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Effect of Problem Based Learning (PBL) Models on Motivation and Learning Outcomes in Learning Civic Education

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Abstract

This study aims to analyze the Problem Based Learning (PBL) learning model to develop learning motivation and learning outcomes in citizenship education learning. The use of PBL models in this study aims to help students develop investigative skills to be able to solve the problem at hand. The method in this study uses a quantitative approach with a quasi-experimental method and is used in the pre-test and post-test design groups. The subjects in this study were 34 students in SMP Negeri 6 Yogyakarta. The data analysis technique used "t" test with SPSS 16 assistance program and N-gain score test. The results of this study indicate that the PBL learning model on the values of the Pancasila material as a basis for the country and the national outlook on life significantly influence student motivation and learning outcomes. In this case, the PBL model can develop learning motivation and learning outcomes in the medium category.

Keywords: *PBL, Learning Motivation, Learning Outcomes, Civic Education*

1. Introduction

Education is a very strategic situation to improve the quality of Indonesian Human Resources (HR) and includes aspects of knowledge, professionalism, and ability by connecting the demands of national development. One embodiment of the objectives of national education through learning Citizenship Education. National education based on Pancasila aims to improve the quality of Indonesian society, namely people who believe and serve God Almighty, virtuous character, personality, discipline, hard worker, tough, responsible, independent, intelligent, smart, smart, smart, skilled, and physical. and mentally healthy. Citizenship Education in accordance with the contents of the 2006 curriculum is education about values whose target is not only the transfer of knowledge but more emphasis on forming attitudes (Andayani, 2015).

According to Saebani & Nurjanah, (2013), it is assumed that citizenship learning tends to be boring so that the learning outcomes do not reach the minimum limit. The same thing in the study of (Nurfillaili et al., 2016) which shows that citizenship subjects until now the learning process is still impressed much taught and not learned. Citizenship learning in the 2013 curriculum, has a goal that is to make students who are cooperative, critical and active so as to provide provision of experience and practice in the concept of national and state life both in the classroom and outside the classroom (Samsuri, 2013). The more dominant teacher's role in the learning process results in students who are always considered to be guided and always directed by the teacher. The teacher as a source of inspiration and motivation for students must encourage students to be active.

The results of observations made at SMP Negeri 6 Yogyakarta obtained data that students tend to be less motivated. The average percentage of KKM achievement in learning outcomes in previous citizenship education subjects was 55%. The low achievement of these student competencies is possible due to the teacher-centered learning process. The same thing happened in the results of research released by the international civic and citizenship study (ICCS, 2009) which showed that the average knowledge of student citizenship in Indonesia was still below the international average of 433 and 499 (ICCS, 2009).

That is due to the lack of student motivation in the teaching and learning process. Citizenship education learning that involves students can improve their learning outcomes,

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because by learning citizenship education students can find new things that can guide them in their daily lives in their social environment. Learning is a change in behavior in an individual due to interactions between one individual and another individual and between individuals and the environment (Usman, 2000).

Internal factors that influence improvement in learning outcomes are factors experienced by students such as learning attitudes, concentration, motivation, intelligence, self-confidence, learning goals and learning habits, while external factors are factors that influence learning activities such as teachers, facilities and infrastructure, school environment and curriculum (Silalahi, 2011). The success of learning Citizenship Education in schools depends on the way teachers teach in class, regarding the professional skills of Citizenship Education teachers so far, there are still many Citizenship Education teachers in teaching using conventional methods or lecture methods with an emphasis on students' ability to memorize (Agustinah et al., 2013).

In the learning process, motivation is needed. Learning motivation in students is very important in improving their learning outcomes. Students ideally have many sources of motivation in their learning experiences in each class (Williams & Williams, 2011) The Purpose of Citizenship Education in schools places more emphasis on mastering the knowledge and skills that can provide students with provisions in dealing with daily life (Rachmadtullah & Wardani, 2016). According to Johnson & Morris, (2010) the main role of citizenship and citizenship education in this country is related to the process of state formation and is designed to build a shared identity that instills patriotism and loyalty to the nation. The use of innovative learning models can increase student motivation and their learning outcomes in civic education learning: Teachers can use problem-based learning models (PBL).

Problem based learning is documented as far back as Plato and the Socratic pedagogy and its manifestations have been varied (Al-Naggar & Bobryshev, 2012). First introduced in medical school in 1958, PBL involves the attempt to solve an authentic, ill-structured problem (Barrows, 2002; Walker & Leary, 2009). PBL represented a major development in educational practice that continues to impact courses and disciplines worldwide. The roots of PBL date back to the mid-1960s at McMaster University Medical School in Hamilton, Canada (Loyens et al., 2011). Constructivism assumes effective learning, and effective language learning, take place in student-centered arrangements can focus on integrated, collaborative, and problem-based learning, and the teacher becomes the facilitator of the learning process rather than the owner of the information (Toledo-López & Pentón Herrera, 2015). Problem-based learning model (PBL) is useful to stimulate students to think critically in problem-oriented situations, encourage students to apply critical thinking, problem solving skills, connect knowledge about problem problems and real world problems (Rahmayanti, 2017). Problem based learning (PBL) is learning that how to win is done by presenting problems, asking questions, facilitating investigations, and also opening dialogues that will be developed (Sani, 2014). By presenting problems in the learning process, it can improve student learning outcomes and student motivation.

PBL's constructivist nature was originally designed to replace traditional lecture-based teaching methods in medicine to actively engage students in self-directed and interdisciplinary learning through real-world problem solving (Barrows, 1996). The faculty of Medicine and Health Sciences, University Malaysia Sarawak (UNIMAS) has adopted PBL as a teaching learning methodology in its undergraduate curriculum, since its inception in 1996 (Ommar, 2011). PBL is commonly described as the third type identified here: problem-solving projects (LaForce et al., 2017). Further, studies have shown that PBL can improve students' creativity (Bell, 2010). Critical thinking and problem-solving skills (Ertmer et al., 2014), reflective thinking (Dominguez & Jamie, 2010), communication and collaboration skills (Lou et al., 2011) and ability to self-direct learning (Norman & Schmidt, 2000).

Work is also needed to determine the most appropriate outcome measures to capture the effects of PBL (Hartling et al., 2010). When factors such as the type of PBL model, type of problems used, differences between facilitators and students, resourcing for PBL and workload are considered, it is difficult to measure precisely what is having an effect on

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student performance and in what way (Hung, 2011). It is necessary to know the characteristics of PBL before using the model.

The characteristics of the PBL learning model, namely; 1) Submit a problem or question; 2) relating to problems in various scientific disciplines; 3) authentic assessment (results and process); 4) produce and present the work of students; 5) there is collaboration between students to solve, problems (Hosnan, 2014). The steps in applying the PBL model in this study include: 1) Introduction; 2) Indenting the problem statement; 3) Looking for information; 4) Presentation; 5) Wrap up the solution (Botty et al., 2016). In this step, the teacher is only a facilitator who presents a limited amount of information about the problem, the group of students is assigned the task of identifying various aspects of the problem by asking the facilitator questions to get information relevant to the problem (Bilgin, 2009).

Based on the description above, the purpose of PBL is to assist students in developing investigative skills. In this case can improve student learning outcomes and learning motivation. This research is focused on identifying factors that will help educational thinkers know students' attitudes towards learning, what facilitates learning and what impedes the learning process. Learning outcomes referred to in this study are learning outcomes (changes in behavior: cognitive, affective and psychomotor) after completing the learning process by finding information about learning strategies and reading methods as evidenced by the evaluation results in the form of grades.

This study aims to determine the effect of PBL models on learning motivation and learning outcomes in Citizenship Education learning. The benefits of this writing are to increase knowledge and bring understanding of PBL model studies to motivation and learning outcomes.

2. Method

The method for measuring motivation and learning outcomes uses a quantitative approach with a quasi-experimental method. The data analysis technique used "t" test with the help of SPSS 16 program and N-gain score test. The method for measuring motivation and learning outcomes uses a quantitative approach with a quasi-experimental method. The data analysis technique used "t" test with the help of SPSS 16 program and N-gain score test. Hypothesis testing is done by t-test to determine differences in learning outcomes of Pancasila values between before and after using PBL models for learning motivation (Hartono, 2016). Decision making for the hypothesis using the criteria for acceptance or rejection of the null hypothesis ($H0$) at a significance level of 5% is if the match $count$ > $table$ matches the null hypothesis ($H0$) is rejected or the alternative hypothesis (Ha) is accepted. However, if $tcount$ < $ttable$, then the null hypothesis ($H0$) is accepted or the alternative hypothesis (Ha) is rejected.

Quantitative researchers are a phenomenon by collecting numerical data that is analyzed using mathematical (statistical) methods (Gunderson., 2004). The experimental design used was quasi-experimental with one pretest-posttest design group. This research was conducted in Yogyakarta 6 Public Middle School, with 6 classroom pupils and used samples in class VIII-D with 34 students as subjects. This research uses purposive random sampling. Categorizing the motivational variables with the intervals used are: student learning motivation data has 30 items with a score of 1-5. Maximum score (30x5) = 150, and minimum score (30x1) = 30 with the intervals 24. The interpretation is presented in Table 1.

Table 1. Student Motivation Intervals

Category	Classification
Always	≥126 – 150
Often	≥102 – 126
Sometimes	≤78 – 102
Rarely	≤ 54 – 78
Never	≤ 30 – 54

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Categorizing learning outcomes in this study using purposive random sampling, as follows:

$$< g \geq \left(\frac{(Spost - Spre)}{100 - pre}\right)$$

Explanation:
<g> = gain normalized
Spost = score posttest
Spre = score pretest

Subsequently interpretation is presented in Table 2.

Table 2. Classification of n-gain Interpretational

Substantial Percentage	Interpretation
$g \geq 0,7$	High
$0,3 \leq g < 0,7$	Medium
$g < 0,3$	Low

3. Results and Discussion

Motivation to learn

In this study, to see student motivation is measured by giving pre-test and post-test. Pre-tests are given first before applying the PBL model. Provision of post-test after applying the PBL model. Following are the results of the pre-test and post-test calculations on students' learning motivation assuming the two different variants are represented in Table 3.

Table 3. Learning Motivation Results Data

Category	Classification	
	Before Treatment	After Treatment
Always	0	1
Often	16	16
Sometimes	17	14
Rarely	1	1
Never	0	0

In table 3, it can be seen the difference before and after treatment when given PBL. Students' opinions on PBL are much better compared to before PBL was given. Other differences can be seen in Figures 1 and 2.

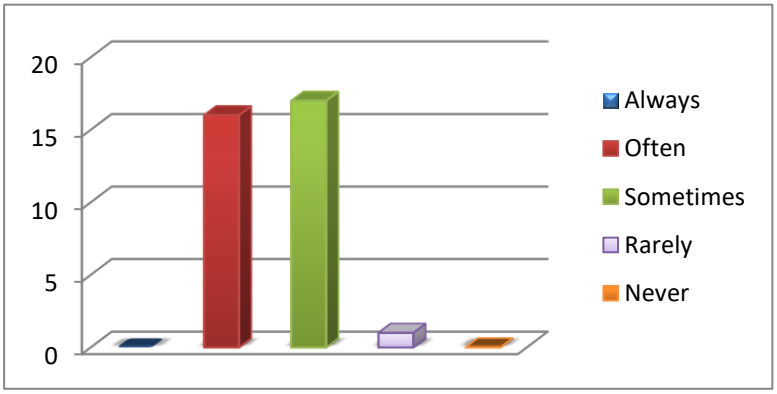

Figure 1. Data before treatment

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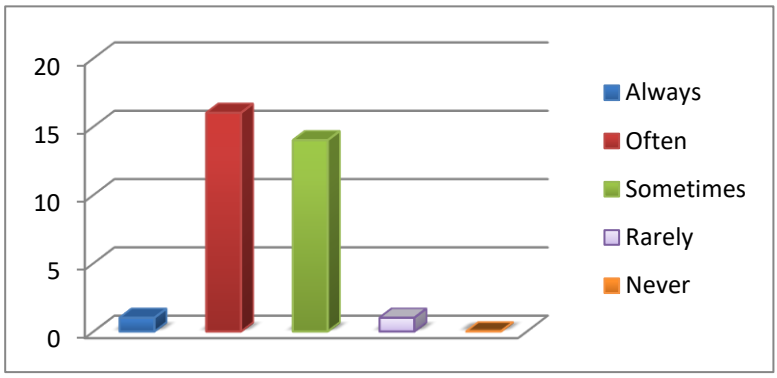

Figure 2. Data after treatment

The mean difference in student motivation before and after treatment can be seen in the following Table 4.

Table 4. T-test Results in Student Motivation

Pair 1		Mean	N	Std. Deviation	Std. Error Mean
	After Treatment	101.91	34	14.919	2.559
	Before Treatment	98.82	34	17.497	3.001

Table 4 shows the mean after treatment 101.91 and the mean before treatment 98.82, while N is 34. The standard deviation for post-treatment is 14.919, and the standard deviation before treatment is 17,497. The standard error of the mean after treatment was 2,559, whereas before treatment was 3,001.

The magnitude of the correlation value of learning motivation before and after treatment can be seen in the following Table 5.

Table 5. Correlation Results on Student Motivation

Pair 1		N	Correlation	Sig
	After treatment & Before treatment	34	.379	.027

Table 5 shows the magnitude of the correlation between the two samples, where the two correlation numbers are 0.379 and the significance level is 0.027. Decision making is based on the results of the probability obtained, namely: 1) If the probability is> 0.05 then the null hypothesis is accepted; 2) If the probability is <0.05 then the null hypothesis is rejected.

The significance value of 0.027 is far greater than 0.05. This means that the hypothesis states there is a relationship between after treatment and before treatment. In other words, between after treatment and before treatment has a significant relationship. Comparative analysis of learning motivation before and after treatment can be seen in the following Table 6.

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Table 6. Comparative Results on Learning Motivation

Pair 1	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Differences				
				Lower	Upper			
After the treatment Before treatment	3.088	18.187	3.119	-3.257	9.434	.990	33	.329

Table 6 displays the results of comparative analysis using t-test. The output shows the mean after treatment and before treatment is 3.008, the standard deviation is 18.817, the average standard error is 3.119. The lowest difference is -3,257, while the highest difference is 9,434. Test results t test = 0.990 with df = 33 and significance 0.329.

Interpretation can be made by referring to the t test value by comparing with (t observations) with tt (t table), where df = 33 numbers are obtained: 2.03 for a significant level of 5% and 2.74 for a significant level of 1%. With a = 0.990 means greater than tt at a significant level of 1% (2.03> 0.990 <2.74), which means the null hypothesis is accepted. Can also be obtained by referring to the amount of significance. In this case, the decision is made with the provisions; 1) If the probability is> 0.05 then the null hypothesis is accepted; 2) If the probability is <0.05 then the null hypothesis is rejected.

With a significance value of 0.027 means greater than 0.05, it means the null hypothesis which states that there are differences after treatment and before treatment is received. There is a significant difference between after treatment and before treatment. The average difference shows that after treatment better than before treatment.

Learning Outcomes

In this study, to see student learning outcomes measured by giving pre-test and post-test. Pre-tests are given first before applying the PBL model. Provision of post-test after applying the PBL model. The following are the results of the pre-test and post-test of student learning outcomes in learning citizenship education.

Table 7. Learning Outcomes Data

Data source	Class	
	Pre-test	***Post tes***
Min	30	70
Max	60	85
Mean	42.00	73.82
Median	40,00	75,00
Standard Deviation	7.932	4.274

In Table 7, the scores of learning outcomes using the PBL model are quite high. The mean pre-test score was 42.00 while the post-test score was 73.82. Test results after treatment using the PBL model have a higher mean score than before the speech.

Improved student learning outcomes are calculated through the grade mean using the N-gain calculation formula. The results of the pre-test and post-test were conducted on 34 students as research subjects to analyze the increase in learning outcomes in the material "Pancasila Values as the basis of the country and the nation's life view" can be seen in Table 8.

Table 8. N-gain Data

Number of Samples	Rate-rate N-addition	Classification
34	0.542	Medium

Table 8 shows that the N-gain value is in the medium category of 0.542. This means that the PBL model significantly influences student learning outcomes.

Discussion

When seen in the results of pre-test and post-test motivation and student learning outcomes, there is an increase before and after the PBL model is applied. That's because the use of innovative learning models. Student learning outcomes based on quantitative data analysis using the N-gain score test can be concluded that there is a significant effect and the magnitude of influence given by the PBL model of 73.82. (Anggraini et al., 2016) research shows an increase of 0.46 which, if included in the interpretation of correlations, is included in the significant category. This is in line with the theory expressed by (Rusmono, 2012), PBL learning encourages the learning process with optimal learning outcomes. Besides that, PBL learning process runs well, PBL learning stages make students actively participate in following learning. This finding is in line with (Setyowati, 2010) research, PBL learning can increase student learning participation and in accordance with the theory expressed by (Aunurrahman, 2009), the learning process can occur well if students actively participate in it.

PBL has truly taught them to be 21st century learners. It encom-passes all of the skills, especially when you include service learning as part of the PBL (Dole et al., 2017). PBL is a student-centered, task-based instructional method in which the teacher serves as a facilitator (Sada et al., 2016). This effect is consistent with the characteristics of the PBL curriculum and with our expectations (Galand et al., 2012). The implementation of the PBL model encourages collaborative and constructive learning. Thus, students who are more engaged in problem-based learning showed a better attitude in knowledge assessment (Surniati et al., 2019). In problem-based learning, students apply an 'inquiry method' to seek knowledge and solutions through the questioning and investigation of locations, objects, people, books, evidence and information (Phungsuk et al., 2017). The fundamental principle of PBL is to equip students with an investigative approach and to develop a greater sense of responsibility for their learning (Wiggins et al., 2016). When learning, developing, and expanding language and literacy skills, it is necessary to understand how they learn, comprehend, and process knowledge. Notably, "problem-based learning purposefully combines cognitive and metacognitive teaching and learning (Aker et al., 2018).

We believe that PBL methodology can, through activities organized by the teacher, realize the potential for the scientific qualification of the individual in such a way as to make him capable of seeing him-self in a determined place and time space, this place and time space within a geographically scientific point of view (Moraes & Castellar, 2010). The good news is that research shows that PBL can promote student learning and may be more effective than traditional instruction in social studies, science, mathematics, and literacy (Kingston, 2018). While we celebrate the successes of PBL, it is important to recognize that the diffusion of PBL certainly hasn't come challenge-free (Miklos et al., 2019). Fortunately, the instructional strategy of problem-based learning can successfully expedite learning the crucial 21st century skills (Barber & King, 2014). In light of research indicating that PBL is an effective instructional strategy and the need for social studies teachers to integrate instruction across subject areas to fight against the marginalization of their content area (Bostic et al., 2014). The rationale for and concept of PBL is explained and extensive reference is made to a wealth of source materials on the nature and effectiveness of such a learning medium. The implications for PBL in the context of experiential learning are also explored (Grimes, 2015). In research (Ba-rell, 2007; Lamb-ros, 2002; Leite et al., 2019), I understand that PBL is a methodology that offers students a means of learning, developing abilities and attitudes that will be valuable in professional life, in a curricular context. In

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applying learning, we need a model for learning planning. The learning model contains information, learning thinking, ideas, and also appreciate these ideas. There are many models chosen by teachers in implementing learning, such as in KDP learning, teachers can use the PBL model, because this model focuses on students and teachers only as facilitators. PBL learning stages make students the center of the learning process that will affect cognitive, affective and psychomotor learning outcomes. This finding is in line with (Matthew, 2011) research, PBL places students at the center of the learning process that will enhance knowledge, skills and understanding. Although the role of the teacher in the PBL model sometimes also involves presenting and explaining various things to students, the teacher must more often function as a guide and facilitator so students can learn to think and solve their own problems (Sugiyanto., 2012).

PBL model as a model that promises and encourages students to improve learning and skills development. PBL aims to help students develop thinking skills and problem-solving skills, by playing authentic adult games and skills into independent learning (Prastowo, 2013). Supported by the opinion (Sanjaya. W., 2009). In addition to cognitive aspects, student development also occurs in affective and psychomotor aspects through internal appreciation of the problem's students will face. Similar to Noviar & Hastuti, (2014) research, PBL learning will affect learning outcomes in the cognitive, affective and psychomotor domains.

The PBL model was chosen in this study because it is a problem-based form with basic skills such as reading and writing. PBL learning affects the learning outcomes of students' civic education in cognitive, affective, and psychomotor aspects because students are confronted by real problems and resolve these problems. Students are also trained to make conclusions from the results of problem solving that will help develop students' cognitive domains. This finding is in line with James, (2006) research, PBL learning helps students a) think critically, analyze and solve complex problems in the real world, b) find, evaluate and use learning resources, c) work together in teams, d) demonstrate communication skills that is effective and e) uses intellectual knowledge and skills content to become learners.

This is also used in teaching discipline without focusing on basic skills. The teacher presents authentic practices related to the topics taught to deepen domain knowledge. PBL model is defined as a series of learning activities that emphasize the process of solving scientific problems (Suyadi., 2013). In this study using real problems to explore and build student knowledge based on real problems obtained from solving these problems. Thus problem-based learning is a learning model that departs from students' understanding of a problem, finding alternative solutions to problems and then choosing the right solution to use in solving the problem (Sutirman, 2013).

This learning model requires students to be better able to develop problem solving skills, use higher-order thinking, develop self-confidence and independence through discussion and with research. Students are persuaded to use language creatively and collaboratively. In creating an exceptional learning atmosphere, teachers emphasize several models such as creating clarified teaching goals, emphasizing their own chosen models for language use in and outside the classroom (Moghaddas, 2013).

In the learning process provided by the teacher in this study is an important component in learning. Teachers in the context of learning have a large and strategic role. Teachers who transfer directly to students to transfer science and technology while educating with positive values through guidance and examples. The teacher is very successful in providing motivation to learn. Motivation provides resolution. Motivation gives a certain resolution to someone who wants to do something, and if he doesn't like it, then he will ask for freedom or avoid his feelings (Sadirman, 2011).

Researchers apply the learning model to study the material "Pancasila Citizenship Education Values as the basis for the nation and the nation's life view". The level of ability to understand the meaning and linkages of the Pancasila precepts in understanding Pancasila as a whole through the PBL model, so students are trained to be more active and appreciate their role in learning the PBL model. In addition, students are trained to discuss with groups

and work together to enhance their respective roles in the game. Meanwhile, to increase learning motivation in citizenship education learning about the values of Pancasila values, researchers gave prizes to groups of active students.

4. Conclusion

The influence of the PBL model during the learning process on the material "Pancasila values as the basis of the state and the nation's life outlook" is very suitable in increasing the motivation and learning outcomes of citizenship education in class VIII students at SMP Negeri 6 Yogyakarta. This can be seen in the results of pre-test and post-test motivation and student learning outcomes, there are improvements before and after the PBL model is applied. This increase is due to the use of innovative learning models. With the results of a significant learning motivation value, which means the null hypothesis which states that there are differences after treatment and before treatment is received. There is a significant difference between after treatment and before treatment. The difference in mean shows that after treatment better than before treatment. The average value of the learning outcomes shows the post-test results are greater than the pre-test results which means that the use after treatment is better than before treatment is given. The results of PBL model research on the motivation and learning outcomes of citizenship education in this conclusion that the influence of the PBL model on the learning process can increase student motivation to reduce boredom in accepting lessons. The PBL model significantly influences the learning outcomes of citizenship education in the medium category. In learning, awards need to be given as prizes to students who succeed as motivation to improve desired learning outcomes.

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