

# Development of Student Worksheets Based on Problem Based Learning Model to Enhance the Ability of Student Critical

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## ABSTRACT

The purpose of this research is to develop a student worksheet (LKPD) based on Problem Based Learning (PBL) that is feasible and valid and effective. This type of research is development research with a 4-D model. The subjects in this study were VII grade students of SMP Negeri 41 Batam. While the object in this research is the Student Worksheet based on Problem Based Learning. The data collection instruments used consisted of a validation team questionnaire and a practitioner questionnaire to test the feasibility of the LKPD. The data analysis used was descriptive analysis. The results showed that: (1) the validation of material and language experts stated that the LKPD developed was suitable for use in the field with revisions and was valid; and (2) based on field trials, LKPD can be declared effective. This is based on the achievement of the learning objectives achieved, positive student responses, and the percentage of effective learning time. The level of effectiveness of the Problem Based Learning LKPD in improving students' critical thinking skills based on the gain score is moderate.

**Keywords:** student worksheets, problem based learning, 4-D development model, critical thinking skills

## 1. INTRODUCTION

Education is a need that must be fulfilled throughout life. Without education, a human being cannot develop in line with his aspirations to progress and prosper. In general, people believe that with human education they can get improvement and progress in the fields of knowledge, abilities, and attitudes and morals. With education, humans can have knowledge, abilities and can become quality human resources. In improving quality human resources, education is needed as the main media in printing quality human resources.

In the learning process students use their ability to study learning materials that have been provided by the teacher or assigned by the teacher which aims to develop cognitive, affective and psychomotor abilities in students. Learning in the 2013 Curriculum demands that students be able to find out for themselves and are required to be able to solve problems on their own which aims to improve cognitive, affective and psychomotor abilities. Meanwhile the teacher only acts as a facilitator in teaching and learning activities. Teachers in learning must emphasize student involvement in thinking when delivering material so that students do not only listen to explanations given by the teacher, so that they can create

active learning in accordance with the current 2013 curriculum [1].

Civics subjects are important to broaden national and state insights and students' knowledge. Civics learning is taught in schools at every level from elementary, junior high, high school to college. The main objective of Civics in Indonesia is to foster national insight and awareness, attitudes and behaviors that love the country and are based on national culture, archipelago insight, and national resilience in future nationals who are studying and will master science and technology.

The existence of social media will make it easier for people to spread news related to political issues and SARA issues that can threaten national integration, while related news is not necessarily true. The large number of hoaxes related to politics and SARA that spread so quickly will just be accepted and consumed if they are unable to analysis, process information and draw conclusions properly, as a result the unity and integrity of Indonesia is at stake if it is unable to respond to the circulating issues wisely. For this reason, one of the 21st century skills that need to be developed in preventing disintegration of the nation caused by

political issues or SARA in responding to news is the development of critical thinking skills.

The ability to think critically is one of the abilities developed in the 2013 curriculum through learning. To instill this critical thinking ability, teachers are required to start implementing learning that leads to Higher Order Thinking Skills learning which will then be shortened to HOTS, which is learning that is in accordance with Bloom's taxonomic thinking level which is not only at the memory stage but also up to higher order thinking.

Higher order thinking is important to apply to make it easier to accept lessons and to train students in critical thinking. The ability to think critically needs to be instilled in learning activities because all global information enters easily, this causes good and bad information to continue to flow without stopping and information that is bad can affect the nature and mentality of children. In fact, in the learning process, teachers generally do not empower students' critical thinking abilities optimally so that this has an impact on students' low critical thinking skills. The low critical thinking skills of Indonesian children can be seen through the results of the Program for International Student Assessment (PISA) and Trends in International Match and Science Survey (TIMSS) survey which is sourced from R & D.kemendikbud.go.id in states that the survey conducted shows that the majority of Indonesian students are still at a low level of thinking, namely Lower Order Thinking Skills (LOTS). [2]

The low critical thinking skills of students have an impact on students' mastery of the material. This is shown from the average grade VII grade of SMP Negeri 41 Batam that has not met the KKM standard (Minimum Completeness Criteria). Based on the results of observations and interviews with PPKn subject teachers at the school, information was obtained that so far the teacher used the discussion method with the help of LKPD teaching materials [3-4]. The discussion method does make students more active in using their thinking skills, but the LKPD used by the teacher is still only a practice question, and has not been oriented towards students' critical thinking skills so that students' critical thinking skills are still low [5].

## 2. RESEARCH METHODS

This study is an educational research and development (R & D) research. This study aims to develop Problem Based Learning-based Student Worksheets in class VII SMPN 41 Batam. The implementation of this research is carried out in the odd semester in class VII of the 2019/2020 Academic Year.

Educational development research includes the process of product development and validation. Through research and development, researchers seek to develop a product that is effectively used in learning. The product produced in this study is in the form of LKS teaching materials based on PBL in improving students' critical thinking skills. The development model used in this study is a 4-D development model which consists of 4

development stages, namely: (1) Define, (2) Design, (3) Develop, and (4) Disseminate. At the define stage, the researcher determines the learning needs by analyzing the objectives and limitations of the material. At the design stage, it aims to design the learning tools that will be made. In the development stage, the researcher has produced a draft of learning tools, in this case a revised LKPD based on input from experts and data obtained from field trials. And the last stage is the disseminate stage, at this stage the LKPD that has been revised and is ready for use in the field can be disseminated and used.

The data collection instrument used in this study was a validation team questionnaire which aims to measure the validity of the developed student worksheets. In addition, practitioner questionnaires were used which aimed to try out products in class. This questionnaire contains suggestions that will be filled in by the teacher and will be used as input for the product being developed. The data collection instrument used in this study was a validation team questionnaire which aims to measure the validity of the developed student worksheets. In addition, practitioner questionnaires were used which aimed to try out products in class. This questionnaire contains suggestions that will be filled in by the teacher and will be used as input for the product being developed.

## 3. RESEARCH RESULTS

After determining the research subject, learning was carried out using Student Worksheets (LKPD) based on the Problem Based Learning (PBL) learning model. Refers to constructivism theory which states that students learn to construct their knowledge through interaction with their environment[6-7]. PBL can make students learn through real-world problems and can train students' ability to analyze problems that occur in their environment through this PBL learning method.

The LKPD developed by the researcher is a LKPD based on a problem-based learning model which contains a summary of the material and a case study that occurs in the environment around students. That way the problems that exist in the case study are not new cases that have never been seen by students at all, but cases or problems that have often occurred in everyday life in the environment of students [8].

After the designed learning is carried out, a critical thinking ability test is carried out which has been validated by an expert in the field of PPKN. After the test, interviews were conducted with selected subjects. Then the data analysis on critical thinking skills is measured by means of tests that have been given after working on the LKPD series [9].

The results of grade VII students' critical thinking skills at SMP Negeri 41 Batam can be seen from the results of critical thinking skills tests which are measured based on scoring guidelines for critical thinking skills tests. The results of students' critical

thinking skills for per indicator can be seen in Table 1 below:

**Table 1.** Critical thinking

No.	Critical Thinking Ability Indicator	Presentatio n	Category
1.	Formulate problems	75,25%	High
2.	Give arguments	75 %	Moderate
3.	Perform deductions	70%	Moderate
4.	Perform induction	70%	Moderate
5.	Conduct evaluation	65%	Moderate
6.	Decide and implement	55%	Low

Students critical thinking skills per indicator are spread into 3 categories, namely high, medium, and low. The indicator of formulating problems reaches the highest percentage, this is because at the time of learning using PBL-based LKPD students go through problem formulation activities so that students are trained to formulate problems by writing what is known and what is asked on the questions. The indicators of argument, deduction, induction, and evaluation are included in the moderate category, because at the time of learning students are trained in solving problem-based problems so that it requires students to practice in analyzing problems and choosing the right problem solving strategy. Meanwhile, the indicators of decision and implementation reached the lowest category because students who were less able to analyze and evaluate influenced writing conclusions on answers to questions.

In this study, students with high critical thinking abilities were able to meet the criteria for all critical thinking indicators used in this study, namely formulating problems, analyzing, evaluating, and drawing conclusions. Students with moderate critical thinking skills are only able to meet the indicators of drawing conclusions and analyzing but are less able to meet the indicators of evaluating and drawing conclusions. Meanwhile, students with low critical thinking skills are less able to meet the problem formulation indicators because students are only able to identify clearly given facts in the questions and are unable to meet the indicators of analyzing, evaluating and drawing conclusions [10].

#### **4. CONCLUSIONS AND RECOMMENDATIONS**

Based on the results and discussion of critical thinking skills, it can be concluded that; (1) The ability to think critically of class VII students of SMP Negeri 41 Batam through PPKN learning using student worksheets based on the problem-based learning model per indicator is spread into three categories, namely high, medium, and low. For the problem formulation indicators are in the high category. For analysis indicators and evaluation indicators are in the medium category. For conclusion drawing and implementation indicators are in the low category. (2) The ability to

think critically of grade VII students of SMP Negeri 41 Batam through PPKN learning using student worksheets based on the problem based learning model per indicator is spread into three categories as a whole spread into 3 categories, namely high category, medium category, and category low. Students with the high critical thinking ability category are able to meet all indicators of critical thinking. Students with the moderate critical thinking ability category are able to meet the problem formulation and analysis indicators but are not able to meet the evaluation indicators and draw conclusions. Students with the low critical thinking ability category are less able to formulate problems and are unable to meet the indicators of analysis, evaluation, and taking conclusions.

Based on the results of the research obtained, there are suggestions that can be given, namely: (1) As a contribution to scientific thought in advancing education, especially at the seventh grade junior high school level by developing PBL-based LKPD to improve students' critical thinking skills. (2) As information and input to schools and teachers to improve the quality of education by developing PBL-based LKPD teaching materials. (3) As material for developing insights for other researchers who wish to research the same problem in developing science. (3) As a way to accustom students to think critically in receiving and processing information..

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