

# Learning model and learning motivation on basketball learning outcomes

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## ABSTRACT

*This experimental study aims to examine and prove the effectiveness of the Problem-Based Learning (PBL) model on learning outcomes, the effect of the interaction between learning models and learning motivation on learning outcomes, and the influence of learning motivation on learning outcomes. The research population is students of class X MIPA SMA Negeri 1 Sukawati for the academic year 2021-2022. The sampling technique was done by simple random sampling. Methods of data collection using test results of learning and learning motivation questionnaire. The research was divided into three activities, namely pretest, treatment, and post-test. The conclusions in this study are (1) Students who follow the PBL model get an increase in the average score of higher learning outcomes compared to students who follow the conventional learning model. (2) Higher student basketball learning outcomes are obtained by students who learn to use the PBL model, this occurs due to the advantages of the PBL model in improving student learning outcomes. (3) Basketball learning with the PBL model is proven to be better than the conventional learning model because of the compatibility between the characteristics of basketball learning and the PBL model. (4) The interaction between the learning model and learning motivation affects basketball learning outcomes.*

**Keywords:** PBL, conventional model, learning motivation

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## INTRODUCTION

The current condition of Indonesia, which is being hit by COVID-19, has greatly impacted the implementation of learning at all levels of education (Rahman, Prasetyo, & Mashuri, 2021). At the SMA and SMK education levels, where the direction of the learning process is more at the practicum level, as well as a deeper understanding of material concepts, this pandemic can be felt (Mashuri, Mappaompo, Gunarto, & Herpandika, 2021). This is reflected in the learning outcomes of students on the Physical Education, Sports, and Health (PJOK) learning materials for the 2020-2021 school year. Aspects of knowledge, students find it difficult to carry out learning, one of which is basketball material (Zaharah & Kirilova, 2020). This fact attracts the attention of researchers to find solutions to solve the problems that occur.

The learning carried out by the teacher is still general and lacks a dominant goal to improve PJOK learning outcomes (Mashuri & Apriliyanto, 2015). This is reflected in the

learning outcomes on the knowledge aspect of students of class X MIPA SMA Negeri 1 Sukawati for the 2020-2021 academic year, of the nine existing classes, only one class is above the minimum completeness criteria (KKM) on basketball material. The learning outcomes reflect if the teacher always presents subject matter with conventional learning models, namely providing material explanations, providing examples of movements, then giving knowledge and skill tests that are following or almost the same as the examples presented by the teacher (Mashuri, 2017). This tends to cause students to become passive because they only receive from the teacher but do not build their knowledge. This kind of learning process is certainly not following the demands that demand the development of the dimensions of process, outcome, and attitude (Carroll & Loumidis, 2001). PJOK learning that is centered on students (Student Centered) requires the skills of a teacher to compile and develop learning tools (Mashuri et al., 2021). Development of learning tools, including syllabus, Learning Implementation Plan (RPP), learning facilities, learning media, worksheets, and evaluation following the applicable curriculum (Mustafa & Dwiyoogo, 2020). The existence of learning tools makes it easier for teachers in the teaching and learning process (Hasan et al., 2021). Educational studies including Pranata, Wahjoedi, & Lesmana (2021) state that the lack of use of learning media during the learning process causes low student motivation in learning, resulting in low student learning outcomes. Based on the results of the study, the audio-visual-based PJOK learning media on basketball shooting material for class XI SMA Negeri 2 Singaraja in the 2020/2021 school year is said to be feasible to use in the learning process, beside that motivation is a very important factor in learning, especially in physical education, sports and health subjects (Darmawan, M., Destriana, D., & Bayu, W, 2022).

Activities and learning outcomes of basic basketball passing (chest pass and bounce pass) techniques are increased through the application of the NHT-type cooperative learning model to class VIII.6 students of SMP Negeri 2 Singaraja in the 2015/2016 academic year. Teachers can interpret, create and apply technology in PJOK learning (Santoso, 2016). Teachers are expected to have abilities including; 1) interpreting and applying technology in PJOK learning, 2) creating and using learning media as a supporter of the process in achieving learning outcomes. Details of the material in training and mentoring to maximize the potential and increase the professionalism of teachers, namely; 1) presentation of the initial concept of the industrial revolution 4.0, 2) blended learning, 3) practice of learning PJOK by utilizing an application on an android cellphone, 4) feedback of line and on line. The use of PJOK learning technology by following the 4.0 industrial revolution helps students simplify and accelerate the

process of transforming information and knowledge. By utilizing technology that leads to the industrial revolution 4.0 (Swadesi, Wahjoedi, Sudiana, & Dharmadi, 2021).

Seeing the conditions stated above, it is necessary to have a type of learning model that can increase motivation and learning outcomes. Professional teachers are expected to motivate and arouse students' learning passion to achieve maximum learning outcomes. The Problem-Based Learning (PBL) learning model aims that students can develop problem-solving skills and are expected to be able to build new knowledge through a learning process that uses real (authentic) problems that are not structured (ill-structured) and are open (Mashuri et al., 2021). The PBL model is a type of model used in the learning process that involves students achieving attitude, knowledge, and skill competencies by solving a problem with the stages of the scientific method so that students can learn and analyze knowledge in detail (Mashuri, 2022). Giving learning motivation to students in groups or individually is an effort made by educators to improve learning outcomes.

## **METHODS**

This research is experimental. The experimental research method is one of the quantitative methods used especially if the researcher wants to experiment to find the effect of the independent variable/treatment/certain treatment on the dependent variable/outcome/output under controlled conditions (Swadesi et al., 2021). The type of research that the researcher uses is true experimental research. The real experimental research design was chosen because it fulfilled three principles, namely: randomization, replication, and control treatment. A real experiment is a research design that has the highest external validity and internal validity.

This study used a pretest-posttest control group design. In this design, two groups are chosen randomly and then given a pretest to find out the initial state and find out whether the students are equal (Sugiyono, 2015). The analysis in this study uses a two-way ANOVA Treatment by level 2 x 2. Giving motivation tests to students to show whether students' motivation levels are high or low motivation levels. This group difference is used for analysis by level 2 x 2.

In this study, the data needed is data about learning outcomes and students' learning motivation. Student learning outcomes data obtained from learning outcomes tests. The learning outcome test consists of 36 objective questions. The minimum score for each objective form of learning outcomes test is zero (0) and the maximum score is one (1). Thus the ideal

total or maximum score for the learning outcome test is 36, and the ideal minimum score is zero (0). Students who follow the PBL model get a higher average increase in learning outcomes compared to students who follow the conventional learning model.

## RESULTS AND DISCUSSION

The normality test of data distribution was carried out on two units of analysis of student learning outcomes, namely (1) learning outcomes scores of students who took lessons with conventional learning models, and (2) scores of learning outcomes of students who participated in PBL learning models. The data analyzed is the gain of learning outcomes obtained from pretest scores and posttest scores.

Tabel 1. Normality Test

Grups	Kolmogorov-Smirnov			Shapiro-Wilk			Status
	Statistic	Df	Sig.	Statistic	Df	Sig.	
A1	0,101	72	0,064	0,979	72	0,279	Normal
A2	0,90	72	0,200	0,981	72	0,363	Normal
A1B1	0,113	24	0,200	0,962	24	0,475	Normal
A1B2	0,126	24	0,200	0,932	24	0,109	Normal
A2B1	0,165	24	0,091	0,955	24	0,342	Normal
A2B2	0,114	24	0,200	0,952	24	0,304	Normal

The homogeneity of variance test in this study was carried out using Levene's Test for Equality of Variances. The results of the homogeneity of variance test through Levene's Test for Equality of Variances can be summarized in the following table.

Table 2. Levene's Test

<i>Levene's Test of Equality of Error Variances</i>			
<i>Dependent Variable: Hasil Belajar Bola Basket</i>			
F	df1	df2	Sig.
2.237	3	92	0.089
<i>Test the null hypothesis that the error variance of the dependent variable is equal across groups</i>			
a. Design: Intercept + A + B + A * B			

Based on this for the homogeneity of variance test, it appears that the Levene statistical value shows a significance value greater than 0.05 so it can be concluded that the data has a homogeneous variance.

### Two Paths Anova Test Results

The table of 2-way Anova test results explains that:

1. The value of Fount 434.619 is greater than F table 3.92 and the significance value is 0.000 (<0.05).
2. The F count 9.057 is greater than F table 3.92 and the significance value is 0.003 (<0.05).

After the 2-way ANOVA test was carried out, it was continued with the Tukey Honestly Significant Difference (HSD) test.

Table 3. Tukey Honorsly Significance Difference (HSD) Test Result

Interactions	N	Subset			
		1	2	3	4
Low motivation (control)	24	.3554			
High motivation (control)	24		.4979		
Low motivation (experiment)	24			.5925	
High motivation (experiment)	24				.8150
Sig.		1.000	1.000	1.000	1.000

The Tukey HSD test results table explains that:

1. The mean value of learning outcomes in the experimental group is 0.815 greater than the learning outcomes in the control group is 0.497.
2. The mean value of learning outcomes in the experimental group was 0.592 greater than the learning outcomes in the control group was 0.355.

Based on the results of the 2-way ANOVA test as presented and the results of the Tukey HSD test, the results of the hypothesis test can be formulated as follows: The first hypothesis, Based on the summary of the results of the analysis, the F count value of 434.619 is greater than F table 3.92 and has a significance value of 0.000 (<0.05). Thus, it can be concluded that there are differences in basketball learning outcomes between students who learn with the PBL model and those who learn with the conventional learning model. PBL helps PJOK learning

by improving students' lateral thinking skills (Mustofa, Faisal, Hidayah, & Ratna, 2020). There are four factors of lateral thinking, the dominant one is the problem factor which is the difference between the control group and the experimental group.

The second hypothesis, Based on the summary of the results of the analysis, the F count value is 9.057 which is greater than F table 3.92 and the significance value is 0.003 ( $<0.05$ ). Thus, it can be concluded that there is an interaction effect between the learning model and learning motivation on basketball learning outcomes. It appears that the interaction that occurs between the learning model and learning motivation, on learning outcomes is ordinal (not cross). The effect of the treatment given (learning model) on improving learning outcomes depends on the learning motivation of students. In other words, the increase in learning outcomes produced by the two sample groups is not only the result of the treatment (learning model) given but other factors that influence the learning motivation of students. The interaction between the learning model and learning motivation affects the students' basketball learning outcomes. Both learning models improve learning outcomes, but the PBL model provides a greater improvement than conventional learning models for students who have high learning motivation. The results of this study are in line with the results of research from Septian & Komala (2019) which showed a significant positive interaction and relationship between PBL and learning motivation. That is, PBL has a big influence on increasing motivation for students who have high motivation.

The third hypothesis, the mean value of learning outcomes in the experimental group is 0.815 greater than the learning outcomes in the control group is 0.497. Thus, it can be concluded that there are differences in basketball learning outcomes between students who study with the PBL model and those who study with conventional learning in students who have high learning motivation. The application of PBL in learning big ball games, especially basketball material for students who have high motivation proves that PBL provides opportunities for students to explore themselves to develop mindsets, thinking styles, and problem-solving. Furthermore, Aditya, Helmi, & Usman (2019) proved that PBL with a scientific approach can improve learning outcomes in basketball skills.

The fourth hypothesis, the average value of learning outcomes in the experimental group is 0.592 greater than the learning outcomes in the control group is 0.355. Thus, it can be concluded that there are differences in basketball learning outcomes between students who study with the PBL model and those who study with conventional learning in students who

have low learning motivation. For students who have low motivation, PBL is an effective solution to improve the learning outcomes of playing basketball skills. Research by [Fadlan & Anshor \(2022\)](#) proves that the PBL learning model makes a significant difference in learning outcomes with conventional models that teachers usually use. This shows that PBL is a solution for PJOK learning whose students have low motivation. It should also be noted that the PJOK learning process must contain the enjoyment of physical activity for students ([Mashuri, 2019](#)).

PBL is a learning model that provides opportunities for students to be more active and creative in making innovations. Based on the results of a meta-analysis study conducted by [Parwata \(2021\)](#) that PBL has a significant influence on PJOK learning outcomes. This research collects scientific articles from 2015-2020 about the effect of PBL on PJOK learning outcomes. The results of the study show an effect size of 1.92 or it is included in the very high effect category. This research is enhanced by the opinion of [Yani \(2021\)](#) who states that PBL has a process of increasing learning motivation by forcing students to think using their interests and points of view so that students without coercion can learn to solve problems in PBL.

## CONCLUSION

Based on the results of the analysis and discussion, the following conclusions can be formulated. There are differences in basketball learning outcomes between students who study with the PBL model and those who learn with the conventional model. There is an interaction effect between the learning model and learning motivation on basketball learning outcomes. There are differences in basketball learning outcomes between students who study with the PBL model and those who study with the conventional model in students who have high learning motivation. There are differences in basketball learning outcomes between students who study with the PBL model and those who study with the conventional model in students who have low learning motivation.

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