

# THE USE OF THE PROBLEM-BASED LEARNING (PBL) MODEL IN IMPROVING STUDENTS' CRITICAL THINKING SKILLS ON ECONOMY LEARNING SUBJECTS AT SMA NEGERI 2 KARIMUN

#### Nurul Annisa Deshanty<sup>1</sup>, RR. Sri Kartikowati<sup>2</sup>, Hardisem Syabrus<sup>3</sup>

#### <sup>1,2,3</sup> Economics Education FKIP Riau University, Pekanbaru, Indonesia

<sup>1</sup>nurul.annisa2378@student.unri.ac.id, <sup>2</sup>tikowati@lecturer.unri.ac.id, <sup>3</sup>hardisem.syabrus@lecturer.unri.ac.id

#### ABSTRACT

This paper discusses the improvement of students' critical thinking skills through the use of the problem-based learning (PBL) model. The research was conducted at class XI IPS 2 of SMA Negeri 2 Karimun. The approach used is quasi-experimental research with a one-group pretest-posttest design. Data collection techniques used observation sheets and questionnaires. Data on the suitability of the learning process with the model are obtained through observation sheets based on PBL syntax and the level of students' critical thinking skills is obtained through questionnaires of students' critical thinking skills. Data analysis techniques used t-tests. The results indicate that the use of the PBL model can improve students' critical thinking skills. It is evidenced from after implementing the PBL model, the students' critical thinking skills increased from the medium category to the high category with a percentage of 53%. Hence, it is expected for teachers to increase the students' critical thinking skills. Thus, it can be applied through the appropriate learning models, one of which is the problem-based learning model.

Keywords: problem-based learning model, critical thinking skills, senior high school students

## PENGGUNAAN MODEL *PROBLEM-BASED LEARNING* (PBL) DALAM MENINGKATKAN KEMAMPUAN BERPIKIR KRITIS SISWA PADA MATA PELAJARAN EKONOMI DI SMA NEGERI 2 KARIMUN

#### ABSTRAK

Artikel ini membahas peningkatan kemampuan berpikir kritis siswa melalui penggunaan model pembelajaran problem-based laearning (PBL). Penelitian dilaksanakan di SMA Negeri 2 Karimun pada kelas XI IPS 2. Pendekatan yang digunakan ialah penelitian eksperimen semu dengan rancangan one group pretest-posttest. Teknik pengumpulan data menggunakan lembar observasi dan angket. Data kesesuaian proses pembelajaran dengan model yang digunakan datanya diperoleh melalui lembar observasi berdasarkan sintaks PBL dan tingkat kemampuan berpikir kritis siswa. Teknik analisis data menggunakan uji-t. Hasil penelitian menunjukkan bahwa penggunaan model PBL dapat meningkatkan kemampuan berpikir kritis siswa. Hal ini dibuktikan dari sesudah penggunaan model PBL kemampuan berpikir kritis siswa. Hal ini dibuktikan dari sesudah penggunaan model PBL kemampuan berpikir kritis siswa. Maka, bisa dilakukan dengan penggunaan model pembelajaran yang tepat, salah satunya model pembelajaran problem-based learning.

Kata Kunci: model pembelajaran problem-based learning, kemampuan berpikir kritis, siswa SMA

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#### **INTRODUCTION**

Critical thinking is one of the skills that need to be developed in order to face the challenges of 21st century competence. Critical thinking is a learning ability that must be taught to students because with this ability students can master environmental conditions with problems that arise, this can be overcome if in the critical thinking process students have the awareness to design, monitor, and assess what will be learned. According to Saputra, (2020), the urgency of critical thinking skills can help students improve their understanding of the material learned by



critically evaluating arguments in textbooks, journals, discussion partners, including teacher arguments in learning activities. The ability to think critically provides more precise direction in thinking, working, and helps more accurately determine correlations or relationships to something.

According to the Ministry of Education and Culture (2022), the current new paradigm learning demands learning oriented towards strengthening competencies and character development in accordance with Pancasila values. This is in line with what was stated by Etistika Yuni Wijaya et al (2016) that in the era of globalization has a broad impact on various aspects of life, including demands in the implementation of education, one of the real challenges is that education should be able to produce human resources who have complete competence, known as 21st century competence. 21st century competencies are socialized by the Ministry of Education and Culture (2017) with the title 4C, namely creative thinking skills, critical thinking and problem solving, communication, and collaboration. However, in reality students in Indonesia have not been able to meet the competence of the 21st century. This is indicated by the results of the 2018 Program for International Students Assessment (PISA) survey showing Indonesia is ranked 74th aka sixth from the bottom. 70% of Indonesian students are below the minimum competency level in reading, 71% in mathematics, and 60% in science. Head of the Research and Development Agency of the Ministry of Education and Culture, Totok Supravitno in an interview conducted with Fahdi from Tribunnews.com said Fahlevi that Indonesian students are not yet able to think at high level (HOTS) and are still at level 2, which is the low level. Based on the PISA results, it indirectly shows that students' knowledge in secondary schools in Indonesia is still low. One of the causes is the lack of students' ability to think critically about a problem or an event. The process of teaching and learning activities in schools is lacking in empowering students' ability to think critically because the learning model that is usually used only focuses on delivering material by teachers.

This phenomenon is supported by the results of a pre-survey conducted on grade XI students at SMA Negeri 2 Karimun. Teachers of economics subjects still use the conventional method of lecture-recitation which results in students being more silent, students have less response to the material presented, do not pay attention to the explanation from the teacher, some of them even sleep during the learning process, and only record the material given but are not actively involved in the learning process, students are not able to develop ideas and provide arguments against the material learning so that students cannot develop their creativity and lose their ability to think critically. It can be concluded that students' critical thinking skills are still relatively low, meaning that the understanding of the material taught by the teacher has not been mastered optimally. This will have an impact on the low quality in the management of education today and must be resolved appropriately because the ability to think critically is one of the most important abilities to be successful now and in the One of the efforts to future (Ryen, 2020). improve the quality of education is how to engineer the learning process in the classroom through the use of learning models that have been tested by researchers to improve critical thinking skills, namely constructivist learning models, one of which is problem-based learning (Iskandar &: Maeshalina, 2020). The problem-based learning (PBL) learning model is a learning model that applies a problem as a condition for students to solve problems in order to make decisions from each problem and train students to think critically in order to gain new knowledge in themselves, so as to encourage students to collect information in solving problems (Amin et al., 2017). Research conducted by previous researchers generally examines how to improve critical thinking skills in science learning.

The implementation of the PBL learning model can theoretically improve students' critical thinking skills in research conducted by Novia Putri (2018) with the title "The Influence of the Problem Based Learning Model on Students' Critical Thinking Skills in Class XI IIS Economics Subjects at SMAN 3 Surabaya". The research was conducted based on the problem of



students' lack of critical thinking skills when learning with a scientific approach. So Novia Putri conducted a study with a type of pseudoexperiment and nonequivalent control group design, reporting that the problem-based learning model increased students' skills in critical thinking as seen from the barometer of the percentage of students' thinking skills when pretest and posttest were carried out in each class. There is an increase in the level of critical thinking, the conclusion that the critical thinking ability of the experimental class is greater and the ability of the control class is lower. Students who were given more treatment experienced an increase in critical thinking skills, and overall critical thinking skills in both classes improved. Based on Novia Putri's research, it appears that this research has the advantage that it can improve students' critical thinking skills to a very critical level. But on the other hand, this study also has weaknesses, namely the use of the same material when conducting pretest and posttest so that there is a repetition of essay test questions.

Another study that discusses the use of the PBL model in improving students' critical thinking skills was also conducted by Ana Hariani Salim et al (2015) with the title "Application of Problem Based Learning (PBL) to Improve Critical Thinking Skills of Class X Mipa 2 Students of SMA Negeri 6 Surakarta for the 2014/2015 Academic Year". This study is a Classroom Action Research consisting of three cycles. Each cycle consists of four stages: planning, action, observation, and reflection. The subjects of this study were students of X MIPA 2 SMA Negeri 6 Surakarta for the 2014/2015 academic year. Data collection using critical thinking tests, observation sheets, interviews, and documentation. The data was validated using the triangulation method. Test data, observations, interviews, and documentation are analyzed using qualitative analysis conducted in three components, namely: data reduction, data presentation. and conclusion drawing or verification. The research procedure uses the spiral method. The results showed that students' critical thinking skills increased in Pre-cycle, Cycle I, Cycle II and Cycle III. The average critical thinking ability of students increased from

35.22% to 64.92%. The interpretation aspect increased from 41.13% to 68.55%. The analysis aspect increased from 28.23% to 58.06%. The inference aspect increased from 38.71% to 67.74%. The evaluation aspect increased from 43.55% to 66.94%. The explanatory aspect increased from 27.42% to 62.10%. The selfregulation aspect increased from 32.26% to 66.13%. The conclusion of this study is that the implementation of Problem Based Learning can improve the critical thinking skills of grade X MIPA 2 students of SMA Negeri 6 Surakarta for the 2014/2015 academic year. Thus, it can be seen that the research has the advantage that the research is carried out in accordance with the four stages of PTK and can improve students' critical thinking skills. However, this study also has the disadvantage that there are no instruments or data that show the process of conformity of learning with PBL syntax.

Based on the weaknesses in the previous study, the research conducted by the author overcame this by using different materials for pretest and posttest and using learning observation sheets based on PBL syntax filled in by observers. Therefore, this study was conducted to analyze the improvement of students' critical thinking skills in social science learning, especially economics in the era of new paradigms and 21st century abilities with the use of problem-based learning (PBL) models.

## LITERATURE REVIEW Critical Thinking Skills

The ability to think critically has two dimensions, namely the cognitive dimension and the affective disposition dimension. Critical thinking according to Facione in Rositawati (2019) is a directed and measurable assessment that produces interpretation, analysis, evaluation, conclusions, and explanations of factual, conceptual, methodological, criteriological or contextual considerations on which the assessment is based. Critical thinking also trains students to think logically and not accept things easily. According to Senides et al., n.d, internal factors that affect critical thinking skills include interest in learning, rigor, student learning independence, and mastery of the material.



According to Senides et al., n.d, internal factors that affect critical thinking skills include interest in learning, rigor, student learning independence, and mastery of the material. Other factors that affect critical thinking skills, namely:

- 1. Providing simple explanations (elementary clarification) relates to a person's ability to focus questions, analyze arguments, ask and answer questions that require explanation or challenge (Sadat &; Herlina, 2020; Sunardjo et al., 2016).
- 2. Building basic support skills is related to one's ability to consider the credibility of sources and make observational considerations (Bahri, 2017; Maolidah et al., 2017).
- 3. Making inferrings is related to a person's ability to compile and consider deductions,

compile and consider inductions and compile and consider the results (Andini &; Warni, 2019).

- 4. Making advanced clarification relates to a person's ability to identify terms and consider definitions and identify assumptions.
- 5. Managing strategies and tactics (strategies and tactics) relates to a person's ability to determine an action and interact with others (Maolidah et al., 2017; Sunardjo et al., 2016).

According to Ennis in Crismasanti &; Yunianta (2017), there are 12 indicators in critical thinking ability which the author then modifies and limits the indicators of critical thinking ability in this study with the following details.

No	Indikator	Deskripsi
1.	Formulate a problem	a. Focus questions
		b. Formulate in the form of questions that give direction and to obtain answers
2.	Perform deduction and	c. Conduct investigation/data collection
	induction	d. Consider whether sources are trustworthy
3.	Provide arguments	e. Identify assumptions
		f. Provide simple explanations or arguments
4.	Conduct an evaluation	g. Evaluation is given based on facts
5.	Decide and conclude	h. Provide solutions

## **Table 1. Critical Thinking Ability Indicators**

## Problem Based Learning (PBL) Model

The PBL learning model was pioneered by Barrows and Tamblyn at medical school at McMaster University in Hamilton in the 1960s, where according to Barrows and Tamblyn, problem-based learning is a student-centered pedagogy learning model in which students learn about a subject through open-ended problemsolving experiences found in trigger materials. According to Barraw and Min Liu in Prayitno (2019) the characteristics of PBL learning, namely learning is student-centered, authentic problem from the organizing focus for learning, new information is acquired through self-directed learning, learning occurs in smalls groups, teachers acts as facilitators. The implementation of the PBL model consists of 5 stages (Hotimah, 2020), including orientation of students to problems, organizing students, guiding individual

and group investigations, developing and presenting results, analyzing and evaluating problem-solving processes and results. According to Hotimah (2020), the advantages of the PBL model are: 1) Challenging students' abilities and providing satisfaction to find new knowledge for students; 2) Increase student motivation and learning activities; 3) Assist students in transferring students' knowledge to understand real-world problems; 4) Helping students to develop new knowledge and be responsible in their learning; 5) Develop students' ability to think critically and develop their ability to adapt to new knowledge;6) Provide opportunities for students to apply the knowledge they have in the real world; 7) Develop students' interest in continuing to learn even after formal education has ended; 8) Make it easier for students to master the concepts learned to solve world problems. While the



disadvantage of the PBL model is that when students have no interest or do not have confidence that the problem being studied is difficult to solve, then they will feel reluctant to try it.

#### **REASERCH METHOD**

The approach used is quantitative with the type of quasi experimental research (quasi experiment research) and one group pretest posttest design research design. The design model is as follows.

Table 2. One Group Pretest Posttest Design						
Group	Pre-test	Treatment	Post-test			
Experiment	01	Х	02			
<b>0</b> 10 <b>0</b> 10						

Source: Sugiyono, 2019

Description:

X : Learning with problem based learning model O1 : Pretest provision for experimental class O2 : Posttest provision for experimental class

This research was conducted at SMA Negeri 2 Karimun, Jl. Raja Oesman, Sungai Lakam Village, Karimun District, Karimun Regency, Riau Islands Province. The research time is planned to be carried out from December 2022 to January 2023. The population in the study to be conducted is grade XI students majoring in social studies at SMA Negeri 2 Karimun for the 2022/2023 school year consisting of 5 classes with a total of 178 students. Sampling is carried out by purposive sampling techniques, which are techniques in determining samples using certain considerations (Sugiyono, 2019). This sampling technique is based on certain criteria, in this study the provisions taken are classes that after the pretest get the lowest score, namely class XI IPS 2. The data collection techniques used are: 1) Observation sheets based on the syntax of the PBL learning model implemented by the author and filled in by teachers of economics subjects as observers; 2) Questionnaire. The questionnaire was used based on indicators of critical thinking

ability, this questionnaire was distributed before treatment to see the level of students' critical thinking skills before using the PBL model and distributed again after treatment to see the level of students' critical thinking skills after using the PBL model. The data analysis techniques that the author uses are descriptive analysis, prerequisite test analysis, and hypothesis test (t-test).

#### **RESULTS AND DISCUSSION**

#### Description of the Use of Problem Based Learning (PBL) Models

In the learning process of the material "APBN and APBD" by discussing the understanding, function, and objectives of the State Budget, sources of state revenue, and types of state spending through direct learning, Table 4.2 Description of the Implementation of Using Problem Based Learning (PBL) Models researchers act as teachers and teachers of class XI Social Studies Economics subjects at SMA Negeri 2 Karimun as observers. The following table of activities for implementing the use of the problem-based learning (PBL) model is presented in Table 3.

 APBN and APBD Materials

 Initial Activities
 The implementation of learning using the problem-based learning (PBL) model will be carried out on Wednesday, January 11, 2023 starting at 12:45 – 14:15 WIB and Friday, January 13, 2023 starting at 13:15 – 14:45 WIB.

 1.
 Before starting learning, students are asked to tidy up tables and chairs and check the completeness of school attributes at 12:45 – 12:50 WIB.

 2.
 After the class is neat and conducive, students do a prayer together at 12:50 – 12:55 WIB.

 3.
 After praying together, the researcher made a self-introduction and asked how the students were doing and checked the attendance of the students. On Wednesday 11



January 2023 no learners were absent. Held at 12:55 – 13:00 WIB.

		January 2023 no realities were absent. Here at $12.55 - 15.00$ wild.
	4.	Researchers explain the relationship of the material with the experience of students
		and teachers ask questions to students about road construction and social assistance
		around students' residences. Held at 13:00 - 13:10 WIB.
	5.	Researchers convey the learning goals and benefits that will be achieved by students,
		namely students are able to explain the meaning of the State Budget, examine the
		functions and objectives of the State Budget, describe the sources of state revenue
		and types of state spending, analyze the mechanism of preparing the state budget and
		the effect of the state budget on the economy. Held at $13:10 - 13:15$ WIB.
Core Activities	1.	Researchers ask students to prepare learning equipment that will be used before
		starting learning. Held at 13:15 – 13:18 WIB.
	2.	The researcher began the learning by delivering the material "APBN" briefly with
		discussion:
		a. Understanding the APBN Functions and objectives of the State
		b. Budget Sources of state revenue
		c. Types of state spending
		d. The mechanism for preparing the state budget
		e. The effect of the state budget on the economy. Held at $13:20 - 13:40$ WIB.
	3.	Furthermore, researchers divided students into 6 groups, with each group totaling 5-6
		people according to the number of students present. Held at 13:40 – 13:45 WIB.
	4.	Furthermore, the researcher presented a video of problems related to the state budget
		material, the video was taken from CNN Indonesia's Youtube channel with the topic
		13:52 WIB.
	5.	After the learning video was broadcast, the researcher asked the students whether
		they understood what problems would be the topic of group discussion today. Held at
		13:52 – 13:55 WIB.
	6.	Furthermore, researchers share LKPD that will be done by students in groups and
		direct students to collect information from various sources. Held at 13:55 - 14:05
		WIB.
	7.	Researchers ask where the results obtained by students and supervise the course of
		discussion from each group in answering questions contained in LKPD. Held at
		14:05 – 14:13 WIB.
Concluding Activities	1.	The teacher closes the lesson and directs students to continue the discussion at the
		next meeting, which is Friday, January 13, 2023.
	1	APBN and APBD Materials
Initial Activities	1.	Before starting learning, students are asked to tidy up tables and chairs and check the
	r	Completeness of school altibutes at $15:15 - 15:20$ wiB.
	۷.	WIR
	3	WID. After proving together, the recorrelar made a self introduction and asked how the
	5.	students were doing and checked the attendance of the students. On Friday 13
		January 2023 there were no absent learners. Held at 13:25 – 13:30 WIB
Core Activities	1	The teacher directs learners to continue the discussion that was delayed at the
Core / Renvines	1.	previous meeting Held at $13.30 - 13.40$ WIB
	2	Students are asked to present the results of their respective group discussions and
	2.	intergroup discussion sessions. Held at 13:40 – 14:25 WIB.
	3.	Researchers provide reinforcement of the results of discussions and presentations that
	2.	have been displayed by students and straighten out if there are misconceptions. Held
		at 14:25 – 14:35 WIB.
	4.	Researchers and students make conclusions from the results of the discussion and
		students are asked to correct if there are errors in the work on LKPD. Held at 14:35 -
		14:45 WIB.
Concluding Activities	1.	Students respond to reflections on the learning process from researchers in the form



of conclusions and benefits from learning activities. Held at 14:45 – 14:50 WIB.

- 2. Researchers appreciate and motivate students who participate in the learning process. Held at 14:50 – 14:55 WIB.
- 3. Researchers distribute and direct students to fill out questionnaire sheets for students' critical thinking skills (posttest). Held at 14:55 15:05 WIB.
- 4. The teacher closed the lesson by thanking the subject teacher and students and ended with a prayer together.

During the learning process, researchers also make observations from the start of learning, when learning takes place until the end of learning. Observations were made at 2x meetings during 4 learning hours.

## Descriptive Analysis of Students' Critical Thinking Skills Before and After Using Problem Based Learning (PBL) Models

The implementation of learning using the problem-based learning (PBL) model for grade XI IPS 2 students of SMA Negeri 2 Karimun was carried out in 2x meetings. The subject matter of discussion in the teaching and learning process about the APBN and APBD. During the learning process, the economics teacher of SMA Negeri 2 Karimun as an observer in this study observed the implementation of learning carried out by the author by filling out an observation guide sheet based on PBL syntax. The results of these observations are known that the author has carried out learning "well" and in accordance with the steps or syntax of the problem-based learning model. This can be seen from the total score obtained by the author using the following calculation formula

Maximum score = 4 x 16 = 64.  
Value = 
$$\frac{score \ obtained}{max \ score} x 100 = \frac{64}{64} x 100 = 100\%$$

To see the improvement of students' critical thinking skills before and after the use of problem-based learning (PBL) models based on student perceptions, descriptive analysis is used. The percentage criteria for students' critical thinking ability can be seen in Table 4 below.

Table 4. Percentage Criteria for S	sudents Crucal Thinking Ability
Percentage (%)	Criterion
81% - 100%	Excellent
66% - 80%	Good
56% - 65%	Enough
41% - 55%	Less
0% - 40%	Very lacking

# Table 4. Percentage Criteria for Students' Critical Thinking Ability

Furthermore, the results of descriptive analysis of students' level of critical thinking ability can be seen in Table 5.

Table 5. Average Level of Students' Critical Thinking Ability Before Using Problem Based Learning
(PBL) Model

No	Interval	Category	Frequency	Percentage
1	$1 < x \le 1.8$	Very Low	0	0%
2	$1.9 < x \le 2.6$	Low	0	0%
3	$2.7 < x \le 3.4$	Keep	20	56%
4	$3.5 < x \le 4.2$	High	16	44%
5	$4.3 < x \le 5.0$	Very High	0	0%



Based on Table 5, it is known that most respondents on average have a level of critical thinking skills before using the problem-based learning (PBL) model, as many as 20 people (56%) are in the medium category and 16 people (44%) are in the high category. Thus, it can be seen that the level of students' critical thinking ability so far is sufficient but needs to be improved because there are still many students whose critical thinking skills are in the medium category. The ability to think critically of students who are classified as moderate / sufficient is caused by the use of inappropriate learning models, where teachers use lecture-recitation models which result in students not being actively involved in the learning process, students are unable to develop ideas and provide arguments for learning material so that students cannot develop their creativity and lose their ability to think critically. Next, students' critical thinking skills after using the problem-based learning (PBL) model can be seen in Table 6.

 Table 6 Average Level of Students' Critical Thinking Ability After Using Problem Based

 Learning (PBL) Model

No	Interval	Category	Frequency	Percentage
1	$1 < x \le 1.8$	Very Low	0	0%
2	$1.9 < x \le 2.6$	Low	0	0%
3	$2.7 < x \le 3.4$	Keep	1	3%
4	$3.5 < x \le 4.2$	High	28	78%
5	$4.3 < x \le 5.0$	Very High	7	19%

Based on Table 6, after using the problem-based learning (PBL) model, the average critical thinking ability of students increased to higher, namely only 1 person (3%) was in the medium category, 28 people (78%) were in the

high category, and 7 people (19%) were in the very high category. Comparison of students' critical thinking skills before the use of the PBL model and after the use of the PBL model can be seen in Table 7 below.

	I ubic /	· comparison of Students	Critical Linning Sinns	
No	Interval	% Before PBL Usage	% After PBL Use	Comparison
1	$1 < x \le 1.8$	0%	0%	-
2	$1.9 < x \le 2.6$	0%	0%	-
3	$2.7 < x \le 3.4$	56%	3%	Decreased by 53%
4	$3.5 < x \le 4.2$	44%	78%	Increased by 34%
5	$4.3 < x \le 5.0$	0%	19%	Increased by 19%

 Table 7. Comparison of Students' Critical Thinking Skills

Based on Table 7, it can be concluded that after the use of the problem-based learning (PBL) model, there was an increase in the critical thinking skills of grade XI IPS 2 students of SMA Negeri 2 Karimun in economics subjects from the medium category to the high category by 53%. That is, before the use of the PBL model, students' critical thinking skills were quite good, but after the use of the PBL model, students' critical thinking skills increased to be on good criteria. This is due to the use of learning models that are in accordance with the material taught and PBL models are able to attract students to be actively involved during the learning process so that students can provide arguments for the learning material and can develop their creativity.

To analyze the difference in the use of problem-based learning (PBL) models in improving students' critical thinking skills carried out with paired sample t-test, this test was conducted to determine whether there was a significant effect on the use of a treatment in one group pretest posttest design research with the help of SPSS for Windows ver.22. The requirement before the t test is to perform a normality test on the data so that it is known that



the data obtained is normally distributed or not. The normality test conducted on research data using the shapiro wilk test set the degree of confidence ( $\alpha$ ) at 5%. The results of the normality test can be seen in Table 8 below.

Tests of Normality								
	Kolmo	ogorov-Smirnov	a	Shapiro-Wilk				
	Statistic	df	Sig.	Statistic	df	Sig.		
PRE-TEST	.162	36	.018	.946	36	.079		
POST-TEST	.147	36	.047	.940	36	.050		
a. Lilliefors Signif	icance Correction							

## **Table 8 Normality Test Results**

Based on Table 8, the significance value of the pretest and posttest data < 0.05 so that it can be concluded that the research data are normally distributed. After the results of the normality test were obtained, the author conducted a t-test on the pretest and posttest data to see the difference between students' critical thinking skills before using the problem-based learning model and students' critical thinking skills after using the problem-based learning model. A treatment is said to have an effect if the significance value of the t test < 0.05, then it can be said that the independent variable has a positive and significant effect on the dependent variable. The results of the t-test can be seen in Table 9 below.

 Table 9 T Test Results (Paired Sample t-Test)

Paired Samples Test									
Paired Differences									
	_				95% Confidence	e Interval of			
			Std.	Std. Error	the Difference				Sig. (2-
		Mean	Deviation	Mean	Lower	Upper	t	df	tailed)
Pair 1	PRE-TEST								
	- POST-	-8.75000	5.52074	.92012	-10.61795	-6.88205	-9.510	35	.000
	TEST								

Based on Table 9, it can be seen that Sig. (2-tailed) 0.000 < 0.05, meaning that there is a significant difference between students' critical thinking skills before using the problem-based learning model and students' critical thinking skills after using the problem-based learning model. Test criteria if the value of t<sub>count</sub> is negative i.e. t<sub>count</sub> < t<sub>table</sub> then H<sub>0</sub> is rejected and H<sub>1</sub> is accepted. The results of the t test in this study showed the value of t<sub>count</sub> = -9.510 and t<sub>table</sub> = -1.690, meaning -9.510 < -1.690 then the H<sub>1</sub> hypothesis was accepted.

The Use of Problem Based Learning Models in Improving Students' Critical Thinking Skills in Economics Subjects at SMA Negeri 2 Karimun

This study aims to determine the improvement of students' critical thinking skills through the use of a problem-based learning model in class XI Economics subjects of SMA Negeri 2 Karimun. This research was conducted at SMA Negeri 2 Karimun, took samples of one class at the time of the study, namely class XI IPS 2 and was carried out in 2x meetings. For the author to be able to find out the condition of the student's initial ability, then an initial test or pretest is carried out and then after treatment with the problem-based learning model students are given a posttest to find out the student's final ability. The hypothesis in this study is that there is a significant difference in students' critical thinking skills before the use of the PBL model



and after the use of the PBL model in the economics subjects of grade XI IPS SMA Negeri 2 Karimun. Based on the results of the t-test (paired sample t-test) it was obtained that the use of problem-based learning models in economic learning can improve students' critical thinking skills. From the results of descriptive analysis, students' critical thinking skills have improved. Before being given critical thinking skills treatment, grade XI IPS 2 students of SMA Negeri 2 Karimun were in the medium category of 56%, after being given treatment (the use of problem-based learning models) students' critical thinking skills were in the high category of 78%, so it can be said that overall students' critical thinking skills increased by 53%. This is in line with Triono Djonomiarjo's (2019) research which shows that problem-based learning models can improve students' critical thinking skills. Trianto in Muhiddin Palennari (2018) states that PBL empowers critical thinking skills because PBL involves thinking activities that are not only a process of mental operations such as reasoning, but PBL provides encouragement to learners not just to think according to concrete but more than that to think of abstract and complex ideas.

The ability to think critically is a systematic thinking activity to formulate and make decisions, where the ability to think critically can be seen from indicators of formulating problems, inducting, giving arguments, evaluating, deciding and concluding. Through indicators of critical thinking ability, it was obtained that after the provision of treatment, the most dominant indicators in improving students' critical thinking skills were indicators of formulating problems and indicators of deduction and induction. Students' ability to formulate problems increased by 50% while students' ability to perform deduction and induction increased by 53%.

The problem-based learning (PBL) model is a student-centered learning model to solve a problem through a group discussion process. The learning process using the PBL model is carried out by the author by utilizing a video of a news from CNN Indonesia television broadcast which has been uploaded to the broadcast's youtube account and the author narrates it back in text

form to the Student Worksheet (LKPD). Based on the video, students were given the opportunity for 30 minutes to discuss existing problems in groups by filling in the LKPD that had been distributed. The use of videos in the teaching and learning process is what causes students to be more interested in paying attention and being actively involved during the learning process so that students' ability to formulate problems, induction, give arguments, evaluate, decide and conclude increases. Increasing students' critical thinking skills using the PBL model is also supported by the suitability of the learning process carried out by the author based on PBL syntax, so it can be concluded that the problem-based learning model is able to improve students' critical thinking skills.

The advantages of the PBL learning model are problem-solving techniques that are good enough to help students understand learning material, providing problems as discussion students' material motivates ability to investigate/find new knowledge, problem-based learning can develop students' critical thinking skills and adjust to new knowledge. While the disadvantage of the PBL learning model is that if students feel that the problem being learned is difficult to solve then students are reluctant to try, learning strategies with the PBL model require quite a lot of time in preparation, and without an understanding of the students' reasons for solving the problem being studied, they are reluctant to learn.

## CONCLUSIONS AND RECOMMENDATION

Based on the results of research and discussions that have been described earlier, it can be concluded that there is an increase in students' critical thinking skills in economics subjects before the use of problem-based learning models and after the use of problem-based learning models. Students' critical thinking skills improved from medium to high category. This can be seen from before the use of the problem-based learning model, students' critical thinking skills were in the medium category with a percentage of 56%, but after the use of the problem-based learning model, students' critical thinking skills increased to the high category by 78%, so that overall it can be said to have



increased by 53%. The results of the t-test (paired sample t-test) conducted by the author also showed that there were significant differences in students' critical thinking skills before the use of the problem-based learning (PBL) model and after the use of the problem-based learning (PBL) model in economics subjects of class XI IPS 2 SMA Negeri 2 Karimun.

It is hoped that teachers can incrase student critical thinking, one of which is by using problem based learning (PBL) model.

- 1. For teachers. It is hoped that teachers can stimulate students to improve their critical thinking skills, one of which is by using the right learning model and matching the material / topic to be taught, for example, the problem-based learning model.
- 2. For students. It is hoped that with this research, students should be actively involved in the learning models used by teachers in order to obtain good results in learning.
- 3. For further researchers. It is hoped that this research can be used as reference material in developing further research, especially in improving the indicators used and deepening in research data collection.

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