

<http://dx.doi.org/10.24127/sd.v9i1.4074>

The Influence of the Problem-Based Learning (PBL) Model on Critical Thinking Ability in History Learning at Senior High School

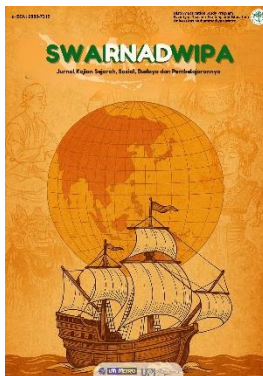
Rohimah¹, Elis Setiawati¹, Bahtiar Afwan¹, Agung Dian Putra², Andre Mustofa Meihan³

¹Universitas Muhammadiyah Metro, Indonesia

²Universitas Lampung, Indonesia

³Universitas Jambi, Indonesia

*Email: emimarwanti123@gmail.com



Abstract

This research aims to determine the effect of applying the Problem Based Learning (PBL) learning model on critical thinking skills in history learning. This research was carried out at State Senior High School (SMA Negeri) 1 Gunung Sugih in February, even semester of the 2023/2024 academic year. The research method used in this research is quasi-experimental. The research sample consisted of 31 students each in the control and experimental classes. The data collection technique used was an Essay Test in the form of 10 questions which were then analyzed using the t test. The results of hypothesis testing using SPSS version 22 software obtained Sig data $<\alpha$, namely $0.000 < 0.05$ so that H_0 was rejected and H_1 was accepted. This shows that there is an influence of the Problem Based Learning (PBL) learning model on critical thinking skills in history learning.

Received: 04 March 2025

Revision: 12 March 2025

Accepted: 17 March 2025

Keywords: *Problem Based Learning (PBL); Learning Model; Critical Thinking Ability.*

Citation: Rohimah, R., Setiawati, E., Afwan, B., Putra, A. D., & Meihan, A. M. (2025). The Influence of the Problem-Based Learning (PBL) Model on Critical Thinking Ability in History Learning at Senior High School. *SWARNADWIPA*, 9(1), 26-35. <http://dx.doi.org/10.24127/sd.v9i1.4074>



This work is licensed under a [Creative Commons Attribution-ShareAlike 4.0 International License](https://creativecommons.org/licenses/by-sa/4.0/).

INTRODUCTION

Education plays a very important role in shaping human thought patterns, morals and behavior so that they are in accordance with the norms that apply in society. With education, the nation's children will gain knowledge that can be obtained from both formal and non-formal education.

However, currently education needs to develop high-level thinking skills to be able to face life, whether personal or vocational. Thinking skills need to be taught because up to now teaching only teaches about the content of the subject matter and ignores the teaching of thinking skills. Of several thinking abilities, one of them is critical thinking. Because critical thinking skills are very important for human life in aspects of life that are continuous so that they can determine decisions and humans can determine what to believe and what to do. Critical thinking itself is a mentality where students are able to analyze and evaluate information.

Critical thinking allows someone to examine problems systematically and find solutions. To develop critical thinking skills, students need to be directly involved in the

learning process. The ability to think clearly is not something you are born with, but requires various factors that can support it. To achieve students who have critical thinking skills, a student-centered learning approach should be used in the teaching and learning process (Hanida Kurnia, 2023).

One learning model that can be used to develop critical thinking skills is problem learning. The effect of the problem-based learning method is that students can think deeply and understand the material in groups, starting from presenting a real problem, so learning will be more effective if done together with students. Problem-based learning is a learning method that uses real problem-based learning methods to enable students to acquire knowledge together with students, increase their knowledge on a large scale, and enable students to solve problems independently and autonomously (Hosanna, 2014).

One of the subjects that can be used with the Problem Based Learning model is history subjects, because the restructuring of history lessons requires students to be able to analyze all historical events presented in historical documents and draw conclusions about them. relationship between past and present. Therefore, this problem study method can be another way to develop critical thinking skills in historical studies. As said by Tan (2004:31), the application of the Problem Based Learning model can improve critical thinking skills because Problem Based Learning consists of various learning activities such as looking for real problems without structure, defining problems, designing from problem planning, analyzing problems, etc. Producing problem solving solutions, presentation and evaluation activities help students develop critical thinking skills.

Based on the results of the pre-survey at SMA Negeri 1 Gunung Sugih, students really already have a high level of knowledge, but by having this level of ability, their critical thinking abilities must be optimized to the maximum. After observations in class The difficulties experienced by students are because students use more memorization than critical thinking skills. Apart from that, interviews were also conducted with history teachers who said that when delivering material they still often use conventional methods, but occasionally use discussion during learning. Therefore, adapting to existing problems, choosing a learning model is very important in improving critical thinking skills to support the success of the learning process.

In research, The researcher took this title because students had difficulty in stating, analyzing, compiling and evaluating an event, so the researcher wanted to find out whether there is an influence of the Problem Based Learning model on critical thinking skills in history learning.

RESEARCH METHODS

This research uses the method non-equivalent control group design. As for what is meant by method non-equivalent control group design is a method which consists of two groups, namely the experimental and control groups, starting by giving tests to the experimental group and the control group, then giving definite treatment to the experimental group. After completion, a posttest was applied to the study and control groups to see the effect of treatment on the study group. This research will examine the matter The influence of the Problem Based Learning model on critical thinking skills in history learning. The sampling technique in this research uses Cluster Random Sampling (Batch Random Technique) the sample obtained is class XI IPS 1 and class XI IPS 2 were used as samples from the total population of class XI at SMA Negeri 1 Gunung Sugih. Researchers use 3 ways to collect data including observation, tests (Pre-test and Post-test) and documentation with validity and reliability tests to test the suitability of the instrument. In analyzing the data, the research used three stages, the first was the normality test, homogeneity test and hypothesis test.

<http://dx.doi.org/10.24127/sd.v9i1.4074>

RESULTS AND DISCUSSION

Validity Test

The instrument was validated by a history teacher at SMA N 1 Gunung Sugih. As proof that validation has been carried out, a validation certificate is obtained from the validator. Furthermore, the validation results concluded that the instrument was suitable for use in research. The results of testing the test questions in this research were carried out using SPSS software version 22, on class XII Ips 3 students, where class The test results can be seen in the following table:

Table 1. Test Trial Results (Validity)

Variable	Rcount	Table	Information
Question 1	0.104	0.361	Invalid
Question 2	0.421	0.361	Valid
Question 3	0.095	0.361	Invalid
Question 4	0.678	0.361	Valid
Question 5	0.067	0.361	Invalid
Question 6	0.571	0.361	Valid
Question 7	0.432	0.361	Valid
Question 8	0.360	0.361	Invalid
Question 9	0.626	0.361	Valid
Question 10	0.695	0.361	Valid
Question 11	0.526	0.361	Valid
Question 12	0.616	0.361	Valid
Question 13	0.758	0.361	Valid
Question 14	0.805	0.361	Valid
Question 15	0.72	0.361	Valid
Question 16	0.689	0.361	Valid
Question 17	0.563	0.361	Valid
Question 18	0.807	0.361	Valid
Question 19	0.325	0.361	Invalid
Question 20	0.689	0.361	Valid

The results of the variable validity test are the results of R Calculation-person correlation. The greater the R Table (0.361) with 15 questions, then all of the questions on the variable X show its validity. For the other 5 questions r calculated below the r table, the item is invalid. After a trial was carried out to see the level of validity, based on consideration, 10 of the 15 questions were taken that met the critical thinking indicators to be used in the test instrument in the experimental class and control class.

Reliability Test

Reliability testing is used to show and prove that a data instrument can be trusted enough to be used as a data collection tool because the instrument is good (Sugiyono, 2019). The alpha coefficient can be said to be reliable when the Cronbach Alpha value is > 0.6. The data calculation was carried out with the help of SPSS version 22 software. The results of reliability testing for each variable can be presented as follows:

Table 2. Reliability Test Output

Reliability Statistics	
Cronbach's Alpha	N of Items
,825	20

Based on the table above, the results of the reliability test show that all Cronbach Alpha coefficient values for each variable have high reliable variable values with a Cronbach Alpha result of 0.825.

Pretest results of critical thinking abilities in the experimental class and control class

The results of the pretest are used to determine the initial condition before being given treatment. It is found that of the 31 students who took the pretest, there were 7 students who were declared complete with the KKM set at 75, while 24 students had not yet completed, then the score classification if made based on category with a KKM value = 75.

The next data presented in this research is the pretest result data in the control class. Based on the results of the pretest for the control class, it was found that of the 31 students who took the pretest, there were 10 students who were declared complete with the KKM set at 75, while 21 students had not yet completed, then the score classification was made based on categories with a KKM value = 75, then the distribution of scores can be seen in the following table:

After the pretest results of the experimental class and control class are known, the data is described quantitatively to determine the average class value. The following is a quantitative description of the pretest scores.

Table 3. Description of the results of the pretest scores for the experimental class and control class

	Parameter					
	N	Range	Minimum	Maximum	Mean	Std. Deviation
Experiment	31	32	50	82	64.29	8.50
Control	31	30	50	80	65.65	7.93

Based on table 11, the number of students in the experimental class has a pretest score range of 32, the lowest (minimum) score is 50, the highest (maximum) score is 82, the average score (mean) is 64.29 and the standard deviation (SD) of 8.50. Then in the control class the number of students sampled was 31 people, with a score range of 30, the lowest (minimum) score was 50, the highest (maximum) score was 80, the average score (mean) was 65.65 and the standard deviation (SD) of 7.93. In general, the pretest scores show that critical thinking abilities at the beginning before treatment were not much different. This lies in the average score obtained in the pretest results. The average differences can be depicted graphically as follows:

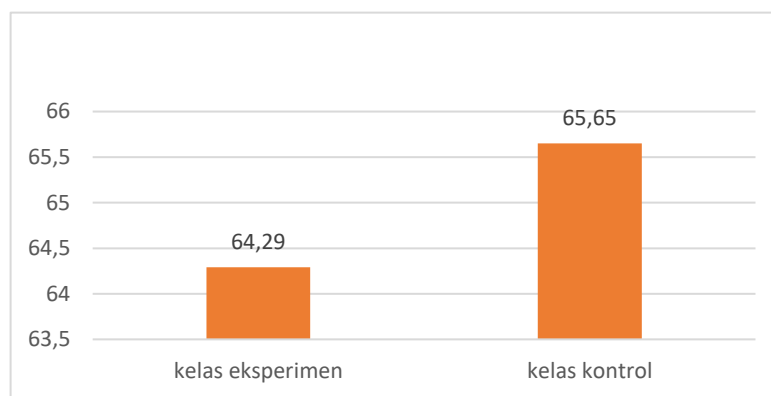


Figure 1. Pretest average score diagram

Based on the picture above, it can be explained that the average pretest score in the experimental class was 64.29, while in the control class it was 65.65. According to the KKM determined, the average score for students is still below the KKM so treatment needs to be carried out to increase the score.

<http://dx.doi.org/10.24127/sd.v9i1.4074>

Posttest results of critical thinking skills in the experimental class and control class

Based on the results of the data, it was found that of the 31 students who took the posttest, there were 24 students who were declared complete with the KKM set at 75, while 7 students had not yet completed. Furthermore, if the score classification was made based on categories with a KKM value = 75.

Based on the posttest score classification data above, in the very good category a score was obtained at 12%, then in the good category it was 66%, in the adequate category it was obtained at 22%, while in the poor and very poor categories no results were obtained in the experimental class. Posttest score classification data. in the experimental class can also be seen in the following diagram.

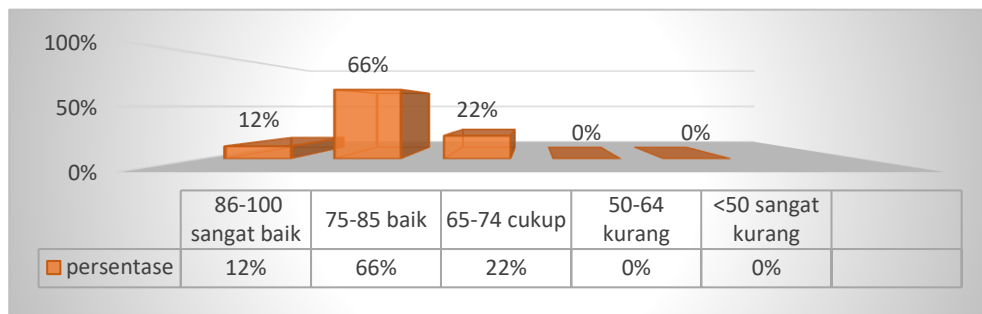


Figure 2. Posttest score classification for experimental class

It can be seen in the diagram above that the highest posttest score in the experimental class was obtained with a score of 66% in the good category. The next data presented in this research is the post-test result data for the control class. The following is the post-test result data for the control class.

Based on the data obtained, it can be seen that of the 31 students who took the posttest, there were 19 students who were declared complete with the KKM set at 75, while 12 students had not yet completed. Furthermore, if the score classification was made based on categories with a KKM value = 75

Based on the pretest score classification data in the control class above, it can be seen that in the good category the score was 61%, then in the fair category it was 29%, and in the poor category it was 10%, while in the very good and very poor categories it was not obtained in the control class. Classification The control class posttest scores can also be seen in the diagram below;

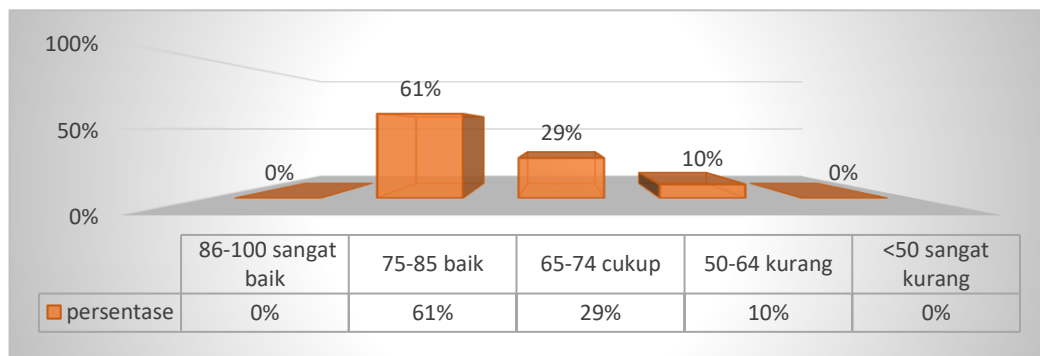


Figure 3. Classification of control class posttest scores

In the diagram above, it can be seen that the control class post-test score with the highest percentage was obtained with a score of 61% which is in the good category. After

knowing the results of the posttest for the experimental class and control class, the data is described quantitatively to find out the average value and class value. The following is a quantitative description of the posttest scores.

Table 4. Description of the results of the post-test scores experimental class and control class

	Parameter					
	N	Range	Minimum	Maximum	Mean	Std. Deviation
Experiment	31	28	67	95	81.55	6.08
Control	31	28	57	85	73.48	7.52

Based on the table above, the number of students in the experimental class has a post-test score range of 28, the lowest (minimum) score is 67, the highest (maximum) score is 95, the average score (mean) is 81.55 and the standard deviation (SD) of 6.08. Then in the control class the number of students sampled was 31 people, with a score range of 28, the lowest (minimum) score was 57, the highest (maximum) score was 85, the average (mean) score was 73.48 and the standard deviation was (SD) of 7.52. The average difference can be depicted graphically as follows:

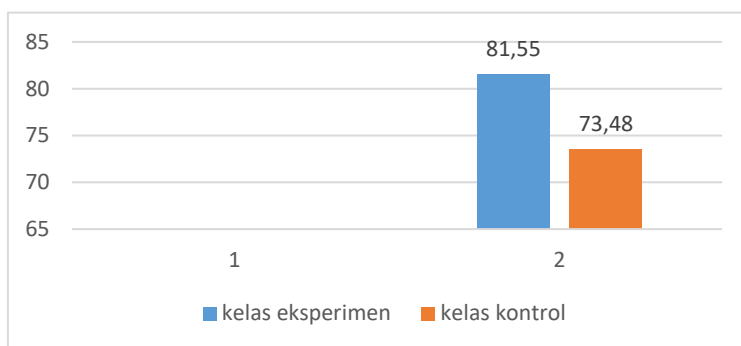


Figure 4. Post-test average score diagram

In the picture above you can see the difference in the results obtained from the average posttest scores of the control class and the experimental class, where the control class only got a mean or average score of 73.48, while the experimental class itself got an average score of 81.55%.

Analysis Prerequisite Test Results

Normality test

This test was carried out using the SPSS software version 22. The normality test criteria in this research is that if the significance value is greater than the error level, namely 5%, then the data is said to have a normal distribution (normal distribution). The following are the results of normality testing for pretest and posttest data.

Table 5. Normality Output

Tests of Normality				
Class	Shapiro-Wilk			
	Statistics	df	Sig.	
critical thinking experimental pretest(pbl)	,918	31	.021	
skills experimental posttest (pbl)	,940	31	,080	
pretest control (cooperative)	,937	31	,068	
control posttest; (cooperative)	,900	31	,007	

Based on the table above, it can be seen that the results of testing the normality of pretest and posttest data in the control and experimental classes with a significant level used in this research, namely $\alpha = 0.05$, showed that the pretest in the experimental class obtained a sig value of .021, and the posttest value in the class The experiment got sig .080, in the table it was also found that the pretest score for the control class had a value of sig

<http://dx.doi.org/10.24127/sd.v9i1.4074>

.068, and the posttest score for the control class got a value of sig .007, therefore it can be concluded that the normality test obtained sig >a. This shows that the data used in the control class and experimental class is normally distributed.

Homogeneity Test

The homogeneity test is used to determine that the two samples have the same variance or are homogeneous. The homogeneity testing technique in on research uses the F test, which is as follows:

Table 6. Homogeneity output

Test of Homogeneity of Variances			
critical thinking skills			
Levene Statistics	df1	df2	Sig.
1,609	1	60	,210

Based on the homogeneity calculation carried out, it was obtained that Fcount >.Ftable with a significance value (sig) of .210, it can be concluded that the two populations have the same or homogeneous variance. Thus, one of the conditions of the independent sample t-test is fulfilled.

Hypothesis testing

After the normality test was carried out and the sample was found to have a normal distribution and the homogeneity test showed that the sample came from homogeneous variance, it was continued with hypothesis testing which was carried out by comparing student learning outcomes between the experimental class and the control class using the t-test, as the results can be seen in the following table:

Table 7. Hypothesis test results for critical thinking ability level

		Independent Samples Test								
		Levene's Test for Equality of Variances				t-test for Equality of Means				
		F	Sig.	Q	df	Sig. (2- tailed)	Mean Differen ce	Std. Error Differen ce	95% Confidence Interval of the Difference	
								Lower	Upper	
critical thinking skills	Equal variances assumed	1,609	,210	4,638	60	,000	8,065	1,739	4,587	11,542
	Equal variances not ass Umed			4,638	57,485	,000	8,065	1,739	4,583	11,546

1. H0= there is no difference in the average posttest score between the control and experimental classes
2. H1- there is a difference in the average posttest score between the control and experimental classes
3. Test criteria:
 Sig (2 tailed).> a then H0 is accepted: H1 is rejected
 Sig (2 tailed) <a then H0 is rejected: H1 is accepted
4. Sig (2 tailed) (0.000) <a (0.05) so H0 is rejected

There is a difference in the average posttest score between the control and experimental classes, which indicates that there is an influence of the Problem Based Learning model on students' critical thinking abilities.

Based on the results of the research that has been carried out, it can be seen that there is an influence of the Problem Based Learning model on critical abilities in class XI history learning at SMA Negeri 1 Gunung Sugih. The results of this research are proven by hypothesis testing which shows that the t-test value using SPSS version 22 software is $t_{count} > t_{table}$ ($4,638 > 2,00$). Apart from that, the effect of providing treatment using the Problem Based Learning model was also seen in the increase in the average score on the pretest and posttest in the experimental class which was better than the control class. Before being given treatment, each class (experimental and control) was given a test which produced the following data:

Table 8. Description of the results of the pretest scores experimental class and control class

	Parameter					
	N	Range	Minimum	Maximum	Mean	Std. Deviation
Experiment	31	32	50	82	64.29	8.50
Control	31	30	50	80	65.65	7.93

The pretest results above show that initially critical thinking abilities in history learning in the experimental class and control class were not much different. This means that the students' abilities are the same. Then, each class was given treatment, in the experimental class using the Problem Based Learning model and in the control class they were given treatment using the Cooperative Learning learning model. After being given the treatment it turned out that the students' critical thinking abilities had increased. This can be seen in the average test score after being given treatment. The following are the results of the posttest in the experimental and control classes.

Table 9. Description of the results of the post-test scores experimental class and control class

	Parameter					
	N	Range	Minimum	Maximum	Mean	Std. Deviation
Experiment	31	28	67	95	81.55	6.08
Control	31	28	57	85	73.48	7.52

In the table above, it can be seen that the average test score for students has increased. In the experimental class the average score during the pretest was 64.29 after being given treatment which increased to 81.55. Meanwhile in the control class the average test score before being given treatment was 65.65 while after being given treatment in the control class it was 73.48. This increase, if depicted in a diagram, can be seen in the following image:

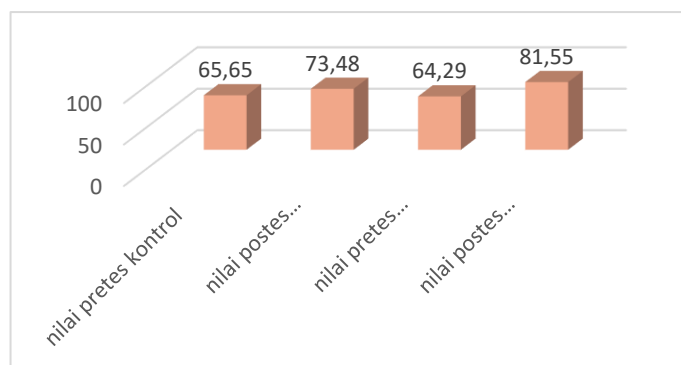


Figure 5. Increase in the average score of critical thinking abilities

<http://dx.doi.org/10.24127/sd.v9i1.4074>

Based on the picture above, it can be seen that critical thinking skills in the experimental class have improved quite well. Treatment using the Problem Based Learning model gives students courage and self-confidence. Focusing learning on students makes learning in the classroom more active so that students' activities in learning increase students' understanding of the material that has been given.

Hypothesis testing was carried out on posttest data. Based on the results of the hypothesis test, the posttest data shows that there is rejection of H₀ and acceptance of H₁, which means that there is a difference in the average critical thinking ability of students in the experimental class and the control class. This means that there is an influence of the Problem Based Learning model on students' critical thinking abilities. The influence of the Problem Based Learning model is reflected in the difference in the average percentage of critical thinking ability indicators in the experimental class posttest, which is 81.55 and the control class is only 73.48. The greater percentage obtained by the experimental class shows that the application of the Problem Based Learning learning model is more effective than learning using the Cooperative learning model. Based on the posttest results, it shows that the average indicator of students' critical thinking abilities is greater in the experimental class than in the control class.

Based on the results of data analysis, it shows a significant increase in critical thinking skills in the experimental group using the PBL model. The experimental group showed greater improvements in critical thinking ability scores compared to the control group. These findings support the hypothesis that the use of the PBL model can improve students' critical thinking abilities.

CONCLUSION

Based on the results of data analysis and discussion in the previous chapter, it can be concluded that there is an influence of the Problem Based Learning (PBL) learning model on students' critical thinking abilities in learning history. This is based on the results of hypothesis testing as well as differences in the results of critical thinking ability tests for experimental and control class students. The results of hypothesis testing using SPSS version 22 software showed that $\text{sig} < \alpha$, namely $0.000 < 0.05$ at a significance level of 5% so that H₀ was rejected and H₁ was accepted. The test results showed that the average score for the experimental class was higher (81.55) compared to the control class (73.48). There is an influence of the PBL learning model on students' critical thinking skills in the material. The Indonesian nation's resistance strategy against western nations is based on learning steps that actively involve students in solving the problems they face. Students are not only required to achieve the learning objectives that have been set, students are also required to work together in a group to gather information, solve problems, and be accountable for the results of presentations so as to train students' critical thinking skills.

REFERENCES

- Abdullah, W. (2018). *Blended learning model in increasing learning effectiveness*. Fikrotuna Journal, 7(1), 856–866.
- Eggen, P., & Kauchak, D. (2012). *Learning strategies and models*. Jakarta: Grafindo.
- Hadia, K. P. (2023). The influence of the problem based learning model on the critical thinking ability of class XI IPS students at Pilangkenceng Madiun State High School. *AVATARA: History Education E-Journal*, 14(1).
- Agustin, H., et al. (2022). The effect of using problem based learning physics modules on students' critical thinking abilities. *Scientific Journal of the Educational Profession*, 7(3), 1208–1218.

- Hermansyah. (2020, October 20). *Problem based learning in Indonesian learning*. <https://ulfahermasyah.com>
- Hosnan. (2014). *Scientific and contextual approaches in 21st century learning*. Bogor: Ghalia Indonesia.
- Imanulloh, F. M., Izzatul, & Azis, A. F. M. (2022). The influence of the problem based learning model on students' critical thinking ability in history social studies subjects at SMPN 1 Sidoarjo. *Education Journal: Study of Educational Science*, 9(1), 1-11.
- Istihani, S. (n.d.). Differences in students' historical thinking ability between cooperative learning index card match type and find the match type wordwall media in class XI history subjects at SMAN Driyorejo. *E-Journal of History Education*, 13(2).
- Jhonson, E. B. (2008). *Contextual teaching and learning: Making teaching and learning activities fun and meaningful*. Bandung: MLC.
- Kuraedah, S., & Saliadin, L. (2016). Application of the picture and picture method in improving learning outcomes for class VB students in MIN Konawe Selatan District. *Al-Ta'dib Journal*, 9(1), 144-161.
- Kurniasih, I., & Sani, B. (2015). *Various learning model developments*. Jakarta: Pena Said.
- Kuswana, W. S. (2011). *Taxonomy of thinking*. Bandung: PT Remaja Rosdakarya.
- Marhamah, I. Y., & Hajaroh, S. (2020). The influence of the problem based learning model on critical thinking skills. *SPIN: Journal of Chemistry and Chemistry Education*, 2(1), 68-82.
- Muhtarom, H. (2023). Application of the problem based learning model in local history learning in high schools. *Widya Winayata: Journal of History Education*, 11(1), 1-8.
- Nasution. (2013). *Various approaches in the teaching and learning process*. Jakarta: Bumi Aksara.
- Nurfitriyanti, M. (2016). Project based learning model on mathematical problem solving ability. *Formative Journal*, 6(2), 149-160.
- Prakoso, H. S., Atmadja, N. B., & Margi, I. K. (2018). Application of the discovery learning type cooperative learning model to improve history learning activities and outcomes. *Widya Winayata*, 6(2), 1-12.
- Rahmawati, T., et al. (2019). Comparison of problem based learning and guided inquiry models on students' critical thinking abilities. *Tadris Kimiya Journal*, 4(1), 21-32.
- Sidiq, R., et al. (2021). *Interactive learning models for the 21st century*. North Sumatra: CV AA Rizky.
- Riduwan. (2015). *Easy learning research*. Bandung: Alfabeta.
- Rusman. (2012). *Learning models: Developing teacher professionalism*. Jakarta: Rajawali Press.
- Sadia, I. W. (2014). *Constructivist science learning models*. Yogyakarta: Rumah Ilmu.
- Salim, H. A., Sentosa, S., & Fatmawati, U. (2015). Application of problem based learning to improve the critical thinking ability of class students. (Nama jurnal tidak disebutkan, informasi tidak lengkap).
- Safe. (2011). *History learning evaluation model*. Yogyakarta: Ombak.
- Septiwi, T. (2017). The influence of the problem based learning (PBL) learning model on students' critical thinking ability in colloidal systems material [Unpublished undergraduate thesis]. FKIP UIN Syarif Hidayatullah Jakarta.
- Julaeha, S., & Erihardiana, M. (2022). Learning model and implementation of human rights education in the perspective of Islamic education and national education. [Nama jurnal tidak disebutkan], 4(1).
- Sugiyono. (2019). *Educational research methods (quantitative, qualitative and R&D approaches)*. Bandung: Alfabeta.
- Sunarya, D. T., Hanifah, N., & Suyanti, P. (2017). Application of the example non-example learning model on historical figures material to improve the learning outcomes of class V students at SDN Gunungsari. *Scientific Pen Journal*, 2(1), 2052-2060.
- Suprijono, A. (2016). *Cooperative learning*. Yogyakarta: Pustaka Pelajar.
- Undang-Undang Nomor 20 Tahun 2003 tentang Sistem Pendidikan Nasional. Lembaran Negara Republik Indonesia Tahun 2003 Nomor 4302. Jakarta: Pemerintah Republik Indonesia.