

Development of Mathematics Teaching Materials to Improve Students' Critical Thinking Ability with Realistic Mathematics Learning Approach (PMR) Class VIII MTsS PP AI - Qomariah Galang

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Abstract

This study aims to determine the validity, practicality and effectiveness of the developed teaching materials, as well as to determine the improvement of students' critical thinking skills using the developed teaching materials. Data obtained through the validation sheet of teaching materials, observation sheets, student response questionnaires, and critical thinking skills test instruments. This study uses the 4-D development model Thiagarajan, Semmel and Semmel (1974) by developing mathematics teaching materials with a realistic mathematics approach. Based on the results of the validity of the learning tools developed, it was included in the valid category with an average value of the total validity of students' books of 4.50, LKPD of 4.62 and the critical thinking ability test in the valid category. The effectiveness of learning devices that meet the effective criteria with the achievement of student learning completeness with a classical completeness percentage of 86.1%, Active student activities meet the ideal time tolerance criteria set, and student responses to learning devices are in good categories. And the average increase in students' critical thinking skills from trial I to trial II was 0.34 points with an increase in classical learning completeness of 17.35%.

Keywords

teaching materials
development; realistic
mathematical
approach;
mathematical critical
thinking ability



I. Introduction

Mathematics is a subject that is ordered, graded and continuous. This means that the material provided to students is the basic concepts which are the foundation in the delivery of further concepts. The success of mastering the initial mathematical concepts in students paves the way in delivering subsequent mathematical concepts, so that students will find it easier to understand mathematical concepts in subsequent materials. In addition, if students master the concept well, students can solve various variations of math problems and can make it easier for students to solve math problems related to everyday life.

To improve students' mastery of concepts, appropriate learning strategies are needed in learning. The learning strategy is a means of interaction between teachers and students in teaching and learning activities. Thus what is needed is accuracy in choosing a learning strategy. The learning strategy chosen must be in accordance with the objectives, types and nature of the material being taught. The teacher's ability to understand and implement these strategies greatly affects the results achieved.

The Indonesian government has made various efforts to improve the quality of teaching and improve student mathematics learning outcomes, because mathematics is a

very important science in every level of education pursued by every Indonesian citizen. The government's efforts include developing curricula, providing training to teachers, completing educational infrastructure and even improving teacher welfare. Along with the development of the internet, learning strategies have shifted and various information and communication technology-based learning strategies have emerged, from e-learning models, smart classroom technology, virtual classrooms, blended learning, etc. (Fitri & Zahari, 2019).

Teaching materials are part of the learning device. Teaching materials are learning materials that are arranged systematically that are used by teachers or students to achieve the expected goals. According to the National Center for Competency Based Training (2007), the definition of teaching materials is any form of material used to assist teachers in carrying out the learning process. Furthermore, according to the Directorate of Senior High School Development (2008), the definition of teaching materials is any form of material used to assist teachers in carrying out teaching and learning activities.

It is the obligation of a teacher to prepare teaching materials before carrying out the process of teaching and learning activities in class. To convey teaching materials, teachers use models, approaches or learning methods so that students understand the teaching material more easily. And the teacher can also use learning media to explain the teaching material. This teaching material must be planned and provided before the teaching and learning process is carried out.

A very important teaching material is a book. Books are written materials that present the knowledge of the thoughts of their authors. Books that are used as teaching materials are the books of teachers and students. The teacher book is a guide for teachers that contains principles, procedures, descriptions, subject matter, and learning models used by the teacher. Meanwhile, the student book is a guide to learning activities to make it easier for students to master certain competencies. Student books are directed so that students are more active in participating in the learning process through observing, questioning, trying, reasoning, discussing and improving their communication skills between friends and with their teachers.

Student books must contain student worksheets (LKPD). LKPD is a sheet that contains tasks that must be done by students to direct the student learning process. LKPD is usually in the form of instructions, steps to complete a task. The tasks that are ordered in the LKPD must be clear about the basic competencies it will achieve.

Trianto (2011) states that LKPD is a guide for students to carry out investigation and problem solving activities. LKPD components include the title of the experiment, a brief theory of the material, tools and materials, experimental procedures, observational data and questions and conclusions for discussion materials. Therefore, LKPD is a guide for the development of all aspects of learning in experiments.

From the explanation above shows that teaching materials have an important role in realizing interactive, inspirational, fun, challenging learning activities, motivating students to actively participate, and providing sufficient space for initiative, creativity, and independence according to their talents, interests and physical development. as well as psychological students. Therefore, the teaching materials developed must have good quality in order to fulfill these functions.

Through good mathematics education, students can indeed obtain various kinds of provisions in facing challenges in the global era. In the 2013 curriculum itself, the use of technology in learning became something that was highly recommended. The learning process in the 2013 curriculum requires students to participate actively and provide

sufficient space for students' creativity, interests, and talents (Fitri, Syahputra, & Syahputra, 2019).

The 2013 curriculum changes the learning process from being told to finding out, an output-based assessment process to a process and output-based assessment and balancing between soft skills and hard skills. The teacher must be able as a facilitator to explore the soft skills and hard skills of their students. Examples of student soft skills are the ability to tolerate, sympathize, empathy, emotion, ethics and other psychological elements. Examples of hard skills are the ability to think critically, think creatively, think imaginatively and others. This critical thinking ability is also the demand of the 2013 curriculum and even competencies that must be built in 21st century learning. In this very advanced era, critical thinking is very important to be applied in everyday life.

II. Review of Literatures

Thinking skills are a gift that God has given us to always be grateful for all that He has created (Khairani, 2020). Critical thinking ability is the basis for analyzing arguments and developing a logical mindset (Safitri, 2020). One way to improve student learning outcomes is by increasing students' critical thinking skills in learning (Karo, 2020). Critical thinking is a higher order thinking skill (higher or higher thinking skill). According to Johnson (2007), critical thinking is a clearly organized process used in mental activities such as solving problems, making decisions, persuading, analyzing assumptions, and carrying out scientific research activities. Critical thinking skills are an important part that influences students' academic life. Students can apply and develop critical thinking in various aspects, such as when reading, when writing, and when working with other students.

Furthermore, Hassaubah (2004) suggests that critical thinking skills can support students in decision making, assessment and problem solving. Critical thinking is to examine ideas, evaluate existing knowledge and make rational decisions according to facts in the field. When someone thinks critically, that person will consider all sides of the argument and evaluate its strengths and weaknesses. Critical thinking skills are needed in learning mathematics because learning mathematics will train students to think. Even to answer life's challenges which are full of complex problems, critical thinking skills are needed.

Indicators of critical thinking skills used in this study are: (1) identifying, namely identifying concept characteristics and identifying concept comparisons by providing justification; (2) generalization, namely determining the right conditions and providing supporting evidence to apply generalizations, and determining formulas that are different from generalizations (special situations); (3) analyzing algorithms, namely the skills of clarifying concepts based on their abilities; (4) problem solving, namely determining relevant and irrelevant information, choosing the correct strategy to solve the problem, and suggesting alternative methods for solving the problem.

One alternative problem solving in mathematics learning is through its realistic mathematics learning approach. Realistic Mathematics Learning is a mathematics learning approach developed in the Netherlands several years ago. Through a realistic mathematics learning approach, where mathematics learning begins with informal things that are known to students in everyday life. In other words, learning is based on previous concepts that are already familiar to students and involves as many real-life examples as possible in their daily activities. So that each activity in the learning process reflects student activities that make students happy to learn.

Learning through a realistic mathematics learning approach provides problems that are close to student life and easy to understand so that students are able to construct their own knowledge. therefore the students themselves will find the concept. The realistic mathematics learning approach is carried out in four steps, namely: understanding contextual problems, solving contextual problems, comparing and discussing answers, and concluding learning.

According to Heuvel-Panhuizen (Ariyadi, 2012), the word "realistic" in Realistic Mathematics Education comes from the Dutch language "zich realiseren" which has a meaning to be imagined. As a result, the problems used in learning do not just have to do with the world of yata, but refer to the use of problems that can present situations that can be imagined by students.

Realistic problems that are the starting point for learning are developed into mathematical concepts or ideas (Sutarto, 2002). Involving students actively in meaningful mathematical activities triggers active interaction between students. Through comparing their answers with other students, asking questions, justifying and drawing conclusions. In the end, students acquire mathematical knowledge. In addition, students are also directed to develop various problem solving strategies for the problem solving process.

Because realistic learning is based on concepts that are familiar to students in their daily lives. In the teaching and learning process, students do not just receive knowledge, but they actively build their knowledge individually. Students are able to recognize the problems around them, ideas and concepts they have learned related to the material they are learning. Furthermore, students will make efforts to construct knowledge in a general form.

The main principles of realistic mathematics learning (PMR) are described through the characteristics of PMR. Furthermore, the characteristics of PMR are translated into operational steps in learning. Based on the definitions, the main principles and characteristics of PMR as outlined, it is possible to design core steps (activities) in realistic mathematics education, namely:

2.1 Understand Contextual Problems

The teacher provides a contextual problem (question) and asks students to understand the problem. If there are certain parts that students do not understand or do not understand, then students who understand that part are asked to explain them to their friends who do not understand. If students who do not understand before feel dissatisfied, the teacher explains further by giving limited (as needed) hints or suggestions about the situation and condition of the problem (question). Instructions in this case are in the form of limited questions that guide students to understand the problem (question), such as: "What is known from the question?", "What is being asked?", "What is the strategy or method or procedure that will be used to solve that problem? ". At this stage, the characteristics of PMR that emerge are using contextual problems and interactions.

2.2 Resolving Contextual Problems

Students describe the contextual problem, interpret the mathematical aspects of the problem in question, and think of problem-solving strategies. Individual students are asked to solve contextual problems in the LKPD in their own way. Different solutions and solutions to problems are preferred. The teacher motivates students to solve the problem by giving guiding questions so that students can get a solution to the problem. For example: "How do you know that?", "How?", "Why do you think like that?", And others.

At this stage students are guided to rediscover mathematical concepts or principles through given contextual problems. In addition, at this stage students are also directed to form and use their own models to make it easier to solve problems (questions). Teachers are expected not to need to tell the problem or problem solving before students get their own solutions. In this step, the characteristics of PMR that emerge are using models and interactions.

2.3 Compare and Discuss Answers

The teacher forms a group and asks the group to work together to discuss solving problems that have been resolved individually (negotiation, comparing, and discussing). Students are trained to bring out the ideas they have. After the discussion is carried out, the teacher appoints group representatives to write down each solution idea and the reasons for the answer, then the teacher as a facilitator and moderator directs students to discuss and guides students. This stage can be used to train students to express their opinions, even though they are different from other friends or even their teachers. The characteristics of PMR that appear at this stage are the use of ideas or student contributions and the interaction between students and students, between teachers and students and between students and learning resources.

2.4 Conclude

From the results of the class discussion, the teacher directs students to draw conclusions about concepts or definitions, theorems, principles or mathematical procedures related to the contextual problem that has just been solved. The PMR characteristics that appear in this step are the interaction (interactivity) between students and teachers and student contributions.

The learning process through a realistic mathematics learning approach has the potential to realize the goals of curriculum development in 2013. For this reason, the realistic mathematics learning approach is one of the recommended approaches to be used in the learning process. To be able to use this approach properly, it is necessary to have good teaching materials prepared in advance by the teacher. All materials to be taught, tools used, instructional media and questions and even instructions to be given to students must be well prepared. Therefore the authors are interested in teaching materials with a realistic mathematics learning approach with the research title "Developing mathematics teaching materials to improve students' critical thinking skills with a realistic mathematics learning approach (PMR) class VIII MTsS PP Al - Qomariah Galang.

III. Research Methods

The subjects in this study were students of class VIII-1 and class VIII-2 of MTsS PP Al - Qomariah Galang in the odd semester of the 2020/2021 school year. While the object in this study is the developed mathematics learning tool. The learning tool developed in this study is the two-variable linear equation system (SPLDV) material. The trial design that will be used in the development of the instrument is the One - group pretest - posttest design. As follows :

Test	Treatment	Test
T ₁	x	T ₂

Information :

T_1 = Pretest

T_2 = Posttest

X = realistic mathematics learning treatment

This research is categorized into the types of development research (development research). This study uses the 4-D development model Thiagarajan, Semmel and Semmel (1974) by developing teaching materials with a realistic mathematical approach. The 4-D (Four D) development model is a learning device development model. This model was developed by S. Thagarajan, Dorothy S. Semmel, and Melvyn I Semmel. The 4D development model consists of 4 main stages, namely: Define, Design, Develop and Disseminate.

Thus, the product of this research is a valid, practical and effective teaching material with a realistic mathematical approach. The development of these teaching materials is in the form of a Learning Implementation Plan (RPP), Student Book (BS), Student Worksheet (LKPD), student response questionnaires, student activity observation sheets and research instruments in the form of tests of mathematical critical thinking skills.

IV. Discussion

Based on the results of the validation, the learning device has been declared valid by the validator. Broadly speaking, the results of the validation of student books show that the components in the student books get good and very good assessments with a total mean of 4.50. From the validator's assessment, corrections, criticisms and suggestions are used as material for consideration in revising student books. Some improvements that must be made are choosing a softer illustration color, incorrect writing format, consistency of the book format, providing logical instructions and completeness of the preface and table of contents components.

The LKPD validation results also received good and very good ratings with a total mean of 4.62. The improvements made in the LKPD include providing instructions/ instructions for working on the LKPD, choosing the color of the illustrations used, completing components such as places for student identities and selecting many questions with time allocation and adding instructions for working on questions. This also shows that the components in the LKPD are in good categories.

Furthermore, the results of the validation test for critical thinking skills are in the category of assessment which is quite valid and valid for content validity, can and is very understandable for language and question writing and is recommended without revision and minor revision. After making revisions, the questions developed have met valid criteria and can be used to measure students' critical thinking skills in field trials.

As explained in Chapter III, the learning tools developed are said to be effective if: (1) students' learning completeness is achieved; (2) student activities within the specified tolerance limits; (3) students' responses are in good category. The description of each component is explained as follows:

4.1 Achievement of Complete Learning

In the first trial, the mean critical thinking ability of students was 2.71 with the percentage of students who completed it was 68.75% and the percentage of students who did not complete was 31.35%. The results obtained do not meet the classical completeness criteria set, namely 85%. From the observed learning process, student activities using

learning tools and student responses to learning devices are used as a reference for revision of learning devices for trial II.

Furthermore, that the mean of critical thinking skills in the second trial was 3.05 from a maximum value of 4.0. The percentage of students who passed was 86.67% and the percentage of students who did not complete was 13.33%. This percentage is obtained from dividing the frequency of students who completed, namely 26 with the number of students, namely 30 and multiplied by 100%. If referred to in Chapter III, this percentage has met the classical completeness set, namely 85%. Therefore it can be concluded that the classical completeness criteria have been met.

Table 1. Critical Thinking Ability Test Results in Trial II

Category	Frequency	Percentage (%)	Average
Completed	26	86,67	3,05
Not Complete	4	13,33	
Total	30	100	

4.2 Student activities

From the results of observations of student activities, it can be seen that they are within the limitation criteria for the effectiveness of learning as described in Chapter III. In the first trial, the aspect of solving problems or finding ways and answers to questions reached 34.40%. Even though it is still within the established criteria, students tend to solve problems either independently or in the same group. This trend increased in the second trial, with the percentage of solving problems or finding ways and answers to problems of 39.17%.

The mean percentage of student activity time in each category during three meetings, both trials I and II, is shown in Table 2.

Table 2. Average Percentage of Student Activities

Activity	Percentage of Activity (%)	
	Trial I	Trial II
a	26,06	22,22
b	14,28	15,90
c	34,40	39,17
d	16,48	16,46
e	3,75	5,21
f	1,84	1,04
Total	100	100

The average activity of each category in the second trial was 22.22%; 15.90%; 39.17%; 16.46%, 5.21%; and 1.04%. This mean percentage is obtained from the results for the percentage of the total activity for each category with the number of meetings, namely 3 meetings. For example, the average activity (a) in the second trial, namely 22.22%, was obtained from the total percentage of activity (a) at the three meetings, namely 23.75%; 21.67% and 21.25% and divided by 3. The mean for other activities can be obtained in the same way.

The mean percentage of time the students did the activity of paying attention/ listening to the teacher/friend's explanation was 26.06% in the first trial and 22.22% in the

second trial of the time available for each meeting. The percentage of time this activity is in the ideal time tolerance interval defined in Chapter III. The mean percentage of time the students did reading/understanding contextual problems in the student books/LKPD was 14.28% in the first trial and 15.90% in the second trial. This percentage is also still within the ideal time tolerance interval specified. The mean percentage of student activity discussing/asking friends or teachers was 16.48% in the first trial and 16.46% in the second trial.

The percentage of this activity time is also within the ideal time tolerance interval defined. The mean percentage of student activity in drawing conclusions on a procedure or concept and presenting the work was 11.02% in the first trial and 11.04% in the second trial. The percentage of time this activity is still within the ideal time tolerance interval specified. Meanwhile, the mean percentage of students doing activities that were not relevant to learning was 1.84% in trial I and 1.04% in trial II. This indicates that during the learning activities for each meeting there are always students who do activities that are not relevant to learning. However, this percentage is still within the ideal time tolerance interval specified.

Overall, if the mean percentage of student activity time is referred to the criteria for achieving the ideal percentage of student activity set out in Chapter III, it can be concluded that the percentage of student activity time has met the criteria for achieving the percentage of ideal time set.

This increase occurs because the teacher is still adjusting to the conditions of students who are used to solving problems given quickly. The results obtained are one of the references for revising student books and student worksheets. One of the points that was fixed was the problem in the LKPD that took a long time to solve. To improve these activities, the alternatives for the repairs that are carried out are: (a) the problems in the LKPD are reduced by the complexity and quantity of the problems so that students solve them more quickly; (b) reduce teacher and student activities that require too long discussion; (c) adding more detailed instructions and concept explanations to the problems that exist in the student book. With the improvements made, student activities in trial II were within the specified tolerance limits.

4.3 Student Response

In the first trial, the analysis of students' responses related to students' feelings towards the component aspects of the learning device, namely students' opinions of the material, student books, student worksheet and the learning atmosphere that students felt was above 80%. The percentage of aspects of the learning atmosphere is slightly lower than that of other aspects of the device. Based on comments and interviews conducted with two students who gave negative responses, the reason they put forward was the dislike of group learning which made the classroom atmosphere more noisy or less conducive.

Furthermore, the analysis of student responses related to the novelty of the components of the equipment both student books and LKPD has reached 80%, and the material and learning atmosphere has reached 80%. Regarding the material, students have never studied a two-variable linear equation system in elementary school so that at the junior high school level it becomes a new experience for students. Meanwhile, in terms of atmosphere, students are already used to studying in groups at the school. But only fellow female students or male students only. Because in this pesantren, classes for male and female students are differentiated. Specifically for this study, male and female students were combined in one class heterogeneously. So there is still a sense of awkwardness between male and female students in discussions.

From the enthusiastic aspect of students participating in learning, students give a positive response above 90%, meaning that students are interested in participating in the next learning activity. The aspect of clarity of the language used in student books and LKPD has also reached 80%, but the words, sentences and instructions that the students ask during learning are used as a reference for language improvement. Less understood words or sentences are added to explanations or replaced with simpler ones and solving problems in the student books are added to important conclusions or concepts that students must understand. The aspect of student interest in books and LKPD has also reached 80%.

With the improvements made, then in the second trial, the aspects of student response both in terms of students' feelings towards the device, novelty of the components of the equipment and clarity of language in student books and LKPD increased. Meanwhile, from the aspect of enthusiasm in participating in learning and interest in student books and LKPD, there were no significant changes. Thus the final equipment produced has been responded well by students.

The comparison of the results of the students' critical thinking skills test is presented in Table 4.16. From this table, it can be seen that the average critical thinking ability of students on the test

Trial I was 2.71, while in trial II it was 3.05. The percentage of students who completed the first trial was 68.75% and 31.25% who did not. If referred to in Chapter III, the completeness percentage, which is 68.75%, does not yet fulfill the specified classical completeness, namely 85%. Whereas in the second trial, the percentage of students who passed was 86.1% and those who did not complete were 13.9%. The completeness percentage, which is 86.1%, has met the specified classical completeness.

Table 3. Comparison of Critical Thinking Abilities

Information	Trial I	Trial II
Average	2,71	3,05
Percentage of students who completed (%)	68,75	86,1
Percentage of students who did not complete (%)	31,25	13,9

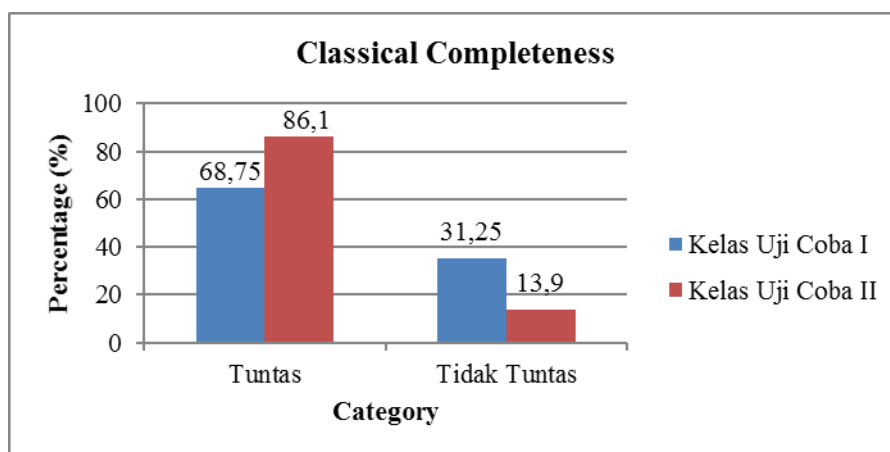


Figure 1. Representation of Classical Completeness in Trials I and II

The comparison of critical thinking skills is represented in Figure 4.2. From this figure, it can be seen that there is a fairly large increase in the percentage of students who complete their studies. The increase in the percentage of completeness from trial I to trial II was 17.35%. Judging from the mean obtained by students, the increase that occurred

was 0.34 points from the maximum score of 4. This percentage increase was due to the increase in the number of students who completed their studies in the second trial. The results obtained in the first trial were further analyzed on which indicators the students had low abilities. The results of the analysis per indicator show that the students are still low on indicators of analysis and problem solving. Furthermore, the teaching materials are revised by considering how to improve students' abilities on these two indicators. It is at the end of this stage that the final teaching materials are obtained. This final set consists of a student book, LKPD, and a critical thinking ability test. These final sets are presented in Appendices 2, 3 and 4, respectively.

Based on the mean of the two trials, there was an increase in this ability of 0.34 points and 17.35% increase in learning completeness. From the results of this study it can be said that the use of learning tools oriented to realistic mathematics learning approaches can improve students' critical thinking skills.

Teaching materials are one of the important components that must be prepared before carrying out the learning process. This tool is prepared with careful planning so that the implementation of learning becomes directed and efficient. As Anderson said (in Santoso, 2013) that planning is a process in which teachers visualize the future and create a framework to determine their future actions. So in essence, learning planning is carried out in order to create a situation that allows the learning process to occur according to the expected objectives.

Teaching materials are designed with a specific learning approach, in this case through a realistic mathematics learning approach. This learning approach is a constructivist-based learning approach where students form their own knowledge, develop higher skills and solve problems. By using this approach, students seek their own solutions to problems and the knowledge that accompanies them so as to produce truly meaningful knowledge. The PMR approach uses real-world problems as a means for students to learn how to think critically and be skilled in problem solving.

The ability to think critically is one of the assets that students must have in facing the development of science and technology today. This ability is also a means to achieve educational goals, namely so that students can solve high-level problems. One of the thinking skills that need to be improved is critical thinking skills. According to Hassoubah (2004), critical thinking skills are very important to improve other thinking skills, namely the ability to make decisions and solve problems. Through learning tools oriented to the realistic mathematics learning approach (PMR), it is expected that students' critical thinking skills will improve.

Research conducted by Dwijananti and Yulianti (2010) shows that students' critical thinking skills can be developed using realistic mathematics-based learning. The results of his research show that the critical thinking skills that can be developed are clarifying, assuming, predicting, hypothesizing, evaluating, analyzing and making conclusions. Research conducted in three cycles showed an increase in critical thinking skills from cycle I to cycle II and from cycle II to cycle III. Research by Burriss and Garton (2007) also shows that there is an increase in students' critical thinking skills after being taught using a realistic mathematics learning approach. Furthermore, Syahbana's research (2012) which aims to develop contextual-based learning tools shows that these devices are valid and practical and have a potential effect in measuring students' mathematical critical thinking skills which have not been cultivated and accustomed to.

Some of these research results support the research results obtained in this study. The teaching materials developed meet valid, practical and effective criteria and can improve students' critical thinking skills. By using the PMR approach in the learning process,

students are involved in their own investigations so that they interpret and explain real-world phenomena and build understanding independently. By getting students used to doing their own investigations, building their own knowledge and trying to solve problems on their own, students will get used to learning individually or through guidance, directed or forced. This will have an impact on increasing his critical thinking skills.

This increased ability is adjusted to the level of cognitive development of students, the PMR approach and the material for the two-variable linear equation system. This increase occurred because students were getting used to being given questions that required students to think critically in solving them. This is in accordance with the opinion which states that the gradual habituation of critical thinking has a tendency to make children look at things with curiosity so that there is a given meaning. In addition, basically students have the potential to think critically. Coupled with the use of the PMR approach in every learning device, students will find it easier to find and understand concepts through active thinking and problem solving, not just remembering but doing activities to build knowledge in them.

V. Conclusion

The based on the results of data analysis and discussion in this study, the following conclusions are stated:

1. The validity of the developed learning tools is included in the valid category with an average value of the total validity of students' books of 4.50, LKPD of 4.62 and the critical thinking ability test in the valid category.
2. The effectiveness of learning devices that meet the effective criteria, namely:
 - a. Achievement of student learning completeness with a classical completeness percentage of 86.1%.
 - b. Student active activities meet the criteria for the ideal time tolerance set.
 - c. Student responses to learning tools are in good category.
3. The average increase in students' critical thinking skills from trial I to trial II was 0.34 points with an increase in classical learning completeness by 17.35%.

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