

## THE INFLUENCE MODEL OF PROBLEM-BASED LEARNING ASSISTED BY MEDIA MAGAZINE LEARNING ON STUDENT CRITICAL THINKING ABILITY FOR HISTORY LEARNING

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**Abstract:** The formulation of the problem in this research is, is there an influence of the problem-based learning model assisted by the wall magazine learning media in history subject related to the Indonesian nation responses toward imperialism and colonialism on the critical thinking ability in *XI IPS 4* class of *SMA Negeri 5 Tasikmalaya* academic year 2019/2020. The method utilized in this study is a quasi-experimental design. The population in this study were all *XI IPS* classes at *SMA 5 Tasikmalaya* with a total of 175 students. The sample in this study was class *XI IPS 4*, with a total of 36 students. A purposive sampling technique took samples. This research instrument was in the form of a critical thinking test with 9 item description questions. Technical data analysis was performed using IBM Statistical Package for Social Sciences (SPSS) 25.0 for Windows software. The results showed that the problem-based learning model assisted by the wall magazine learning media influenced the students' critical thinking ability. This is evidenced by the average of the critical thinking ability of the experimental class using a problem-based learning model assisted by a wall magazine learning media was 80.07, while the average critical thinking ability of students who used discovery learning models was 70.45. The results of processing the hypothesis test using Mann Whitney obtained  $Asymp.Sig (2-tailed) 0.001 < 0.05$ . This showed that  $H_a$  was accepted and  $H_o$  was rejected. Therefore, there is the influence of the problem-based learning model assisted by the wall magazine learning media on the critical thinking ability in *XI IPS 4* class of *SMA Negeri 5 Tasikmalaya* academic year 2019/2020.

**Key Words:** Problem-Based Learning, Wall Magazine, Critical Thinking History

### INTRODUCTION

Education is a very important thing in the country. A very complex educational issue is a challenge for citizens to find solutions to these various problems. The essence of the aim of the Indonesian nation in the field of education is stated in the preamble of the fourth paragraph of the 1945 Constitution with the sound "... advancing the general welfare and the intellectual life of the nation". With this juridical foundation, Indonesia strives to realize

education in accordance with the development and needs of students. Education that is able to encourage development in the future is education that is able to develop student potential so that students are able to overcome and respond to life's challenges.

Education includes learning activities which are an effort to create a climate and voyage of the diverse abilities, potentials, interests, talents and needs of students so that interaction occurs between teachers and

students and students and students (Rusman, 2017: 1). Students need to develop their potential to become abilities that are increasingly increasing in developing attitudes, knowledge and skills needed for them to be in society, as well as contributing to human welfare.

In the 21st century, competition in various fields of life is very fierce, including in the field of education. The trend in education has begun to be responded to in Indonesia, especially in learning activities, which since 2000 have applied four educational approaches, namely (1) life skills-oriented education; (2) competency-based curriculum and learning; (3) product-based learning; and (4) broad-based education (Rusman, 2017: 3).

Regulation of the Minister of Education and Culture Number 65 of 2013 states that learning patterns must be student-centred, interactive (teachers, students, community, environment, sources/media, etc.), students actively seek group-based, and active and critical learning. Specifically for history learning activities, Shavab and Miftahudin (2019: 15) explain that students will develop more in mastering the material if they are given more opportunities to carry out student-centric learning activities so that they will be freer to explore the abilities and material taught at the time Learning Activities. By taking such an approach, it is hoped that it can develop a balance between knowledge, social, spiritual, creativity, thinking skills, and psychomotor.

The implementation of the 2013 curriculum contains 21st century (4C) skills which consist of critical thinking, collaborative, creative, and communicative. In recent years, critical thinking has become a very popular term in the world of education. Educators are more interested in teaching thinking skills with various styles than in teaching information or content.

Based on the observations of researchers on the learning process at SMA Negeri 5 Tasikmalaya, history learning has not empowered the potential to think optimally, and the teacher only measures the cognitive aspects of students at the level of memory and conceptual understanding of the material being taught. Such learning causes students not to be trained to analyze and solve problems from problems associated with learning material and problems that occur in their lives. In addition, researchers found several problems in the learning process, including students who were not active in learning discussions such as not being able to formulate questions on information, unable to answer questions from other students, and those who asked and answered questions were only certain people. This is a problem that students' critical thinking skills are still not optimal.

There are various ways to develop students' critical thinking skills; one of them is by using a model and the use of interesting and appropriate media in learning. The model and media that will be used by researchers is a

problem-based learning model assisted by wall magazine media.

Charles I. Arends (Warsono and Harianto, 2012: 147) states, the problem-based learning model is a learning model that accommodates student involvement in solving problems starting with: (i). observing problems; (ii). collecting data; and (iii). compile arguments to solve the problem. Problem-based learning supports planning and manifesting artefacts or media. The media used in this research is the wall magazine media. Harahap, et al. (2019: 143) suggest that wall magazines are simple to mass media communication. The scope of activities of the wall magazine for students includes work activities by channelling ideas, imagination, concepts and creativity. Santoso (2007: 7) explains that wall magazines can provide inspiration for students to be able to express their ideas, ideas and creativity in writing. The use of wall magazine learning media is expected to stimulate students to develop critical thinking power. Thus it is expected that through problem-based learning and wall magazine media, students will have the opportunity to develop their critical thinking skills in solving problems.

## **RESEARCH METHODS**

### **Research Methods**

The research approach used in this research is a quantitative approach. The research method used in this research is the experimental method. The experimental method is defined as a research method used to

look for certain influences on others under controlled conditions (Sugiyono, 2015: 107). The method used in this research is the Quasi Experiment Design method. The research design was conducted in the experimental class and the control class. The experimental class is a class that is given treatment, namely by using a problem-based learning model using learning media wall magazines. At the same time, the control class is a class that is not given treatment, meaning that learning in the control class uses a model that is usually used by the teacher. Selection of the experimental class and the control class, namely the class that has sub-optimal thinking skills and has the same characteristics.

### **Population and Sample**

The population in this study were all class XI IPS at SMA Negeri 5 Tasikmalaya for the 2019/2020 academic year, totalling 175 students and divided into five classes. The sample used in this study were students of class XI IPS 4 consisting of 36 students as an experimental class and class XI IPS 1 consisting of 35 students as a control class.

In this study, researchers used purposive sampling technique, namely a technique that specifies samples with certain considerations Sugiyono (2015: 124). The reason for using this sampling technique is because the results of the observations show that students in class XI IPS 4 have low critical thinking skills so that treatment is needed to improve it. Furthermore, in this study, class XI

IPS 4 is used as an experimental class and class XI IPS 1 as a control class because the students have almost the same characteristics as class XI IPS 4.

### **Data collection technique**

#### 1) Observation

Observation is the observation of an object under study to obtain data. This study used participant observation with the researcher involved in the daily activities of the person being studied for data collection. The author made observations at SMA Negeri 5 Tasikmalaya, especially in class XI IPS 1 as a control class and class XI IPS 4 as an experimental class and observed students during the learning process that took place before the use of problem-based learning models assisted by wall magazine learning media.

#### 2) Test

The test is a series of questions used to measure skills, intelligence knowledge, abilities or talents (Arikunto, 2002: 127). The test is used to determine the material mastery of the material by looking at the final results of learning in class. The test uses indicators of critical thinking in the form of descriptions that have advantages in terms of cognitive reasoning such as analyzing, synthesizing and evaluating both written and oral (Sudjana, 2006: 36). The test questions consist of 20 description items; these questions are adjusted to the indicators of critical thinking. The results of the instrument testing were nine questions that successfully

passed to do the next test. In this research, pretest and posttest will be carried out in the control and experimental classes.

### **Data analysis technique**

Data analysis techniques in quantitative research are activities after data from all respondents or other data sources have been collected. Data analysis in the study was to analyze the results of the pretest and posttest on learning data processing conducted by researchers using the IBM Statistical Package for Social Sciences (SPSS) 25.0 for Windows software.

#### 1) Normality Test

The normality test is carried out to find out whether the research data that has been obtained are normally distributed or not. The normality test is seen from the data from the pretest and posttest results. The normality test in this study used the IBM Statistical Package for Social Sciences (SPSS) 25.0 for Windows software. The normality test of the pretest and posttest data results used was the Shapiro-Wilk test because the number of samples was between 0 and 50 with a significant level of 5% or 0.05. The data has a normal distribution with the following conditions

- a) If Sig. (Significance) or probability value  $< 0.05$ , then the data is not normally distributed.
- b) If Sig. (Significance) or probability value  $> 0.05$ , the data is normally distributed.

If it turns out that the data has an abnormal distribution, the next step is to directly perform the non-parametric test on the Mann Whitney hypothesis test. However, if the data has a normal distribution, the next step is to test the homogeneity.

## 2) Homogeneity

The homogeneity test is carried out to determine whether the data is homogeneous or not. According to Arikunto (2010: 362), the homogeneity test is carried out to determine whether or not the variance of samples taken from the same population is uniform. The test for homogeneity of two variances on the results of the pretest and posttest data used the Levene test with the IBM Statistical Package for Social Sciences (SPSS) 25.0 software for windows with a significant level of 5% or 0.05. The decision making that the data is homogeneous is as follows

- a) The significance value  $(p) > 0.05$  indicates that the data group comes from a population that has the same variance (homogeneous)
- b) The significance value  $(p) < 0.05$  indicates that each data group comes from a population with different variances (not homogeneous).

The next step after the data is homogeneous is to perform a t-test using the Independent Sample T-Test. This study did not use the homogeneity test because the data obtained from the normality test were not normally distributed.

## 3) Hypothesis Test

### a) Independent Sample T-Test

Hypothesis testing in research after obtaining data with a normal and homogeneous distribution is then carried out by testing the parametric hypothesis using the Independent-Samples T-Test. The criteria for decision making in the Independent-Samples T-Test on SPSS software are if  $t \text{ count} < t \text{ table}$ , then  $H_0$  is accepted and  $H_a$  is rejected, whereas if  $t \text{ count} > t \text{ table}$ , then  $H_0$  is rejected and  $H_a$  is accepted. Test formula (t-test).

### b) Mann Whitney Test

The Mann Whitney U test is used to test the significance of the comparative hypothesis of 2 independent samples if the data is ordinal and two samples are not the same size (Sulaiman, 2002: 29). The basis for decision making according to Latan (2014: 315), namely to test the hypothesis a significant level of 0.005 is used, if there is a possibility of significance  $< 0.05$ , it can be concluded that the population distribution of the two groups is not identical/different or not the same. Conversely, if the probability of significance  $> 0.05$  is obtained, it can be concluded that the population distribution of the two groups is identical or the same.

The statistical hypothesis made to determine the effectiveness of learning is as follows:

$H_0$  = There is no effect of the problem-based learning model assisted by wall

magazines on students' critical thinking skills in historical subjects.

Ha = There is an effect of the problem-based learning model assisted by wall magazines on students' critical thinking skills in historical subjects.

### c) N-Gain test

The N-Gain test is a data analysis that aims to determine how much improvement in students' critical thinking skills after learning by using a problem-based learning model of learning media wall magazines. The calculation of the N-Gain test can be done with the formula below:

$$G = \frac{\text{posttest score} - \text{pretest score}}{\text{maximum score} - \text{pretest}}$$

Information:

G = Gain

Posttest score = final test score

Pretest score = initial test score

## RESULTS AND DISCUSSION

The learning activities observed by the researcher described the student learning process using a problem-based learning model assisted by wall magazine learning media which was carried out in three meetings. The first phase of students is oriented to solve the problems given by the teacher to give a positive response to students. By orienting students to problems resulting in an active and interactive learning process so as to provide experiences to students. Orient students to problems in accordance with cognitive learning theory. According to Wundt, cognitive is an active and

creative process that aims to build structure through experiences (DiVesta in Suyono and Hariyanto, 2012: 73).

The second phase organizes students for learning and the third phase supports the investigation group. This phase includes student activities to search for answers to problems set by the teacher. Students are required to find ways to solve problems by providing opportunities to exchange ideas with other group members. This is in accordance with the opinion of Tan (Rusman, 2018: 229) that problem-based learning is an innovation in learning because PMB is the ability to think students are highly optimized through a systematic group work process so that students can empower, hone, test and develop their thinking skills continuous.

One of the theories underlying the problem-based learning model is a cognitive learning theory which is more concerned with the learning process than learning outcomes. The cognitivism paradigm emphasizes that a person's behaviour is determined by their perceptions and understanding of situations related to their learning goals (Suyono and Hariyanto 2012: 73). Problem-based learning models in the learning process are developed from a problem or question rather than organizing academic learning facts. This approach can structure investigations to solve the problem of linking learning to real-life situations.

The implementation of problem-based learning models is characterized by the

cooperation of each student. Collaborating will provide motivation, provide opportunities to exchange ideas, develop inquiry and dialogue to develop social conversations.

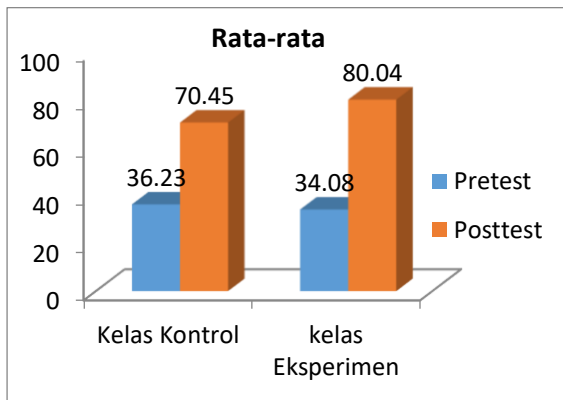
Utilization by using the media wall magazine as a teacher's tool that serves to convey information. One of the functions of the media in learning according to Arsyad (2010: 15) is as a teaching aid that also influences the climate, conditions and learning environment that are organized and created by the teacher. This shows that using wall magazine learning media as a means of delivering information gives a positive response to students.

Learning using the media of this wall magazine is in accordance with what was explained by educational psychology experts. According to Piaget, a Swiss psychologist, there are three forms of knowledge, namely: (1) physical knowledge is knowledge about objects that exist outside and can be observed in external reality. The source of physical knowledge resides primarily in the thing itself, that is, in the way that it provides the subject with opportunities for observation; (2) logico-mathematical knowledge consists of the relationships that the subject creates and introduces to objects; (3) social knowledge. Social knowledge can be transferred from the mind of the teacher to the mind of students, while physical and logico-thematic knowledge must be built by students themselves.

The final stage analyzes and evaluates the problem-solving process. At this stage, students get new knowledge from the learning

that has been implemented. Learning is not a mere mechanistic reactive activity, but there is also an understanding of the stimulant that is being faced when someone is doing learning activities (Sagala 2007: 49) The next stage is posttest to determine critical thinking skills.

Critical thinking can be defined as a cognitive ability, that is, when they get and process information, this ability should be processed through critical thinking patterns. This method can help students to accept things rationally (Spitler in Mahmud 2015). Based on the data processing that has been done, the data obtained from the results of the pretest of class XI IPS 4 students obtained an average score of 34.08 (before being given treatment), while after learning using a problem-based learning model assisted by learning media wall magazines the average score students' critical thinking skills become 80.07, which means that the average learning outcomes of class XI IPS 4 students have increased to be quite large. This shows that the problem-based learning model assisted by wall magazine learning media can improve students' critical thinking skills in the Indonesian nation's response material to imperialism and colonialism.



**Gambar 1.**

**Hasil Diagram Batang Nilai Rata-Rata  
Pretest dan Posttest Kelas Eksperimen dan  
Kelas Kontrol**

This increase is due to the problem-based learning model that focuses on problem-solving so that it can develop student activity, learning skills and thinking. The problem-based learning process, students are given the opportunity to be directly involved in the learning process, so that students can be motivated to develop thinking skills in conducting investigations in order to find solutions to a problem. This is in line with the statement of Hosnan (2014: 298) that problem-based learning is learning that uses real (authentic) problems that are not structured (ill-structured) and is open as a context for students to develop skills in problem-solving and critical thinking and building new knowledge. A person who is in the process of mental activities such as identifying problems and assumptions in an argument, making correct inferences from data, making conclusions from the information or data provided, interpreting the conclusions that have

been made and evaluating evidence, these activities are activities of critical thinking skills.

The results of the analysis obtained from the students' critical thinking skills on the subject of the Indonesian nation's response to imperialism and colonialism showed a significant difference between the experimental class using the problem-based learning model assisted by wall magazine learning media, while the control class using the discovery learning model. The control class obtained a posttest average of 70.45 while the experimental class obtained a posttest average of 80.07.

Based on the results of the pretest data normality test for the experimental class was 0.857, while the control class was 0.045. The significance value of the experimental class is more than 0.05 indicating that the results of the pretest data are normally distributed, while the significance of the control class is less than 0.05, indicating that the results of the pretest data are not normally distributed. The results of the normality test using the Shapiro-Wilk test on the significance table of the final test data (posttest) of the experimental class were 0.009 with an abnormal distribution, while the control class had a significance value of 0.200 with a normal distribution. This significance value shows that the pretest and posttest data for the experimental class and control class are not normally distributed.

Data analysis performed after the normality test was the homogeneity test and



hypothesis testing. The results of the data normality test show that the data are not normally distributed so that the homogeneity test phase cannot be carried out. Then the next step is to test the hypothesis. Hypothesis testing using the Mann Whitney test.

The results of hypothesis testing using Mann Whitney obtained posttest data for the experimental class and control class showing that the Asymp.Sig (2-tailed) value is 0.001 <0.05. These results indicate that  $H_a$  is accepted and  $H_o$  is rejected with the posttest mean score of the experimental class greater than the control class. The conclusion is that there is an effect of the use of problem-based learning models assisted by wall magazine learning media on students' critical thinking skills in specialization history subjects.

The N-Gain test was conducted to determine the increase in students' critical thinking skills before, and after being given treatment in the learning process, the results of the N-Gian calculation can be seen from the table as follows.

**Table 4.31**  
**N-Gain Calculation Results**

<b>Class</b>	<b>Mean Pretest</b>	<b>Megan Posttest</b>	<b>N- Gain</b>
<b>Control</b>	36,23	70,45	0,54
<b>Experiment</b>	34,08	80,07	0,70

Source: Data Processing

The average data of the control class pretest results was 36.23, and the experimental

class was 34.08, while the average posttest result of the control class was 70.45, and the experimental class was 80.07. The N-Gain value for the control class is 0.54 in the medium category, and 0.70 for the experimental class is in the high category. Based on these data it can be concluded that there is an increase in student learning outcomes in the control class and the experimental class, with the increase in learning outcomes in the experimental class being better than the control class.

This increase is due to the problem-based learning model that focuses on problem-solving so that it can develop students' activeness, learning skills and thinking. In the problem-based learning process, students are given the opportunity to be directly involved in the learning process, so that students can be motivated to develop their thinking skills in investigating in order to find solutions to a problem. This is in line with the statement of Hosnan (2014: 298) that problem-based learning is learning that uses real (authentic) problems that are not structured (ill-structured) and is open as a context for students to develop skills in problem-solving and critical thinking and building new knowledge. Such learning activities are in accordance with a statement from a psychologist who put forward his cognitive theory, namely Piaget (Suyono and Hariyanto, 2012: 86) that learning will be more successful if it is adjusted to the stage of student development, students should be given the opportunity to experiment with physical objects

supported by interaction with peers and questions from teachers.

A more detailed discussion on each indicator of critical thinking is as follows.

#### 1. Provide a simple explanation

As a basis for critical thinking skills, students must first understand the problem, after which questions will appear that can stimulate their thinking ability. In the experimental class that uses a problem-based learning model assisted by learning media of the wall magazine, the ability to think aspects provide further explanation, the indicator analyzes the argument with the sub-indicator explaining the difference in getting a percentage of 88% While the control class using discovery learning model obtained a percentage result of 82%.

In this aspect, students process the argument analysis by investigating a reason to find out the real situation. According to Jonshon (2008: 182), critical thinking examines their own thought processes and the thinking of others to find out whether their thinking makes sense. The dialectical process in the brain carried out by students can think, read an opinion and translate in their respective languages.

#### 2. Build Basic Skills

In the aspect of building basic skills, students must be able to think regularly to be able to use their mind power so that they can think well about a source by considering the credibility of a source. This is in accordance with the indicators considering the credibility of a source and assessing the research results. In

the experimental class, using a problem-based learning model assisted by wall magazine media obtained a percentage of 73%, while the control class received a percentage of 63%.

Students dig up information by experiencing the events they have experienced and relating it to the sources obtained and anticipating information by thinking well. From the knowledge and experience that occurs in students, it becomes basic skills so that students can provide a reason.

#### 3. Summing up

The third aspect provides opportunities for students to be able to make conclusions from the information that has been obtained. In the experimental class, using a problem-based learning model assisted by wall magazine learning media obtained a percentage of 83%, while the control class received a percentage of 57%.

Stating an interpretation is a deductive way of thinking which in its delivery must have in-depth knowledge and experience based on background facts and correct sources. This is in line with Johnson's (2008: 198) statement that only critical thinking allows students to analyze their own thinking to ensure that they have made their own choices and draw intelligent conclusions. In this phase, students do well even though they still need to be guided and achieve continuously.

#### 4. Provide a further explanation

The fourth aspect develops the ability to think by understanding the meaning of a term to become a further experience. In the experimental class using problem-based learning models assisted by wall magazine media, the percentage was 85%, while the control class received a percentage of 75%. Identifying terms is easier than identifying assumptions; this is because a new assumption can be clearly accepted logically and is based on extensive experience.

#### 5. Strategies and Tactics

The fifth aspect of strategy and tactics, students decide on the action by considering possible solutions of what they face. The experimental class obtained a percentage of 72.5%, while the control class using discovery learning model obtained a percentage of 74%. Students can develop strategies and tactics based on the information and experiences they have from the interactions of daily life so that students are able to make excellent decisions and students are full of confidence in determining an action (Nosich, 2009: 10). In this phase, the experimental class needs to do well again because the control class has a higher percentage.

Overall, the use of the problem-based learning model assisted by the wall magazine learning media applied in class XI IPS 4 of SMA Negeri 5 Tasikmalaya has been able to generate critical thinking skills in learning. Because, the use of problem-based learning models is related to the assignment of

knowledge materials, problem-solving skills, multidisciplinary learning, and life information (Tan in Sani and Hayati, 2015: 129). Cognitive learning theory as one area of human psychology or one general concept includes all forms of recognition covering every mental behaviour related to problems of understanding, paying attention, giving, suspecting, considering, processing information, solving problems, imagining, estimating, thinking and belief (Rachamawati and Daryanto, 2015: 60-61). Including psychology that is centred in the brain is also associated with connotations (will) and affection (feelings) which are associated with taste.

#### **WEAKNESSES OF USING PROBLEM-BASED LEARNING MODELS**

The weakness of the problem-based learning model with the help of wall magazine media, in general, is time. Students must search for information to solve problems. After the information has been collected, students must make a wall magazine by thinking about the concept of making the wall magazine to be presented. So it takes group cooperation to streamline time.

Not only time, making wall magazines requires money, sometimes students are reluctant to buy materials from making wall magazines. So that students must have a high sense of solidarity with the group.

From the teacher's point of view, the teacher must be patient in guiding students so that students can find their own concepts or

understanding. This makes teachers have to pay special attention to students.

## CONCLUSIONS

Problem-based learning in this study includes problem orientation contained in Student Worksheets, organizing students by discussing Student Worksheets cooperatively, investigative groups consisting of 5 groups, presenting works (wall magazines that have been made by each group), and analyze and evaluate the problem-solving process by means of the presentation of each group. One of the advantages of problem-based learning is that it can develop students' critical thinking skills and develop their ability to adapt to new knowledge. This learning has a positive effect on students' critical thinking skills because students learn actively in researching information, arguing, and concluding.

The results of pretest data processing of experimental class students obtained an average result of 34.08 (before being given treatment). Meanwhile, after learning by using a problem-based learning model assisted by wall magazine learning media, the average critical thinking ability of students became 80.07. Shows an increase in students' critical thinking skills in class XI IPS 4 SMA Negeri 5 Tasikmalaya.

The hypothesis test in this study used the Mann Whitney test because the data results from the normality test were not normally distributed. The results of the Mann Whitney test showed that the posttest data for the experimental class and the control class showed

that the Asymp.Sig (2-tailed) value was  $0.001 < 0.05$ . These results indicate that  $H_a$  is accepted and  $H_o$  is rejected with the posttest mean score of the experimental class greater than the control class. It can be concluded that the problem-based learning model assisted by wall magazine learning media on the subject of history, the subject of the Indonesian nation's response to imperialism and colonialism, has an effect on the critical thinking skills of class XI IPS 4 students of SMA Negeri 5 Tasikmalaya in the 2019/2020 academic year.

Based on the results of the research carried out, the researcher proposes the following suggestions, 1) for teachers, it is hoped that they can use learning models adapted to student learning problems and learning materials in order to attract students' attention and thinking abilities. The use of learning media is expected to be adjusted to the criteria for student learning styles in order to be able to stimulate student attention, interest and thinking skills, 2) For schools, it is expected to provide learning support facilities to develop the learning process, such as learning media that can be used to facilitate the delivery process learning materials, 3) For the next researcher, this research is expected to be a reference for researchers who want to use a problem-based learning model assisted by wall magazine learning media for critical thinking skills or continue this research with a different and complete analysis.

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