

Efforts to Improve Mathematics Learning Outcomes Using the Realistic Mathematics Education (RME) Learning Model Assisted by Student Number Card Media Class IV SDN-I Kasongan Baru

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ABSTRACT

Background: Mathematics is a universal science that underlies the development of modern technology, has an important role in various disciplines, and advances human thinking. There are still many students who seem less motivated, The results of initial observations at SDN-I Kasongan Baru show that interest in learning is low, and tend to do things that are beyond their obligations as students, both in the learning process in class and outside the classroom. So the researcher concluded the need to apply a realistic mathematics education learning model assisted by card media to improve student learning outcomes. **Objectives:** This study aims to: (1) Determine the Mathematics learning activities of students and teachers using the Realistic Mathematics Education (RME) learning model in grade IV SDN-I Kasongan Baru, (2) find out the improvement of learning outcomes with the Realistic Mathematics Education (RME) learning model. **Method:** This study uses the type of PTK research with the *Realistic Mathematics Education* (RME) research model. This research was carried out in grade IV of SDN-I Kasongan Baru in the even semester of the 2023 academic year with the subjects of the study being 21 grade IV students. Data collection is carried out by Observation and Test methods. Data analysis uses qualitative and quantitative. **Results and Discussion:** The results showed that: 1) teacher and student activity after the observation results in cycle I showed that the average activity score of teachers and students was in the range of scale 2.7 and 2.9 with a fairly good category while in cycle II the observation results of teachers and students increased in the range of 3.3 and 3.3 with good category, 2) there is an improvement in Mathematics learning outcomes after applying the *Realistic Mathematics Education* (RME) learning model in grade IV SDN-I Kasongan Baru. **Conclusion:** The *realistic Mathematics Education* (RME) learning model assisted by number card media can improve the mathematics learning outcomes of grade IV students of SDN-I Kasongan Baru.

Keywords: Realistic Mathematics Education (RME), Number Cards, Learning Outcomes.



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INTRODUCTION

Mathematics given in schools is very important in an effort to improve the quality of human resources. Realizing the importance of learning mathematics in schools, in Law of the Republic of Indonesia No.20 of 2003 concerning Sisdinnas (National Education System) article 37 it is affirmed that mathematics subjects are one of the wajib subjects for primary and secondary students. Learning Mathematics is about abstract concepts and structures contained in Mathematics as well look for relationships between concepts and Mathematical structures (Safitri & Misyanto 2019). Mathematics is still a scourge for most students, causing low student understanding of mathematics lessons. Several factors cause the low mathematical understanding ability of Indonesian students, among others, students are accustomed to learning mathematical concepts and formulas by memorizing without

understanding their meaning, content, and usefulness. They only focus on counting skills such as addition, subtraction, multiplication, and division of a number of numbers (Reys in Effendi, 2014). Another factor is that most students understand mathematical concepts without being based on an understanding of previous mathematical concepts, This condition is contrary to the nature of mathematics, namely that mathematics is a hierarchy science, where there is a relationship between concepts and other concepts. A good understanding of concepts requires student commitment in choosing learning as something more meaningful, more than just memorizing, which requires students' willingness to look for conceptual relationships between the knowledge they have and what is being learned in the classroom (Dahar in Situmorang, 2012).

Mathematics is a universal science that underlies the development of modern technology, has an important role in various disciplines, and advances human thinking (Misyanto, 2015). Mathematics is one of the subjects taught at every level of education from elementary to college. The Ministry of Education, (2018), explained that the purpose of Mathematics taught in elementary schools is to equip students with logical, analytical, systematic, critical, and creative thinking skills, as well as the ability to work together. These abilities are needed so that students can obtain, manage, and utilize information to survive in ever-changing, uncertain, and competitive circumstances.

When researchers made observations at SDN I Kasongan Baru, precisely in class IV. There are still many students who seem less motivated, have low interest in learning, and tend to do things that are beyond their obligations as students, both in the learning process in class and outside the classroom. Students are also less active when participating in the teaching and learning process, students also do not take advantage of existing facilities and facilities at school to support learning. This can be seen from the low learning outcomes in mathematics subjects they get both daily assignments and midterm tests. The average score obtained by students is below the Minimum Completeness Criteria, out of 21 students only 7 students are complete, or 33.33% and the remaining 14 students are incomplete or 66.67% are incomplete. If this continues continuously, it will have an impact on the learning results of students, and not a few of them will get results that are not optimal.

Based on that, researchers are trying to apply a learning model that will improve student learning outcomes. The model that researchers use is the *Realistic Mathematics Education* (RME) learning model, this model has an advantage, namely mathematics learning is more interesting, relevant, meaningful, informal, and not abstract. To further support the application of the *Realistic Mathematics Education* (RME) learning model when delivering material in the learning process.

METHOD

The method and type of research used in this study is classroom action research. This research will be conducted in November 2023. The research location is at SDN-I Kasongan Baru with the subject of research being 21 grade IV students. Data collection is carried out by Observation and Test methods. Data analysis uses qualitative and quantitative.

The research implementation process began with researchers visiting SDN-I Kasongan Baru to ask permission from the principal and class teachers to conduct research and class observation and observe the learning activities of students in grade IV SDN-I Kasongan Baru. After making observations, researchers found problems in the class, researchers decided to carry out research actions to overcome class problems, researchers collaborated with colleagues, and class teachers whose positions as observers. The role carried out together

with observers is to make learning designs, observe the learning process, reflect, and design actions for the next cycle.

RESULTS AND DISCUSSION

Results

Pre-Action Data Description

In the initial observation, in mathematics learning activities students are less active overall so the data obtained by researchers shows that the learning outcomes of students obtained from the initial test (pre-test) in mathematics subjects are still many students who have not met the criteria for completeness. This is seen from 21 students, only 8 students are complete with the value of reaching Minimum Completeness Criteria. To find out the level of mastery of student material, the researcher first conducted a pre-test which was held on Tuesday, November 27, 2023, at 07.30 WIB for all grade IV students of SDN-I Kasongan Baru without using the *Realistic Mathematics Education* (RME) learning model.

Table I. PreTest Results

No	Student Code	KKM	Max Score	Score Obtained	Information
1.	A.S	60	100	65	Complete
2.	A	60	100	25	Incomplete
3.	A.M	60	100	45	Incomplete
4.	AR. M	60	100	60	Complete
5.	AT	60	100	60	Complete
6.	A.M	60	100	20	Incomplete
7.	G.G.F	60	100	65	Complete
8.	M.R.E.F	60	100	65	Complete
9.	M.A	60	100	70	Complete
10.	M.B.A.I	60	100	10	Incomplete
11.	M.F	60	100	70	Complete
12.	M.Y	60	100	45	Incomplete
13.	N.A.R	60	100	30	Incomplete
14.	R.N	60	100	30	Incomplete
15.	R.S	60	100	5	Incomplete
16.	R.A.R.S	60	100	60	Complete
17.	S.N	60	100	55	Incomplete
18.	S.M.J	60	100	40	Incomplete
19.	Z.Y.K	60	100	25	Incomplete
20.	And	60	100	10	Incomplete
21.	M.A.E	60	100	15	Incomplete
Sum				870	
Average				41,4	Incomplete
Classical Fitness				38%	

Based on the results of the pre-test data above, it can be concluded that the results of the study of grade IV students of SDN-I Kasongan Baru with an average of 41.4 and classical completeness of 38% are included in the criteria of being less achieved.

Description of Data Cycle I

Researchers need to make a plan with the aim that this research can run according to the plan that has been made. To see the increase in student activity and teacher activity as well

as student mathematics learning outcomes using the *Realistic Mathematics Education* (RME) learning model, researchers use a cycle system, which consists of planning the implementation of actions, observation (observation), and reflection.

Table 2. Results of Cycle I Grade IV Students

No	Student Code	KKM	Max Score	Score Obtained	Information
1.	A.S	60	100	70	Complete
2.	A	60	100	60	Incomplete
3.	A.M	60	100	55	Incomplete
4.	AR. M	60	100	70	Complete
5.	AT	60	100	60	Complete
6.	A.M	60	100	50	Incomplete
7.	G.G.F	60	100	65	Complete
8.	M.R.E.F	60	100	70	Complete
9.	M.A	60	100	75	Complete
10.	M.B.A.I	60	100	40	Incomplete
11.	M.F	60	100	70	Complete
12.	M.Y	60	100	65	Incomplete
13.	N.A.R	60	100	60	Incomplete
14.	R.N	60	100	65	Incomplete
15.	R.S	60	100	15	Incomplete
16.	R.A.R.S	60	100	60	Complete
17.	S.N	60	100	55	Incomplete
18.	S.M.J	60	100	70	Incomplete
19.	Z.Y.K	60	100	40	Incomplete
20.	And	60	100	30	Incomplete
21.	M.A.E	60	100	40	Incomplete
Sum				1.175	
Average				54,3	Incomplete
Classical Fitness				61%	

The average calculation result can be seen that the average score of students in the initial test is 54.3. Calculating the completeness of student learning outcomes classically where the learning advantage indicator is determined to be 60 and the classical completeness is 61%.

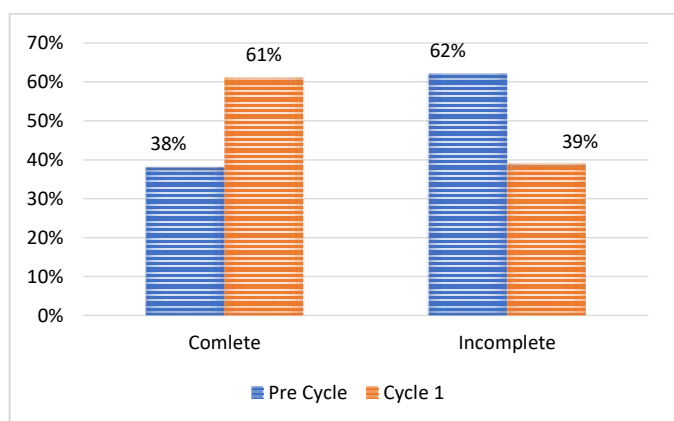


Figure I. Pre-Cycle and Cycle I Comparison Chart

Based on the results of observations in cycle I, researchers and two observers discussed the learning that had been done based on the observations obtained by students. From the results of the discussion, researchers and chief observers described several shortcomings that must be corrected in

learning activities using the *Realistic Mathematics Education* (RME) model. The things that must be improved are that researchers will try to improve and focus in terms of explanation to make it easier for students to understand learning material. Researchers will explain more about the composition and decomposition of numbers and will provide more examples and guidance to students. Researchers must improve students' understanding in understanding various materials composition and decomposition of numbers so that students are able to achieve Minimum Completeness Criteria scores or even exceed.

Data Cycle II Description

Researchers need to make a plan with the aim that the research can run according to the plan that has been made. To see the increase in student activity and teacher activity as well as the mathematics learning outcomes of participants by using the *Realistic Mathematics Education* (RME) learning model, researchers use a cycle system, which consists of, action implementation, observation (observation), and reflection.

Table 3. Results of Cycle II Grade IV Students

No	Student Code	KKM	Max Score	Score Obtained	Information
1.	A. S	60	100	70	Complete
2.	A	60	100	65	Complete
3.	A.M	60	100	65	Complete
4.	AR. M	60	100	70	Complete
5.	AT	60	100	70	Complete
6.	A.M	60	100	65	Complete
7.	G. G. F	60	100	65	Complete
8.	M.R.E. F	60	100	75	Complete
9.	M.A	60	100	80	Complete
10.	M.B.A. I	60	100	50	Incomplete
11.	M.F	60	100	80	Complete
12.	M.Y	60	100	70	Complete
13.	N.A. R	60	100	65	Complete
14.	R. N	60	100	65	Complete
15.	R. S	60	100	20	Incomplete
16.	R.A.R. S	60	100	60	Complete
17.	S. N	60	100	65	Complete
18.	S. M. J	60	100	65	Complete
19.	Z.Y. K	60	100	60	Complete
20.	And	60	100	60	Complete
21.	M.A. E	60	100	45	Incomplete
Sum				1.335	
Average				63,6	Complete
Classical Fitness				85%	

Based on the average calculation results, it can be seen that the average score of students in the initial test is 63.6. Calculating the completeness of student learning outcomes classically where the learning advantage indicator is determined to be 60 and the classical completeness is 85%. The calculation of learning outcomes can be seen that the completeness of student learning outcomes in the second test (cycle II) is 85%. Based on the results of the calculation of the average learning

provisions, it can be seen from the second cycle with learning material composition and decomposition of numbers in grade IV students of SDN-I Kasongan Baru can get an average score of 63.6 with 85% learning completeness. In cycle II, the average score of minimum completeness has been achieved and has met the requirements for learning completeness, and reached the classical completeness criteria.

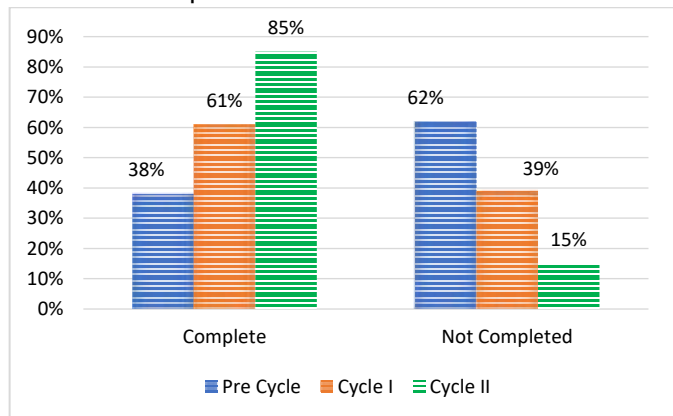


Figure II. Pre-Cycle, Cycle I, and Cycle II Comparison Chart

CONCLUSION

Based on the results of research and discussion, it can be concluded that student activities during the mathematics learning process using the *Realistic Mathematics Education* (RME) learning model assisted by the media of class IV SDN-I Kasongan Baru student card look good. Student learning activities in cycle I obtained an average score of 2.9 with good criteria, and in cycle II students obtained an average score of 3.3 with good criteria. There is an increase in mathematics learning outcomes after applying the *Realistic Mathematics Education* (RME) learning model assisted by number card media for grade IV students of SDN-I Kasongan Baru. In the initial pre-test students, they obtained an average score of 41.4 and a percentage of 38%. In the first cycle, students showed an increase in learning outcomes with an average score of 54.3 and a percentage of 61% with good categories. Then cycle II also showed an increase in learning outcomes with an average score of 63.6 and a percentage of 85% with good categories. Students who have not yet completed are given special guidance so that they can achieve the specified completion.

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