

# Learning Model Problem Based Learning, Direct Learning, Thinking Styles and Their Influence on Learning Outcomes of Citizenship Education for Grade 9 Students of State Junior High School 1 Kawangkoan

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**Abstract.** This study aims to examine the differences in Civics learning outcomes of students who are taught by the Problem Based Learning (PBL) model and students who are taught by the Direct Learning model of grade 9 State Junior High School 1 Kawangkoan, differences in Civics learning outcomes of students who have divergent and convergent thinking styles in grade 9 State Junior High School 1 Kawangkoan, and examines the interaction between the use of learning models and thinking styles on Civics learning outcomes for grade 9 students of State Junior High School 1 Kawangkoan. This research is a quasi-experimental 2x2 factorial design. The research subjects were 9th-grade students of State Junior High School 1 Kawangkoan for the academic year 2021//2022. Collecting data using a questionnaire to distinguish students' thinking styles and learning outcomes tests conducted after learning. The data analysis technique used is a two-way 2x2 analysis of variance (ANOVA) technique with the help of the SPSS. program.

**Keywords.** Learning Models, Project Based Learning, Direct Learning, Thinking Styles

## 1 Introduction

The development of national education is an effort that aims to create a quality, advanced, independent, and modern Indonesian society [1]. Education must always be improved in terms of quality and quantity so that students can compete with developments. Success in building education will make a major contribution to the achievement of overall national development goals [1]. Development in the field of education is in line with the development of the curriculum that is currently being implemented, namely the 2013 Curriculum. The 2013 curriculum is of the view that knowledge cannot simply be transferred from teacher to student, but students are actively seeking, processing, constructing, and using knowledge [2].

The 2013 curriculum focuses on the times by adapting learning according to the educational needs and mental needs of students through the constructivist paradigm. Learning is mostly done through the achievement of information, not information processing which refers to the formation of student schemata [3]. The 2013 curriculum requires an educator to be able to apply an interesting model when learning activities. Learning can be carried out with fun when using the right learning model in it. To make learning fun, there needs to be a change in the way of teaching from traditional learning models to innovative learning

models [4]. The learning model is a frame of learning, to increase success in learning. The learning model is adjusted based on the student's potential to achieve the learning objectives [2].

The learning model that is considered to be able to increase success is the Problem Based Learning (PBL) model. The PBL model is a model by utilizes small groups to solve problems. This learning encourages students to be more active, think critically and work together. Problem Based Learning (PBL) is a learning atmosphere that is directed by a daily problem [4]. Problems in everyday life are expected to make students more mastery of learning. The PBL learning model is a learning model that provides opportunities for students to have the experience of finding a concept and developing critical thinking skills. It aims to acquire knowledge and concepts from the teaching material so that they can understand their learning process well. This is Russman's opinion [5], that one alternative learning model that allows students to develop thinking skills (reasoning, communication, and connection) in solving problems is problem-based learning. Learning using the PBL model is learning that uses real-world problems as a context for students to learn about problem-solving and critical thinking skills to gain knowledge and learn to observe decisions.

According to Nurrahma, the way to achieve learning objectives is to choose a good teaching method,

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namely a method that is by the material presented, the characteristics of students, and the infrastructure available at the school [6]. One of the components of student characteristics that the teacher pays less attention to is thinking style even though each individual has a different thinking style in absorbing information or gaining knowledge. Students' thinking styles can be grouped into two, namely divergent thinking styles and convergent thinking styles. A divergent thinking style is a person's thinking pattern that is more dominated by the functioning of the right hemisphere of the brain, lateral thinking, concerning thoughts around or deviating from the center of the problem [7]. While the convergent thinking style is a pattern of thinking that originates from the function of the left hemisphere of the brain and is a way of thinking vertically, rationally, analytically, and linearly towards a certain conclusion [8]. According to Briggs & Moor, the existence of individual differences between convergent and divergent thinking shows their ability to complete a particular task or test. [9].

Based on the results of observations of teachers in grade 9 of the State Junior High School 1 Kawangkoan, Minahasa Regency, information was obtained that the school was already using the 2013 curriculum. Furthermore, during the learning process, several problems were found, including many teachers who taught only based on the guidelines in the teacher's book, so that learning looks stiff and less able to adjust so that student responses are not as expected. As for the condition of students, there are still many who passively do not want to participate in learning, this is due to the lack of student interest in the learning model applied by the teacher and less than optimal in applying it. In addition, the Problem-Based Learning (PBL) learning recommended in the 2013 Curriculum has not been the teacher's choice to implement in the learning process, most teachers still use the Direct Learning model to deliver the subject matter.

The 2013 curriculum demands teachers to be more creative and innovative in planning, implementing, and evaluating learning. The learning carried out by the teacher creates conditions that affect learning in the classroom and ultimately have an impact on student learning outcomes. According to Ngalimun [10] "illustrating that there are four main problems that guide the success of learning activities including approaches, strategies, models and learning methods carried out by teachers". Meanwhile, Rusman [5] stated that many factors affect learning outcomes, but in general, they can be classified into two, namely internal factors such as interest, and cognitive motivation as well as external factors such as infrastructure, curriculum, and teachers. Based on the statement above, teachers need to pay attention to the characteristics of students and the learning model that will be used to improve student learning outcomes. The solution to this problem can be overcome by using the PBL learning model.

Learning cannot be separated from learning outcomes as a benchmark in obtaining results as the learning process has been implemented. Students' cognitive learning outcomes are important goals to be achieved, especially at the junior high school level so

that they become provisions to continue and excel at the next level of education. This is reinforced by the results of Susanto's research (2017) where there are differences in academic skills between learning groups taught using the Guided Inquiry method and learning groups taught using the expository/direct learning method [11]. Based on the background of the problem above, the researcher focuses this research on the implementation of the Problem Based Learning Vs Direct Learning Model, by looking at its Effect on Civic Education Learning Outcomes in terms of the Thinking Style of Grade 9 Students of State Junior High School 1 Kawangkoan, Minahasa Regency.

## 2 Research Methods

Design This research is quantitative research. The design used is a factorial (quasi-experiment) 2x2. This study aims to determine the effect of the relationship of the PBL model and thinking style on learning outcomes. Then 2 groups were given treatment, namely the experimental group using the PBL model and Direct Learning as the control group learning. The independent variable (X2) is divided into 2 groups, namely students with convergent and divergent thinking styles. The research design can be seen in table 1.

**Table 1.** Factorial Experimental Design 2 x 2.

Thinking Style (B)	Learning model (A)	
	Problem-Based Learning (A1)	Direct Learning (A2)
Convergence (B1)	A1B1	A2B1
Divergen (B2)	A1B2	A2B2

Remarks :

- A1: Students who study with the PBL model
- A2: Students with Direct Learning model
- B1: Convergent thinking style group
- B2: Divergent thinking style group

The main effect of the treatment variable is the variation of the learning model which consists of the PBL model and the Direct Learning model on learning outcomes and the variation of the thinking style consisting of convergent and divergent thinking styles. The data of this study were taken from the post-test scores. In addition to these variables, some variables need to be controlled, namely facilities and infrastructure, the ability of teachers in learning, and learning time. The research was conducted at the Kawangkoan Minahasa State Junior High School 1 in the even semester of the 2021/2022 school year. The research population is students.

## 3 Results and Discussion

### 3.1 Description of Learning Outcome Data based on Variations in Learning Models

The learning model used in providing treatment in this study is the PBL learning model while the Direct Learning model is the control class. The PBL learning model was used in the experimental group (class VIII G) and the Direct Learning learning model was used in the control group (class VIII F). Based on the results of the summary descriptive analysis of the variance of the learning model, the data results are presented in the following table.

**Table 2.** Summary of Learning Outcome Data Based on Learning Model Variance.

Learning outcomes	N	Lowest Value	The highest score	Mean	Standard Deviation
Control Group (Direct Learning)	28	60	85	74,11	6,942
Experimental Group (PBL)	27	65	100	82,22	9,740

Based on table 2 above, it can be concluded that student learning outcomes in the experimental group taught using the PBL learning model were better than student learning outcomes in the control group taught using the Direct Learning teacher learning model. The comparison results can be seen through the students' scores from the lowest, highest, and mean scores. The lowest learning outcomes of students who are taught using the PBL model are 65, while student learning outcomes in the Direct Learning teacher learning model are 6. The highest learning outcomes of students who are taught using the PBL and Direct Learning models have differences. The PBL model with the highest learning achievement score is 100 and the Direct Learning model with the highest learning outcome gets a lower score of 85. The average value (mean) of student learning outcomes taught using the PBL model is higher (82.22) than learning outcomes. students who are taught using the teacher's model (amounting to 74.11). From the table above, the results show that the standard deviation figures (9,740 and 6,942) are smaller than the mean in the two research groups. It can be concluded that the mean value can be used as a representation of the entire data.

### 3.2 Description of Learning Outcome Data Based on Variations in Thinking Style

Description of student learning outcomes based on the variance of thinking styles in the experimental group which was given treatment using the PBL learning model and the control group was given treatment with the Direct Learning learning model. The description of the variance of thinking style data is as follows.

**Table 3.** Learning Outcome Data Based on the Variance of Thinking Style in the control group.

Learning outcomes	N	Lowest Value	The highest score	Mean	Standard Deviation
Divergent Thinking Style	6	70	85	80,00	5,477
Convergent Thinking Style	22	60	85	72,50	6,501

Based on table 3 above, it can be seen that the learning outcomes in the control group of students who have divergent thinking styles are better than students who have convergent thinking styles. The results of the average learning value of students who have divergent thinking styles are 80.00 with the lowest score of 70 and the highest score of 85. Meanwhile, students who have a convergent thinking style have an average of 72.50 with the lowest score of 60 and the highest score of 85.

**Table 4.** Learning Outcome Data Based on the Variance of Thinking Styles in the Experimental Group.

Learning outcomes	N	Lowest Value	The highest score	Mean	Standard Deviation
Divergent Thinking Style	8	85	100	94,38	4,955
Convergent Thinking Style	19	65	85	77,11	5,849

Based on table 4 above, it can be seen that the learning outcomes in the experimental group of students who have a divergent thinking style are better than the learning outcomes of students who have a convergent thinking style. The average value of student learning outcomes who have divergent thinking styles is 94.38 with the lowest score of 85 and the highest of 100. While the learning outcomes of students who have a convergent thinking style are 77.11 with the lowest score of 65 and the highest of 85.

**Table 5.** Learning Outcome Data Based on Variance of Divergent Thinking Styles in the control and experimental groups.

Group	N	Lowest Value	The highest score	Mean	Standard Deviation
Control	6	70	85	80,00	5,477
Experiment	8	85	100	94,38	4,955

Based on table 5 above, it can be seen that the learning outcomes of students with divergent thinking styles in the experimental group are better than those of students with divergent thinking styles in the control group. The average value of student learning outcomes who have divergent thinking styles in the control group is 80.00 with the lowest score of 70 and the highest being 85. While the average value of students who have divergent thinking styles in the experimental group is 94.38 with the lowest score of 85 and the highest of 100.

**Table 6.** Learning Outcome Data Based on Variance of Divergent Thinking Styles in the control and experimental groups.

Group	N	Lowest Value	The highest score	Mean	Standard Deviation
Control	22	60	85	72,50	6,501
Experiment	19	65	85	77,11	5,849

### 3.3 Description of Thinking Style Data

The thinking style data in this study were obtained from research subjects in the experimental group and the control group. The following is a summary of the data on the thinking styles of the two research groups.

**Table 7.** Data for divergent thinking styles in the control and experimental groups.

Group	N	Lowest Value	The highest score	Mean	Standard Deviation	Group
Control	Divergent	28	32	58	46,28	5,311
Experiment	Divergent	27	35	70	50,33	8,866

Based on table 7 above, it can be seen that the thinking style of students in the experimental group with a divergent thinking style is better than the divergent thinking style in the control group. The average value of students' thinking styles in the experimental group which has divergent thinking styles is 50.33 with the lowest value of 35 and the highest being 70. While the average value of students' divergent thinking styles in the control group who have divergent thinking styles is 46.28 with the lowest value being 32 and the highest being 58.

**Table 8.** Convergent thinking style data in the control and experimental groups.

Group	N	Low Value	highest score	Mean	Standard Deviation	Group
Control	Convergence	28	36	68	53,53	8,469
Experiment	Convergence	27	42	71	59,22	7,865

Based on table 8 above, it can be seen that the thinking style of students in the experimental group with a convergent thinking style is better than the thinking style of students in the control group. The average value of students' thinking styles in the experimental group is 59.22 with the lowest value of 42 and the highest of 71. While the average value of thinking styles in the control group which has a convergent thinking, style is 53.53 with the lowest value of 36 and the highest of 68.

Problem Based Learning model according to empirical theory has several stages. Suprijono (2012) explained the stages of PBL, including 1) providing guidance and instructions regarding the problems to be solved by students; 2) organizing students to carry out

scientific procedures; 3) encouraging students to conduct investigations both individually and in groups; 4) describe and construct and present the results obtained. This level requires students to have broad knowledge and can trigger higher-order thinking, to examine problems in depth. The research that has been carried out is in grade 9 of the State Junior High School 1 Kawangkoan. The implementation of this research in determining the class be used has gone through a process of observation and interviews with the school. In this study, the researcher gave a pre-test which was used to determine the student's initial abilities. At the last meeting, the researchers gave the students' learning outcomes after being given treatment. The research was carried out 6 times for learning or treatment, with details of 3 meetings in the experimental group and 3 meetings in the control group. The two research groups will be given different treatments, but discuss the same material. The experimental group was taught using the PBL learning model and the control group using the Direct Learning learning model. Learning in both research groups refers to the lesson plans that have been prepared and have gone through expert validation. The results of the hypothesis test carried out, there was a significant difference in the two categories of students with different treatments. The group of students who received treatment with the problem-based learning (PBL) learning model had a better average score than students with student center teaching. This shows that the use of problem-based learning (PBL) models in learning has better results on student learning outcomes compared to the application of student center learning. The difference in learning outcomes between groups of students is the result of giving different treatments. The treatment, in this case, is the provision of different learning models to students. The model is problem-based learning (PBL) with Direct Learning (DL) as well as learning that is teacher center. The learning outcomes are due to the influence of the applied learning model, even though the subject matter is the same or the test questions are the same and have the same facilities. Research subjects in the experimental group who have divergent thinking styles get learning outcomes in the 1st order with a value of 94.38. The research subjects in the control group with divergent thinking styles got the resulting number 2 with an average value of 80.00. The research subjects in the experimental group with a convergent thinking style had an average score of 77.11 and got learning outcomes in the 3rd order. Meanwhile, in the control group, the converging thinking style had an average score of 72.50 and got the fourth-order learning outcomes.

### 4 Conclusion

Based on the data described in the results section the research shows that the results of the thinking style have a significant influence on student learning outcomes, although there are still many other factors that can influence it. Other factors that affect learning outcomes but are not examined in this study such as physical conditions, psychological conditions, students'

environmental conditions, and socio-cultural conditions. In addition, based on the average value obtained by students, it is known that students who have divergent thinking styles get superior learning outcomes than students who have convergent thinking styles. The findings of this study are in line with several other studies which state that a person's thinking style affects metacognitive processes, cognitive learning outcomes, and science [8].

There are differences in PPKn learning outcomes from these thinking styles because divergent and convergent thinking styles have their characteristics. A person is said to have a convergent thinking preference if he or she can collect materials, information, and skills to be used in solving problems in such a way that the correct answer can be generated. This thinking ability is very suitable in the lessons of natural science, mathematics, and technology. While Divergent is more inclined to the ability to memorize words also in the arts and humanities. Therefore, in social studies learning, divergent thinking styles play a more important role in mastering the very broad concept of civic education.

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