of the material to be studied and all students pay attention to it.
3. All students observe pay attention to the problems given by the teacher.
4. The teacher gives instructions to students to sit according to their groups.
5. All learners conduct discussions with their groups.
6. The teacher delivers both individual and group assignments
7. The teacher informs the learning activity plan for the next meeting.
8. Teachers and students conduct a final assessment in accordance with the competencies learned.

Things that need to be improved by both teachers and students in the application of the Problem-Based Learning learning model at SD Negeri Awu Awu:

1. Learners need to play an active role in answering or responding to questions about the previous material given by the teacher.
2. Learners need to play an active role in making questions related to the problems given by the teacher.
3. Teachers need to divide tasks so that students can work according to the division of tasks.
4. Learners should be more active in problem solving discussions.
5. Learners need to be more active in responding or asking questions to other groups during presentations.

c. Correlation between the Application of Discovery Learning Model and Learning Creativity of Students at SD Negeri Winkoharjo

The results showed that there was a significant correlation between the application of the Discovery Learning Model and the learning creativity of students at SD Negeri Winkoharjo, obtained a Pearson correlation coefficient of 0.660. A significant correlation coefficient indicates a strong positive relationship between the application of the Discovery Learning Model and students' learning creativity. In addition, the p-value (Sig. 2-tailed) of 0.001 shows that the value is smaller than the level of significance generally used (for example, $\alpha = 0.05$ or 95% confidence). This indicates that there is enough statistical evidence to support a significant relationship between the application of the Discovery Learning Model and learning creativity. Theoretically, there are several reasons why a significant correlation indicates a strong positive relationship between the application of the Discovery Learning Model and students' learning creativity at SD Negeri Winkoharjo. This is because the Discovery Learning Model is a learning approach where students are enabled to discover and construct their own knowledge through exploration and experimentation. This approach encourages students to be actively involved in the learning process, designing hypotheses, collecting data, and drawing conclusions. In the learning process using the Discovery Learning method, students are required to be more active and creative in learning a subject matter (Arifudin, Wilujeng, & Utomo, 2016). So that in its implementation, the teacher only gives problems to students, and students try independently to solve these problems.

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d. Correlation between the Application of Discovery Learning Model and Students' Learning Motivation at SD Negeri Wingkoharjo

The results showed that there was a significant correlation between the application of the Discovery Learning Model and the learning motivation of students at SD Negeri Wingkoharjo, obtained a Pearson correlation coefficient of 0.501. A significant correlation coefficient indicates a strong positive relationship between the application of the Discovery Learning Model and students' learning creativity. In addition, the p-value (Sig. 2-tailed) of 0.021 shows that the value is smaller than the level of significance generally used (for example, $\alpha = 0.05$ or 95% confidence). This indicates that there is enough statistical evidence to support a significant relationship between the application of the Discovery Learning Model and learning motivation. Theoretically, there are several reasons why a significant correlation indicates a strong positive relationship between the application of the Discovery Learning Model and students' learning motivation at SD Negeri Wingkoharjo. (Sulfemi & Yuliana, 2019) argue that Discovery Learning tends to arouse learners' intrinsic motivation, as they have more control over their learning process. In the context of Physical Education, this can increase learners' participation and interest in physical activity, which in turn can have a positive impact on their learning motivation. The following are things that have been well done by teachers and learners in the application of the Discovery Learning model at SD Negeri Wingkoharjo:

1. Teachers well prepare the learning psychologically.
2. Learners are active in responding or answering the teacher's questions about the connection to the previous material.
3. Teachers actively encourage students to identify problems.
4. Learners compare the results of data processing with other sources.
5. The teacher and learners reflect on the learning material that has been implemented.
6. The teacher gives further assignments to students.
7. The teacher provides information related to the next meeting's learning plan and all students listen to it.

Things that need to be improved by both teachers and students in the application of the Problem-Based Learning model at SD Negeri Awu Awu:

1. Learners need to increase their enthusiasm in asking questions about the phenomena observed.
2. Learners need to play an active role in reading from other sources.
3. Teachers need to invite learners to classify or categorize the data obtained.
4. Teachers need to invite learners to tabulate the data obtained.

e. The Difference Between Learning Creativity and Student Motivation in the Application of Problem-Based Learning and Discovery Learning Models

The results of the independent t-test on students' learning creativity in learning PJOK at Awu Awu State Elementary School which applies the Problem-Based Learning learning model and Wingkoharjo State Elementary School which applies the Discovery Learning learning model. It is known that the significance value is $0.064 > 0.05$, indicating that the value is greater than the level of significance generally used (for example, $\alpha = 0.05$ or 95% confidence) which means that there is no significant difference in the learning creativity of students in the application of the Problem-Based Learning learning model at Awu Awu State Elementary School and Wingkoharjo State Elementary School which applies the Discovery Learning learning model. Then the results of the independent t-test on the learning creativity of students in PJOK Learning at Awu Awu State Elementary School which applies the Problem-Based Learning learning model and Wingkoharjo State Elementary School which applies the Discovery Learning learning model. Based on the results of statistical testing, it can be seen that the significance value is $0.477 > 0.05$, indicating that the value is greater than the level of significance generally used (for example, $\alpha = 0.05$ or 95% confidence). Which means there is no significant difference between students' learning motivation in the application of the Problem-Based Learning learning model at SD Negeri Awu Awu and SD Negeri Wingkoharjo which applies the Discovery Learning learning model. The reason is that there is no difference between learning creativity and learning motivation of students in the application of PJOK learning in Awu Awu State Elementary School which applies the Problem-Based Learning learning model and Wingkoharjo State Elementary School which applies the Discovery Learning learning model. First, according to the results of the research both models have a significant correlation between the two learning models with the creativity and learning motivation of students. Secondly, theoretically both learning models have the same goal, namely to increase students' creativity and motivation to learn. So it is possible that these two things are a factor in the absence of differences between the two learning models. Although there is no difference between learning creativity and learning motivation of students in the application of PJOK learning in Awu Awu State Elementary School which applies the Problem-Based Learning learning model and Wingkoharjo State Elementary School which applies the Discovery Learning learning model, but the results of the study can be seen that the

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application of the Discovery Learning learning model is better than the application of the Problem-Based Learning learning model. There are several factors that can influence. First, the syntax of the Discovery Learning learning model is more than the Problem-Based Learning learning model so that students have more stages in solving problems. Second, in problem solving using the Discovery Learning learning model, students are more required to solve independently so that students will focus more on discovery, investigation, and independent problem solving. The Discovery Learning learning model focuses on discovery and investigation, where students can find their own answers to the problems at hand, in contrast to Problem-Based Learning which emphasizes problem solving through discussion and interaction (Asmal, 2023).

IV. CONCLUSIONS

Conclusions

Based on the analysis of descriptive data, testing of research results and discussion, it can be concluded that:

- a. There is a significant correlation between the Problem-Based Learning learning model and the development of students' learning creativity at SD Negeri Awu Awu. With a Pearson correlation coefficient of 0.660 and a p-value (Sig. 2-tailed) of 0.002 <0.05. This means that the higher the level of application of the Problem-Based Learning learning model, the better the students' learning creativity.
- b. There is a significant correlation between the Problem-Based Learning learning model and the development of students' learning motivation at SD Negeri Awu Awu. With a Pearson correlation coefficient of 0.834 and a p-value (Sig. 2-tailed) of 0.000 <0.05. This means that the higher the level of application of the Problem-Based Learning learning model, the better the students' learning motivation.
- c. There is a significant correlation between the Discovery Learning learning model and the development of students' learning creativity at SD Negeri Wingkoharjo. With a Pearson correlation coefficient of 0.660 and a p-value (Sig. 2-tailed) of 0.001 <0.05. This means that the higher the level of application of the Discovery Learning learning model, the better the students' learning creativity.
- d. There is a correlation between the Discovery Learning learning model and the development of students' learning motivation at SD Negeri Wingkoharjo. With a Pearson correlation coefficient of 0.501 and a p-value (Sig. 2-tailed) of 0.021 <0.05. This means that the higher the level of application of the Discovery Learning learning model, the better the students' learning motivation.
- e. There is no significant difference between learning creativity and students' learning motivation in the application of Problem-Based Learning and Discovery Learning learning models. With a significance value of 0.064 > 0.05 for learning creativity and with a significance value of 0.477 > 0.05.

Suggestion

Based on the results of the research that has been conducted, there are several research suggestions that can be made to further explore and develop the use of Problem-Based Learning and Discovery Learning learning models in the context of elementary schools. Some research suggestions that can be proposed are as follows:

- a. Future research can involve more than two elementary schools to obtain more representative data. The results of this study can provide a clearer insight into the advantages and disadvantages of the two learning models.
- b. Further research can be conducted to explore more deeply the role of teachers in the implementation of Problem-Based Learning and Discovery Learning models in elementary schools to examine effective teaching strategies, increase teacher competence, and other factors that contribute to the successful implementation of the two learning models.
- c. With the known results, it is recommended for PJOK teachers to implement learning using Problem-Based Learning and Discovery Learning learning models to increase students' learning creativity and learning motivation.

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