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The Impact of Problem Based Learning Methods on Long Jump Learning Outcomes for Primary School

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A B S T R A C T

The purpose of the study. The aim of this study was to determine the impact of the problem-based learning approach on the educational outcomes of the Primary School long jump students.

Materials and methods. This investigation employed a pre-experimental design experimental methodology. 37 children represented the study's population. With an average group size of 37 students, the study's sampling strategy was saturated sampling. The pretest, treatment, and posttest phases are used in data collection. The long jump test column is the tool utilized. Data analysis with the effect test (t_{test}).

Results. The long jump capacity findings with the problem-based learning model with $t_{count}=8.99>t_{table}=1.99$ were calculated based on the data obtained. These results show that ha is accepted and ho is rejected, indicating a rise, when the difference between the pretest mean value of 51.85 and the posttest mean value of 66.36 is bigger, with a difference of 14.51 numbers if the difference is 28%.

Conclusions. Students' psychomotor abilities are improved by the model problem-based learning because it allows students to concentrate on problem-solving as they are aware of the learning process's trouble spots right away.

Keywords: *Problem Based Learning; Long Jump.*

A R T I C L E I N F O

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INTRODUCTION

Physical education is a crucial component of child development, as it not only promotes physical health but also fosters cognitive and social skills(Grineski, 1992). In the Physical Education curriculum, especially the 2013 curriculum, there are many sports taught in schools, one of which is Athletics, which is divided into several types of sports (Klegeris & Hurren, 2011), including the long jump. Long jumping in physical education is not just for achievement(Bookwalter et al., 1943), but rather to gain

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experience of coordinating movements in athletics(Kidd et al., 1971), and the most important thing about various kinds of movements through long jumping is that the child's physical fitness level increases and can also see the child's talent in performing this sport(Brăneț, 2014). Physical and Health Education is basically an educational process that utilizes physical activity to achieve knowledge and skills goals related to physical activity, aesthetic development and social development (Simons & Klein, 2007). According to (Ega Trisna Rahayu, 2013) physical education is an educational process that utilizes systematically planned physical activities aimed at developing and improving individuals organically, neuromuscularly, physically, physically and physically(Bălan et al., 2012). One method in teaching is the Problem Based Learning (PBL) learning method which can also be applied in delivering various materials(Arufe-Giráldez et al., 2023)(Estrada, 2017)(Buchanan et al., 2002), this method can also of course be applied in the physical education learning process(Gillette, 2017), because it is a learning method problem-based so that it can stimulate and motivate students to be more active in the learning process (Martin et al., 2008). This problem was first encountered in Barow's learning process (Miftahul Huda 2014). Meanwhile, according to Barr and Tagg (Miftahul Huda 2014) PBL is a transitional form of learning paradigm. So the focus is on student learning and not on teacher teaching(Yew & Goh, 2016). In line with the opinion above, (Evelin Siregar and Hartini Nara 2014) also believe that the problem-based learning approach (PBL) is an approach where problems control the learning process. Also added by Panen (Rusmono 2014) in learning strategies with (PBL), students are expected to be involved in the research process which requires identifying problems, collecting data, and using that data to solve problems(Ellis et al., 1998).

Based on the results of observations made by the author at Primary School Kampar District, which in the learning process uses the direct learning method or what is often called the lecture method, on average around 70% of students still experience difficulties in mastering this material, the average student experiences difficulties at this stage. from the start to the jump stage, then difficulties when you want to step on the white line before making the jump so that it crosses the predetermined line(Yi, 2016).

After making direct observations in the field, the author obtained data on the learning outcomes that students achieved in the form of long jump learning scores which were still relatively low and there was a need to improve training on this material. Thus, this certainly has an impact on the learning outcomes of class Primary School Kampar Distric, with the minimum completeness criteria (KKM) being below average or not reaching the average, students only achieve a score of 65-70 in displaying their abilities while the standard for completeness is 75, Referring to the background in this research, based on the problems above, So researchers are interested in researching "The effect of applying the problem based learning (PBL) learning method on long jump learning outcomes in Primary School Kampar District". In the learning process there are many ways or teaching methods that can be applied by teachers in delivering learning material. One of them is the Problem Based Learning (PBL) learning method which can also be applied in delivering various materials, this method can of course also be applied in the physical education learning process (Duncan, 2009). Because this learning method is problem-based, it can stimulate and motivate students to be more active in the learning process.

MATERIALS AND METHODS

Study participants

The population in this study were students in Primary School Kampar District with a total of 37 students.

Study Organization

To obtain and reveal the problem in this research, it is necessary to choose data techniques that are appropriate to the objectives. The data collection technique in this research is by using tests and measurements. The research design used in this research is One-Group Pretest-Posttest Design. The following is the One Group Pretest-Posttest research design which according to Sugiyono (2016) is as follows:

Equation 1. Research Design Design (Sugiyono, 2016)

$$O_1 \; X \; O_2$$

Information:
O_1 = Pretest value (before treatment)
X = Treatment

O_2 = Prottest score (after being given training)

The effect of training on employee work performance = (O_2-O_1), According to (Sugiyono, 2014) there are several forms of design that can be used in experimental research, namely pre experimental design, True experimental design, Factorial design dan Quasi experimental design. Based on the four forms of research above, the form of research used in this research is Pre-Experimental research.

RESULTS

The description of the data from this research is intended to describe the data, namely regarding the level of long jump ability, which is divided into 4 assessment factors, namely starting technique, repulsion, flying, and landing technique. The results of students' long jump abilities. shows that there has been an increase in learning outcomes as shown by the increase in average results from previously 51.85 to 66.36 with a difference of 14.51 points.

The data normality test aims to find out whether the research data is normally distributed or not. Because, in parametric statistics normal data distribution is a necessity and is a condition that must be met. The normality test was carried out using chi square. Decision making is if the value of x_2 count x_2 table then the data is normally distributed and vice versa. Based on the analysis that has been carried out, the following results are obtained:

Chi square test of dataAfter testing the normality of the data, the results were obtained for the data pretest with x_2 count of 7,348, while for results post test found x_2 calculate 5,968, then this result is compared with x_2 table with a significance level of 5% then we get x_{2table}= 7,815. From these results it can be concluded that the pretest and posttest data are normally distributed, for more details can be seen in table 1, as follows:

Table 1. Normality Test Sig. Information

Normality Test Sig. Information			
Pretest	7.348	7.815	Normal
Posttest	5.968	7.815	Normal

In statistics, the homogeneity test is used to determine whether the variants of

several populations are the same or not. The homogeneity test is carried out by making a decision $F_{count} < F_{table}$ then it is said that the data can be said to be homogeneous and vice versa. Based on the statistical results for the homogeneity test, they are as follows:

Data Variance Homogeneity Test (*pretest*). The data homogeneity test was carried out and the results for the data were obtained*pretest*f $_{count}$equal to 1.734, then compared with the dk of the numerator (37-1)= 36 and the denominator (37-1)= 36 with a significance level of 5%, it is obtained that f_{table}amounting to 1,744. From these results it can be concluded that the data*pretest* homogeneous, for more details can be seen in table 6, as follows:

Table 2. Data Homogeneity Test Results T-test analysis

Homogeneity Test Sig. Information
Experiment: 1,734<1,744 Homogeneous

Once it is known that the data is normally distributed and the variance is not homogeneous and the number of samples is the same, then according to the guidelines that have been stated, the t-test formula is used*Polled Varians*. The results of data calculations using these two formulas can be described as follows: The t test obtained t_{count}= 8,998, then compared with dk= n_1+n_{2-2}= 72 and a significance level of 5% is obtained t_{table}=1,990. Based on the table above, $t_{count} > t_{table}$ or 8.998>1.990 so it can be said that H_0 is rejected and H_a is accepted.

DISCUSSION

Based on the results of the study, the application of the Problem Based Learning learning method has had a significant and positive impact on the learning outcomes of the long jump in students at Primary School Kampar District. The findings demonstrate a clear increase in student learning outcomes(Aprilitsnaeni, 2021)(Puspitasari et al., 2023). The use of the PBL learning method in long jump instruction at Primary School Kampar District has influenced and improved student learning outcomes, as evidenced by the improved pretest and post-test scores(Rukmini et al., 2023)(Sulistia & Anshor, 2023). (Sasingan & Wote, 2022).

The enhancement in student learning outcomes for long jump skills is

consistent with previous research. A study by (Kuntari & Febrianti, 2019) showed that the application of the Jigsaw type cooperative learning model can enhance student learning outcomes, while research by (Sasingan & Wote, 2022) found that the implementation of the Discovery Learning model can also improve learning outcomes. Additionally, the increase in student learning outcomes aligns with the research of Nasution et al., who investigated the effect of Process Oriented Guided Inquiry Learning on mathematical problem-solving ability(Rahmawati et al., 2020)(Nasution et al., 2018).

Furthermore, the results of this study corroborate the findings of research conducted by Prasetyo et al., who examined the implementation of Jigsaw Cooperative Learning at SMA Negeri 1 Banyudono. They determined that the application of the Jigsaw cooperative learning model can indeed improve student learning outcomes.

CONCLUSION

Based on data calculations, the results of the long jump ability were obtained using the modelproblem based learning with t_{count}= 8.99>t_{table}=1.99. These results show that ha is accepted and ho is rejected, meaning there is an increase, which is the difference in valuemean posttest data (66.36) is greater than the meanpretest (51.85) with a difference of 14.51 points if compounded to 28%. Based on the results of this research, model problem based learning provide process improvements students' psychomotor skills, because with this model students immediately know the problem points in learning so that students focus on solving problems. So that students' critical thinking skills become trained.

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APPENDIX

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