Improving Mathematics Learning Outcomes On The Materials Of Lcm And Gcf In Students Of SDN 3 Sidorahayu, Wagir District, Malang Regency Through The Realistic Mathematic Education (RME) Model

Kholisatun Chumaidah [1], Farida Nur Kumala [2], Arnelia Dwi Yasa [3]
[1,2,3] Program Studi Pendidikan Guru Sekolah Dasar, Fakultas Keguruan dan Ilmu Pendidikan
Universitas PGRI Kanjuruan Malang, Malang, Indonesia
Email: xxxchumaidahzzz@gmail.com

Abstract

Mathematics learning in elementary school emphasizes providing direct learning experiences through the use and development of contextual process skills, meaning involving students directly in solving learning problems and connecting subject matter with everyday life. Based on the results of observations conducted in class V of SDN 3 Sidorahayu, Wagir District, Malang Regency during Mathematics learning, it was found that student learning outcomes were less than satisfactory, namely from 25 students only 10 students whose scores could reach KKM or ≥ 75, while 15 other students were still unable to reach KKM or ≤ 74. The purpose of this Classroom Action Research is to determine the impact of the use of the Realistic Mathematic Education (RME) learning model on the quality of the learning process and outcomes. This study uses a type of classroom action research (action research). The subjects of the study were fifth grade students. In this study, the researcher as a teacher (teacher), the fifth grade teacher (research partner) as an observer of the learning process of KPK and FPB. The results of the study indicate that the application of Realistic Mathematic Education (RME) can improve the quality of the process and learning outcomes of students on the KPK and FPB material in fifth grade students Semester 1 of Sidorahayu Elementary School, Wagir District, Malang Regency has good success criteria. This is evidenced by an increase in student learning outcomes, namely the percentage in cycle I 68.75% and in cycle II 78.84%. The increase in learning outcomes is also balanced by the creative development of students in cycle I 70.83% to 87.49% in cycle II.

Keywords: Learning Outcomes, Mathematics KPK dan FPB, RME

INTRODUCTION

Education is a crucial aspect of human life, particularly in improving the quality of life. Therefore, the educational system must strive to improve its quality by developing strategies, methods, and learning models that enable students to learn actively and creatively, both mentally, physically, and socially. In addition to these efforts, teachers must also foster character education in every learning activity, with the goal of enabling students to apply and utilize the knowledge and experience they gain in their daily lives.

As a teacher, one must be able to design learning activities that can improve the abilities of their students. One way is by understanding the development and characteristics of elementary school students according to their age group so that it will be easier to handle students in learning. Elementary school students (6/7-12) years are in the concrete operational period because students in logical thinking are still based on the physical manipulation of concrete objects or direct experiences, (Pitajeng, 2006:27). Based on this developmental theory, a good learning process is to involve students directly in solving learning problems and connecting the subject matter to students' daily lives. In this way, of course, students will find it easier to learn Mathematics and can understand the processes of Mathematics itself which are very important for their future lives.

The results of observations conducted by researchers on learning activities using the properties of arithmetic operations including mixed operations of FPB and LCM in class V at SDN 3 Sidorahayu, Wagir District, Malang Regency have found problems where many students experience difficulties in understanding mathematical concepts, especially in solving LCM and FPB problems, students during learning some play alone by spinning their pencils and drawing in their notebooks, students are not creative in writing alternative answers because students only write 1 way to solve the

questions given by the teacher, the teacher does not provide clear material emphasis on the LCM and FPB, the teacher does not use strategies, methods or learning models that can develop student creativity. These student difficulties can be seen from the results of the final learning scores obtained, namely a score of ≤ 74 for 15 students and a score of ≥ 75 for 10 students. In learning to solve LCM and FPB problems, the specified KKM is 75. There are 15 students whose learning outcomes are below the KKM, so they have not completed.

Based on the results of observations conducted at SDN 3 Sidorahayu regarding the Mathematics learning process with the main material of solving LCM and FPB problems, from 25 students, around 64% of fifth grade students tend to still have difficulty solving LCM and FPB problems. In the Mathematics learning process, teachers often use the lecture method. Learning activities rarely involve students actively and creatively. In fact, teachers only ask students to work on problems according to examples so that students are not creative in solving problems that should be solved using various methods.

Students' creativity is also lacking, seen in their low curiosity. When the teacher asks to explain the example questions in the book, only a few students raise their hands to be pointed at by the teacher. Their self-confidence is also very low, when asked to come to the front to work on the questions on the board, students tend to look back and ask their friends if the answer is correct. The impact of these problems can be seen in students' learning outcomes in Mathematics which are still low from the individual learning completion criteria that have been set at SDN 3 Sidorahayu, namely 75.

Students' low learning outcomes are due to various reasons, including confusion in determining the LCM and GCF after factoring, miscalculations, or a lack of understanding of the concepts being studied. This indicates that the mathematics learning process in elementary schools still uses a traditional approach without fostering student creativity. Teachers actively teach mathematics by providing material directly from textbooks, then providing examples and exercises. Students simply sit, listen, take notes, and complete the exercises given by the teacher. Furthermore, many students tend not to memorize multiplication, making it difficult for them to factor numbers. As a result, students' understanding of the LCM and GCF material is not as expected.

The learning that is possible and suitable to be applied to overcome the above problems is by implementing learning with a Realistic Mathematic Education (RME) model to improve learning outcomes and develop student creativity. Reasons for using this Realistic Mathematic Education (RME) model are: (1) Students can build their own knowledge so that students do not easily forget the knowledge they have; (2) the atmosphere in the learning process is fun because it uses real life, so that students do not get bored quickly in learning Mathematics; (3) Students feel appreciated and more open because each student's answer has a value; (4) Fostering cooperation in groups; (5) Training students' courage because they have to explain their answers; (6) Training students to get used to thinking and expressing opinions; (7) Developing character education, for example: working together, being active, creative and respecting friends who are working.

The reasons for the Realistic Mathematic Education (RME) model are certainly very good for developing character education, one of which is creativity. In the academic paper on the Development of National Cultural and Character Education (in Zainuddin, HM, 2012:38), the Ministry of National Education has formulated more character values (18 values) that will be developed or instilled in students and the younger generation of the Indonesian nation, one of which is creativity. Creativity can be described as thinking and doing something to produce new ways or results from something that already exists.

Learning Realistic Mathematic Education (RME)can improve students' learning outcomes, understanding, and creativity in Mathematics,

especially in solving LCM and GCF problems, and develop students' reasoning skills because this learning also provides opportunities for students to actively construct Mathematical knowledge. In solving a problem that starts from problems that can be imagined by students, students are given the freedom to find their own strategies, and slowly the teacher guides students to solve the problem realistically. By using this learning, it is very possible that student learning outcomes can improve and students become more creative in solving problems using various methods.

Based on the description above, it is necessary to conduct classroom action research (CAR) as an effort to improve the implementation of learning to increase student learning outcomes and creativity. In relation to the above problems, the learning of KPK and FPB requires a solution by taking the title "Improving Mathematics Learning Outcomes on KPK and FPB Materials for Students of SDN 3 Sidorahayu, Wagir District, Malang Regency Through the Realistic Mathematic Education (RME) Model".

RESEARCH METHODS

The approach used in this research is a qualitative descriptive approach. Qualitative data analysis techniques are carried out by examining all data, reducing it, interpreting it, and providing meaning to the results. This approach is intended to provide an in-depth understanding of the learning process using the Realistic Mathematic Education (RME) model to improve learning outcomes and develop students' creativity regarding KPK and FPB of class V Semester 1 SDN 3 Sidorahayu, Wagir District, Malang Regency. The observed process includes student and teacher activities during the learning process.

This study uses a Classroom Action Research (CAR) design that aims to improve students' abilities in the classroom and determine solutions to learning problems in the classroom through research conducted in a cycle. In accordance with the type of classroom action research, this study uses a work procedure with a spiral cycle of planning, action, observation, and reflection. With each cycle, the researcher will carry out activities that begin with planning, then take action, observe the action, and end with reflection. The cycle form used is the one proposed by Kemmis and Taggart (in Wiriatmadja, 2006:66).

RESEARCH RESULTS AND DISCUSSION

In this chapter, the results of research on the use of the Realistic Mathematical model will be discussed. Education (RME) in KPK and FPB learning to improve and develop the creativity of fifth grade students of SDN 3 Sidorahayu, Wagir District, Malang Regency.

Application of the Realistic Mathematics Education (RME) Model to the KPK and GPB Material of Class V Students of SDN 3 Sidorahayu, Wagir District, Malang Regency

During the preliminary observation, the teacher used a lecture method in mathematics learning from beginning to end. Students simply sat and listened to the teacher's explanation and worked on the questions given by the teacher, following the examples in the textbook with one alternative answer. The teacher also did not emphasize the material, resulting in poor student understanding. The learning process during this preliminary observation did not actively engage students in the learning process, as it was still teacher-centered and the learning materials still referred to the textbook. This is inconsistent with (Samadhi, 2011) in (*hidayah03.blogspot.com*) that "active learning is any form of learning that enables students to play an active role in the learning process itself, both in the form of interaction between students and between students and teachers in the learning process."

The implementation of Mathematics learning for grade V of SDN 3 Sidorahayu, Wagir District, Malang Regency using the Realistic Mathematics Education (RME) model on the KPK and FPB materials was carried out through two cycles, namely cycle I and cycle II, which have run well. Teacher activity in learning cycles I and II increased by 20%. This can be

seen in the learning process where teachers have implemented several model indicators. Realistic Mathematics Education (RME) acts as a facilitator who facilitates students to express the meaning of contextual problems by providing necessary instructions or directions, facilitating students to express their ideas, and facilitating students to express their conclusions. This is in line with Wina Senjaya (2008) in Sudrajat, Akhmad (2008) who stated that "as a facilitator, teachers play a role in providing services to facilitate students in the learning process activities."

During the learning process using the Realistic Mathematic Education (RME) model in cycle I, meeting 1, students were still adjusting to the learning process. Because this model had never been implemented by the sixth-grade teacher, guidance and repetition of the model were needed to facilitate learning so that students would become accustomed to it and successfully use it. This is in line with Djamarah (2002:42) who stated that "repetition is very helpful in refining all impressions that are still vague to become real impressions, which are clearly depicted in memory."

During 4 meetings with 2 cycles of implementing the Realistic Mathematic Education (RME) model, student activity has increased by 17.81%. This is seen when the teacher distributes the worksheets, students begin to read the work steps contained in the worksheet without asking the teacher first. Student learning activities are also good, in solving problems students are able to use various problem-solving methods and methods that they consider easiest. This is in line with the 3rd step of the Realistic Mathematic Education (RME) model when solving problems in Massofa (2008) that "at this step students have the freedom to use their own methods in the problem-solving process and in fact students are directed to think to find or construct knowledge for themselves." At this stage it is possible for teachers to provide necessary assistance to students who really need help.

Improving the Learning Outcomes of KPK and FPB through the Realistic Mathematics Education (RME) Model for Class V Students of SDN 3 Sidorahayu, Wagir District, Malang Regency

Student learning outcomes are seen from the final test results. By looking at the analysis of test results from 25 fifth-grade students of SDN 3 Sidorahayu, Wagir District, Malang Regency, who were used as research objects, it can be said that there was an increase in cycle I of 68.75%, experiencing an increase of 10.09% to 78.84% in cycle II. The increase in learning outcomes proves that students increasingly understand the material on solving LCM and FPB problems through guidance and direction as needed from the teacher. The impact of understanding the material will also have an impact on improving learning outcomes and problem-solving methods. Solving with tables that initially many could not do, but after being guided and given repetition exercises, many students were able to do it. So, it can show the existence of learning outcomes that were originally unable to become able. This is in accordance with Oemar Hamalik, (2001) explains that "Learning outcomes are when someone has learned there will be changes in behavior in that person, for example from not knowing to knowing, from not understanding to understanding".

Thus, it can be said that learning using the Realistic Mathematic Education (RME) model can improve Mathematics learning outcomes in the KPK and FPB materials. This was also proven in the research of Ika Sulistyorini, (2011: 1) which experienced an increase in pre-cycle 57, cycle I 69, and cycle II 77.

Creative Development of Fifth Grade Students through the Realistic Mathematics Education (RME) Model on the KPK and FPB Materials of SDN 3 Sidorahayu, Wagir District, Malang Regency

Student creativity is seen from the students' attitudes that are seen in a great curiosity, confidence, and imagination. By looking at the analysis of the results of the attitudes of 25 fifth-grade students of SDN 3 Sidorahayu, Wagir

District, Malang Regency who were used as the object of research, it can be said that overall student creativity developed in cycle I by 70.83% experiencing a development of 16.67% to 87.49% in cycle II. The existence of student creativity development proves that students are increasingly creative in solving LCM and FPB problems. The impact of student creativity on learning is also shown by solving problems in various ways that are considered the easiest. In addition, the existence of student creativity development shows that students have a great curiosity attitude in asking everything that is not yet understood, and do not need encouragement to work on problems. Confident in finding solutions to problems without teacher assistance, and continuously trying to successfully solve problems. Imaginative in continuing to try to find various ways of solving that are considered the easiest, and making conclusions that other students rarely think of. This is in accordance with what is in (*aniandate.blogspot.com*) "The creative attitude that exists in students can be shown through characteristics such as having a great sense of curiosity, self-confidence and imagination.

Thus, it can be stated that learning using the Realistic Mathematic Education (RME) model can develop students' creativity in the KPK and FPB materials of class V students of SDN 3 Sidorahayu, Wagir District, Malang Regency.

CONCLUSION

The implementation of the Realistic Mathematic Education (RME) model on the KPK and FPB material of fifth grade students of SDN 3 Sidorahayu, Wagir District, Malang Regency went well. This can be proven that teachers have used the Realistic Mathematic Education (RME) model learning steps during teaching and learning activities with increased teacher activity and student learning. Teacher activity in cycle I was 75% with good criteria increasing by 20% to 95% with very good criteria in cycle II. While student learning activity in cycle I was 69.69% with sufficient criteria increasing by 17.81% to 87.50% with very good criteria in cycle II.

There was an increase in the learning outcomes of KPK and FPB through the Realistic Mathematic Education (RME) model for fifth-grade students of SDN 3 Sidorahayu, Wagir District, Malang Regency. This can be proven by the increase in student learning outcomes. In the first cycle, 68.75% were considered sufficient and increased by 10.09% in the second cycle to 78.84%, which is considered good.

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