The Effect of the Realistic Mathematics Education (RME) Learning Model on the Second-Grade Elementary Students' Mathematics Learning Outcomes

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ABSTRACT

The present study discusses the effect of the realistic mathematics education learning model on the mathematics learning outcomes of grade II students of State Elementary School 173472 Sijarango, Pakkat District, Humbang Hasundutan in the academic year 2023/2024. The independent variable is the realistic mathematics education learning model (X) and the dependent variable is the students' mathematics learning outcomes (Y). The research method used is an experimental method with a quantitative research type and the number of research samples was 27 students based on the purposive sample technique. The data for the realistic mathematics education learning model was obtained from a questionnaire distributed to students and the students' mathematics learning outcomes were obtained from the students' Pretest and Posttest scores in the academic year 2023/2024. The students' mathematics learning outcomes show that the average score of class II Pretest students is 58.51 while the average Posttest score is 88.33. Furthermore, the results of the hypothesis testing show that the t_count is 4.570 while the t_table is 2.052. It is proven that Ho is rejected and Ha is accepted. Through the t-test, it can be concluded that there is a significant positive influence between the realistic mathematics education learning model on the mathematics learning outcomes of class II students.

Keywords: *learning model, realistic mathematics education, learning outcomes*

INTRODUCTION

Curriculum updates are very influential in the learning process because with these updates, learning processes, models or methods will become more effective and efficient, and progress will be made to improve the quality of education in Indonesia to make education in Indonesia more advanced. To improve the quality of learning, the same vision and commitment are needed. Chapter I Article I point 2 of Law Number 20 of 2003 concerning the National Education System and Permendiknas Number 63 of 2009 concerning the Education Quality Assurance System. To achieve this, everyone involved in the education process, including school committees, principals, heads of administration, teachers, students and employees must have a strong understanding of the principles and goals of education. So, guaranteeing the quality of education needs to start by assessing resources, vision, mission, program achievements and funding budget.

Systematic activities that aim to improve the quality of education periodically and continuously are known as the Education Quality Assurance System. Determining, Realizing, Assessing, Supervising and Improving Higher Education Standards (SPT) is a way to ensure the quality of higher education. Therefore, several schools in Indonesia have implemented the Merdeka Curriculum, also known as Merdeka Belajar. This curriculum allows teachers to provide high-quality learning that suits students' environments and meets their needs.

In formal education, teachers are the most important component. Teachers must have the ability to create students to the maximum potential. Teachers must also have expertise in presenting and delivering learning that not only has the ability to improve students' knowledge, skills and attitudes, but is also able to increase students' courage and independence. So, teachers must be able to create a learning environment that provides freedom for students to think, express and talk about their ideas with others according to their development, for this reason teachers act as facilitators, inspirers and create enjoyable learning situations. As an educational facilitator, teachers must understand the abilities and interests of each student. If they do not understand the interests and abilities of each student, the learning design or learning objectives will not be achieved well. Not all students easily understand mathematics learning, there are students who once explained immediately understand and there are also some students who need to explain the questions in stages so that he easily understands the problem. In accordance with the nature of mathematics, learning mathematics can train students to think critically and logically. Therefore, teachers have a big responsibility for the development of the abilities of each student.

Learning Mathematics is the main learning in Indonesia which is used from Elementary Education Level to Upper Secondary Education Level. This aims to equip students to solve problems, prove, design and be confident in solving problems. Apart from that, learning mathematics is also important for humans to fulfill their needs effectively and solve everyday problems. Some people still think that learning mathematics is scary and should be avoided as much as possible. Many students are absent or withdraw from class during mathematics learning. This error is caused by the root of the student's mindset which already believes that mathematics is complicated and confusing. This is an important task of a teacher, namely changing students' mindsets by ensuring that learning mathematics is easy, fun and enjoyable. This proof can be done by using a learning model or learning media that fits the material to be taught in the classroom. Humans need mathematics as a means to fulfill their daily needs because without help, mathematical concepts and basic learning processes will become difficult. (Sari, 2020:135).

Realistic Mathematic Education has been implemented in the Netherlands for a long time. Realistic Mathematic Education refers to Lestari's opinion (Limbong, 2022:28) which says that a mathematics learning model that is implemented by placing reality and students' understanding will be the starting point for learning. This means learning must be relevant to everyday situations. In general, realistic mathematics education (PMR) or Realistic Mathematic Education is a learning theory that has been created specifically for mathematics. Realistic Mathematic Education was developed so that students are able to master mathematics learning.

Learning outcomes are competencies possessed by individuals as a result of the learning process, which can cause changes in behavior, including students' insight, understanding, behavior and skills that become better than before. The learning outcomes achieved by students are influenced by the students' seriousness in mastering the material presented by the teacher, where the learning outcomes are displayed in the form of the numbers obtained. In addition, a child's learning outcomes are determined by the teacher's skills in managing the class which is able to enable students to stimulate various learning activities.

The achievement of student learning outcomes can be assessed using the KKTP standards that have been determined by each school. If students meet the KKTP then they can be said to have succeeded in learning. Currently, for schools that use the Independent Curriculum, the benchmarks used to achieve learning success are seen from children's cheerfulness and their ability to collaborate in solving various problems. This is the same as the goal of mathematics learning, where a child's learning success is determined by the stage of the student's success in dominating the field of mathematics study after obtaining it in the teaching and learning process at a certain time by showing the score or value resulting from the learning results test.

An important problem that is commonly faced by students during mathematics learning is the lack of student interest in learning mathematics, many students claim that mathematics is not only complicated but also boring, apart from that there are also statements that state that the mathematics questions are short but the answers are numerous. Sriyanto (Widyastuti, 2018:84) from this view can foster students' negative perceptions of mathematics Sriyanto (Widyastuti, 2018:84). There may be no desire to study mathematics if you have low

interest in mathematics. Apart from that, the aspect that triggers minimal learning outcomes is that teachers rarely use models in teaching mathematics studies and still use lecture models.

Based on the results of observations carried out by researchers at SD Negeri 173472 Sijarango, researchers found a problem in class II, namely the lack of mathematics learning outcomes, students still think that learning mathematics is difficult because they use too many formulas. The cause of this problem is that the mathematics used by teachers in teaching still uses abstract mathematics, not applied mathematics. Because sometimes students' hatred of learning mathematics is influenced by how the teacher teaches in class. Teaching mathematics will be very fun when mathematics is taught with real things and interspersed with icebreakers or games. Students' hatred of mathematics can result in too many students getting grades that are far below the KKTP. With that, teachers also need to introspect themselves on how they teach and need to use interesting media.

In connection with the problems that have been explained, the researcher hereby considers that implementing the Realistic Mathematic Education learning model is truly suitable for mathematics, the mathematics material will be linked to daily activities by creating real learning media. Realistic Mathematic Education is a mathematics learning model that focuses on students, because mathematics is a human activity and mathematics must be related to students' daily lives with learning experiences that focus on real things (real) Susanto (Laila, 2022:138).

The mean daily test score for class II students is 62.85 for students who have sufficient KKTP, namely 11 students (40.75%) who have completed it and 16 students (59.25%) who have not completed it. Data was obtained during the odd semester and used the Merdeka Curriculum. The Merdeka or Kumer curriculum provides educators with the opportunity to develop high-quality learning that meets students' needs and learning environment. In addition, Merdeka Belajar emphasizes the importance of students' individuality and how they can learn things with their own methods which can create active, creative and enjoyable learning conditions.

The aim of the research is to re-examine whether the Realistic Mathematic Education learning model has an influence on elementary school mathematics learning outcomes and uses experimental research with the title "The Influence of the Realistic Mathematic Education Learning Model on the Mathematics Learning Outcomes of Class II Students at State Elementary School 173472 Sijarango for the 2023/2024 Academic Year"

LITERATURE REVIEW
Realistic Mathematic Education
Since 1971, a group of mathematics scientists from the Freudenthal Institute at Utrecht University in the Netherlands have developed a mathematics learning model known as Realistic Mathematic Education (RME) or realistic mathematics learning (PMR). According to Susanto (Laila, et al 2022:1303) Realistic Mathematical Education Learning is a mathematics learning model that focuses only on students, who believe that mathematics is a human activity, and that mathematics must be connected to things in students' routines, so that their learning experience is focused with clear conditions. This means that when teaching mathematics teachers should use media or tools and materials that are real and related to their daily lives, based on the students' experiences and can increase the creativity of each individual or group. Ilham (2022:69) believes that Realistic Mathematical Education Learning is where mathematics is understood by starting with concrete problems and using mathematical procedures step by step to form them in a pleasant learning environment. In this way, students have a moment to relearn mathematical concepts with the help of the teacher.

Furthermore, according to Fathurrohman (Laila, dkk, 2022:1303-1304) Realistic Mathematic Education or Realistic Mathematics education is a model of mathematics learning that is based on various things that are real for students. This concept prioritizes skills such as speaking, working together, and collaborating with classmates. The aim is for students to be able to use mathematics in solving problems, whether individual or group problems. Ilham (2022:70) believes that Realistic Mathematic Education is a learning principle that was created specifically for mathematics and by implementing Realistic Mathematic Education you can advance students' interpretation of mathematics lessons.

Based on the ideas of the experts above, a conclusion will be drawn that Realistic Mathematic Education is a learning model that must relate to the problems experienced by students in their daily lives. Realistic Mathematic Education can also provide opportunities for students to create works related to mathematical material.

Sequence in Conducting RME

Based on Shoimin's thoughts, (2022:150-151), the stages of the Realistic Mathematic Education learning model are:

1. Understand contextual problems

Students are given relevant problems and are required to understand them. The teacher then explains the difficulty by distributing short directions for specific elements that the students understand. At this stage, the Realistic Mathematic Education feature used is the first feature. Apart from that, providing contextual problems allows the first principle of Realistic Mathematical Education to be applied.

2. Solve contextual problems

Each student is given instructions so that they can work on contextual problems in the Student Book (LKS) based on tricks that suit their own abilities. There are many ways to solve problems and answer them. By creating questions that help students find solutions, teachers encourage students to solve problems. For example, how you found out, and so on. In this phase, students are given incentives to reflect on the concepts, ideas or meanings contained in mathematics problems. At this point, students are also given instructions to build and utilize their own models to facilitate problem solving. It is hoped that teachers will not provide solutions to problems or questions first so that students can find their own solutions. In this phase, all the principles of Realistic Mathematic Education emerge, and the second characteristic of Realistic Mathematic Education arises by using models.

3. Match and consider the answers

Students are expected to gather in small groups and compare and talk about their answers. After that, the deliberation findings are compared with the class deliberations that will be supervised by the instructor. In this phase, students can form the courage to voice their thoughts that are not the same as those of their teacher or classmates. At this stage, the characteristics of Realistic Mathematical Education include the use of students' ideas or participation in an effort to awaken students by fostering relationships between teachers and students, students and learning resources, and students and teachers.

4. Draw conclusions

The teacher guides students to make conclusions about ideas, meanings, rules, rules, or mathematical processes that are tied to effective problems that have just been solved based on the results of group deliberations and class deliberations. This step produces the characteristics of Realistic Mathematical Education which uses the relationship between teacher and student.

METHOD

Experimental research is a research method used to determine the effect of certain treatments on others in resolved situations (Sugiyono, 2016:72). Pre-experiments are designed experimental research that only uses the experimental group itself and does not use a control (comparison) group. The research method used in the research is the One Group Pretest-Posttest Design method with the aim of showing before there was treatment or there was a pretest. In this way, the results of the treatment can be known more thoroughly, because they can be compared with the situation before the treatment was given (Sugiyono, 2016:73).

Based on the ideas of the experts above, the researcher concluded that experimental research is an experiment used to determine the causal influence between the dependent variable and the independent variable. The approach that will be used in the research is a quantitative approach. Based on Sugiono's thoughts (Indah, 2022:87), a quantitative approach is an approach that prioritizes research data with numbers and analysis using statistics.

So the purpose of this research is that the researcher intends to test the independent variable, namely Realistic Mathematic Education (X), against the dependent variable, namely student mathematics learning outcomes (Y). The research design used during the research was Pre-experimental Design, namely an experimental research design that only used an experimental group and did not use a control (comparison) group (Sugiyono, 2016:74).

RESULTS AND DISCUSSION
Description of Initial Conditions

This research was carried out in class II of SD Negeri 173472 Sijarango which is located on Jalan Sijarango-Pakkat, Pakkat District, Humbang Hasundutan Regency, Medan. This research was conducted to find out how much influence the Realistic Mathematic Education learning model has on student learning outcomes. This research was conducted by distributing test questions and questionnaires to class II students. This research was carried out for 3 days with test details on May 15 2023 and the research was carried out from May 18 to May 21 2024.

The first research activity carried out was to ask permission from the principal of SD Negeri 173481 Laksa, Pakkat District, Humbang Hasundutan Regency. In order for the question and questionnaire validation process to run smoothly and well, the first thing the researcher did was greet and give directions for working on the questions to class II students at SD Negeri 173481 Laksa. After completing the questions, the researcher collected the questions and processed the data to validate the questions and questionnaire.

The research location is SD Negeri 173472 Sijarango which has facilities that support the teaching and learning process. The school has 1 principal and teacher room, 6 classrooms, 1 library room, 2 bathrooms consisting of 1 teacher bathroom and 1 student bathroom, and has school extracurricular equipment.
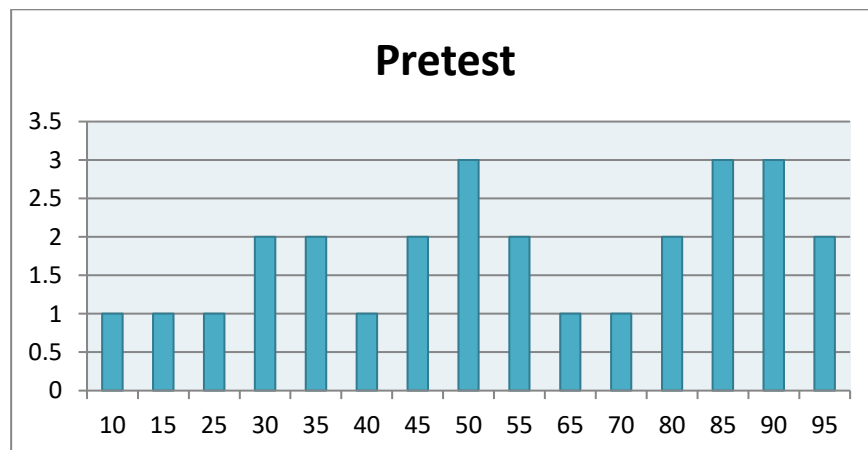

Figure 1. Pre-Test Mathematics Learning Results

The results of the pretest before giving treatment obtained the highest score of 95 and the lowest 10. There were 15 students who had scores below the KKTP with a percentage of 55.55% and students who got scores above the KKTP were 13 students with a percentage of 44.44%. By seeing this condition, the researcher carried out a follow-up by providing a treatment by providing a realistic mathematical education learning model in this class.
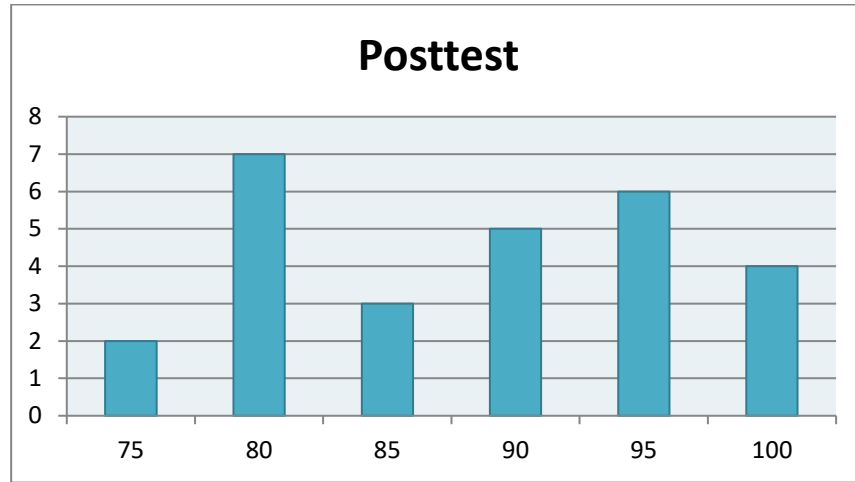
Figure 2. Post-Test Mathematics

Learning Results

The results of the pretest before giving treatment obtained the highest score of 100 and the lowest 75. Students who had a score below the KKTP were 0 students or none with a percentage of 0% and students who got a score above the KKTP were all class II students with a percentage of 100%. Based on this data, it is known that there was an increase in student scores after being given treatment compared to before giving treatment. This increase can be seen in the diagram below:
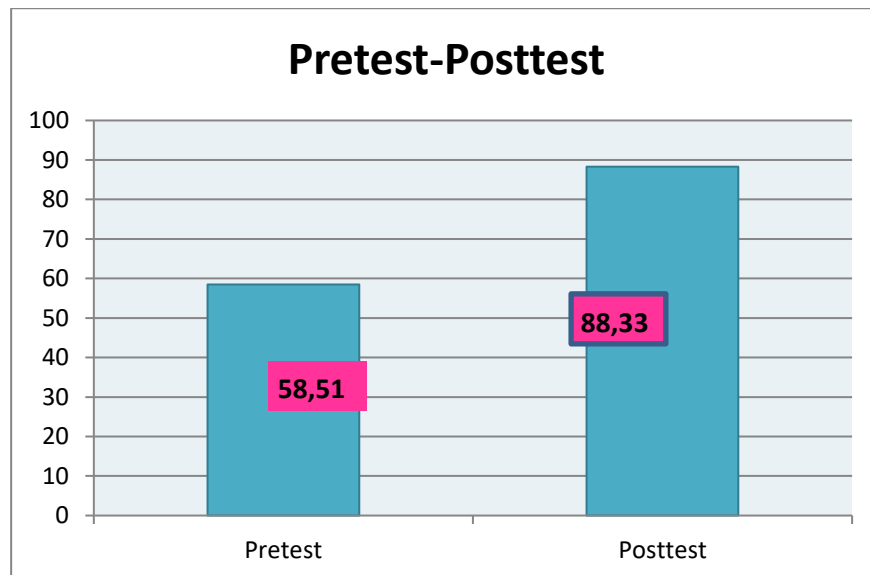

Figure 3. Comparison of Test

Hypotheses Testing

After the data is declared to have a normal contribution and the sample comes from the same or homogeneous population, then hypothesis testing is carried out using the "t-test". The statistics used to test the assessment hypothesis is the t-test. The hypothesis proposed is:

Ho: There is no influence of the Realistic Mathematical Education Learning Model on the Learning Outcomes of Class II Students at State Elementary School 173472 Sijarango for the 2023/2024 Academic Year.

Ha: There is an Influence of the Realistic Mathematical Education Learning Model on the Learning Outcomes of Class II Students at State Elementary School 173472 Sijarango for the 2023/2024 Academic Year.

The t-test criteria can be said to be significant if they are obtained to determine whether there is an influence on learning outcomes. Hypothesis testing using the t-test is carried out by comparing whether it is accepted (Ha) if $t_{count} \geq t_{table}$ and rejected (Ho) if $t_{count} \leq t_{table}$. The t-test calculation was carried out using a manual formula and using SPSS Version 23.

Table 1. T-test

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	-20.902	23.933		-0.873	0.391
	Model Pembelajaran RME	1.451	0.317	0.675	4.57	<,001

a. Dependent Variable: Hasil Belajar

Based on the calculation of the hypothesis test (t-test) with SPSS 23, it can be seen that the standard error is 0.317, beta is 0.675, the t-test result is 4.57 and significance is 0.391. From the research results, hypothesis testing (t-test) obtained significant results of 0.391 > 0.05. The t-test test results of 4.57 can be seen from the value 4.57≥ 2,052, which means that there is an influence of the realistic mathematics education learning model on students' mathematics learning outcomes. This shows that the realistic mathematical education learning model has a significant positive influence, so Ha is accepted, namely that there is an influence between the realistic mathematical education learning model (x) and student mathematics learning outcomes (y).

Discussion

If observed from the variable coefficients, this research can state that the Realistic Mathematic Education Learning Model variables are higher than students who receive conventional learning. The results of the analysis obtained provide an illustration that the Realistic Mathematics Education Learning Model has an influence on students' mathematics learning outcomes.

Based on the research results, the following research findings were obtained: To determine whether an instrument is valid or not, the SPSS version 23 program is needed with the following conditions: If r_count ≥ r_tabel with a significance level of 0.05 or 5% then the instrument is said to be valid. If r_count ≤ r_table with a significance level of 0.05 or 5% then the instrument is said to be invalid. From the results of the test instrument questions carried out, it can be summarized that the validity of the valid questions was 20 questions and the invalid questions were 20 questions.

To determine students' initial abilities, this research used a pretest in the experimental class with a total of 20 multiple choice questions, the pretest from the experimental class with an average of 58.51. From this average, it can be seen that the pretest abilities in the experimental class are still much below the KKTP or still low.

Then, after giving the Realistic Mathematical Education learning model treatment in the experimental class, the researcher gave posttest questions with 20 multiple choice questions, and obtained an average result of 88.33 and here the students had reached the KKTP.

The results of the normality test with a significance level of 5% or α = 0.05 with the normality test criteria namely L_count<L_tabel can be said to be normally distributed. Based on the normality test results, it is known that the value of Aiymp. Sig (2 tailed) is 0.1055 < 1.66. So in accordance with the basis for decision making in the Kolmogorov-Smirnov normality test above, if < 1.66 Ha is accepted (normal distribution) and if the significance level obtained is > 1.66 then Ho is rejected (not normally distributed). It can be concluded that the data is normally distributed. Thus, the assumptions or requirements have been met.

The results of the correlation coefficient prove that there is an influence of Realistic Mathematic Education (x) on students' mathematics learning outcomes (y) with r_count≥ r_tabel or 0.675≥ 0.381 and it can be concluded that there is a strong influence. And the t-test (hypothesis) from the data calculations carried out shows that the value of t_count≥ t_table is 4.57≥ 2.052, so when making a decision it can be concluded that Ho is rejected and Ha is accepted. So it can be concluded that there is an influence of the Realistic Mathematic Education learning model on the mathematics learning outcomes of class II students at SD Negeri 173472 Sijarango for the 2023/2024 academic year.

During the research, the researcher saw students playing a game related to the learning material, namely triangles and quadrilaterals. The game is called Human Chess which is played by 2 groups with 1 group consisting of 3 people. The game is played on the school field or in front of the house. Because the game is related to realistic or everyday activities of students, the game is used as a medium for implementing the Realistic Mathematic Education learning model.

Apart from that, the obstacles that researchers face in implementing the Realistic Mathematic Education learning model are that there are 2-3 people who find it difficult to grasp the learning material so that learning does not run properly and the way to overcome this is that the researcher takes a personal approach by re-teaching the material to the students until the students have Understand and understand the material being taught.

Based on data obtained from research on class II students at SD Negeri 173472 Sijrango, Pakkat District, Humbang Hasundutan Regency, it can be said that there is an influence of Realistic Mathematic Education on student mathematics learning outcomes. The author concludes that there is a significant influence of the Realistic Mathematic Education Learning Model on Mathematics Learning Outcomes of Class II Students. SD Negeri 173472 Sijarango 2023/2024.

CONCLUSIONS AND RECOMMENDATION

Based on the discussion in this chapter, the researcher outlines the conclusions drawn up based on research activities. The Influence of the Realistic Mathematical Education Model on the Mathematics Learning Outcomes of Class II Students at State Elementary School 173472 Sijarango, Pakkat District, Humbang Hasundutan Regency for the 2023/2024 Academic Year as follows:

1. The process of implementing the Realistic Mathematic Education learning model on the Mathematics Learning Outcomes of Class II Students at SD Negeri 173472 Sijarango is by giving a Pretest and Posttest to respondents, namely class II students, the test is given with 20 questions each. Before being given treatment, the researcher gave a pretest to determine the extent of students' knowledge regarding material in mathematics learning about triangles and quadrilaterals. After getting the Pretest results, the researcher then gave treatment to students using the Realistic Mathematic Education learning model, after giving the treatment the researcher gave a Posttest. This is done so that researchers know the extent of students' abilities after being given treatment.

2. After applying the Realistic Mathematic Education learning model to the mathematics learning outcomes of class II students at SD Negeri 173472 Sijarangan, it is known that students' mathematics learning outcomes have increased. This can be seen from the students' average pretest score of 58.51 which is in the low category, while the average posttest score is 88.33 which is in the very good category.

3. There is an influence of the Realistic Mathematic Education learning model on the mathematics learning outcomes of class II students at SD Negeri 173472 Sijarango for the 2023/2024 academic year. This can be proven by the correlation coefficient value of 0.675 which is in the strong interpretation. The results of the t-test calculation to find out whether the hypothesis is accepted or rejected are $t_{count} \geq t_{table}$, namely $4.57 \geq 2.052$, which means there is an influence of the learning model on students' mathematics learning outcomes. Thus Ha is accepted and Ho is rejected.

4. This research shows that student mathematics learning outcomes using the Realistic Mathematic Education learning model are more effective than student learning outcomes without using the Realistic Mathematic Education learning model. Therefore, in improving student learning outcomes, it is necessary to utilize learning models that can focus students' daily lives, especially on learning mathematics about triangles and quadrilaterals, one of which is the Realistic Mathematic Education learning model presented by researchers.

REFERENCES

Arikunto, S. (2022). Prosedur Penelitian, Suatu Pendekatan Praktis. Jakarta. PT Rineka Cipta.

Astuti, A. (2018). Penerapan Realistic Mathematic Education (Rme) Meningkatkan Hasil Belajar Matematika Siswa Kelas Vi SD. Jurnal Cendekia : Jurnal Pendidikan Matematika, 2(1), 49–61.

Husamah., Pantiwati, Y., Restian, A., Sumarsono, P. (2016). Belajar & Pembelajaran. Malang: Universitas Muhammadiyah Malang.

Ilham S, M., Baharullah, B., & Wahyudi, A. A. (2022). Pengaruh Pembelajaran Matematika Realistik Terhadap Hasil Belajar Matematika Siswa Sekolah Dasar. Pepatudzu : Media Pendidikan Dan Sosial Kemasyarakatan, 18(2), 68. https://doi.org/10.35329/fkip.v18i2.3721

Laila, I. K., Sipayung, R., Sembiring, R. K., & Silaban, P. J. (2022). Pengaruh Model Pendidikan Matematika Realistik Terhadap Hasil Belajar Siswa Pada Materi Bangun Datar. JURNAL PAJAR (Pendidikan Dan Pengajaran), 6(5), 1300. https://doi.org/10.33578/pjr.v6i5.8534

Limbong, S. S. P. (2022). Model Pembelajaran CTL Dan RME Terhadap Hasil Belajar Matematika Siswa SD. Indonesia: Guepedia.

Sari, D. P., Isnurani, Aditama, R., Rahmat, U., & Sari, N. (2020). Penerapan Matematika dalam Kehidupan Sehari-hari di SMAN 6 Tangerang Selatan. Pengabdian Mitra Masyarakat, 2(2), 134–140.

Shoimin, A. (2014). 68 Model Pembelajaran Inovatif dalam Kurikulum 2013. Yogyakarta: Ar-Ruzz Media.

Siagian, M. D. (2017). Pembelajaran Matematika Dalam Persfektif Konstruktivisme. NIZHAMIYAH: Jurnal Pendidikan Islam Dan Teknologi Pendidikan, VII(2), 61–73.

Sugiyono. (2019). Metode Penelitian Kuantitatif, Kualitatif dan R & D. Bandung: Alfabeta.

Suryati, K., & Dwi Krisna, E. (2021). Pendekatan Pembelajaran Matematika Realistik (PMR) Berbantuan Telegram Untuk Meningkatkan Hasil Belajar Matematika. PENDIPA Journal of Science Education, 5(3), 479–485. https://doi.org/10.33369/pendipa.5.3.479-485

Tanjung, D. S., & Juliana. (2023). The Effect of Giving Rewards on Fifth-Grade Elementary Students' Mathematics Learning Outcomes Pengaruh Pemberian Reward Terhadap Hasil Belajar Matematika Siswa Kelas V Sekolah Dasar. 12(6), 1396–1406.

Tanjung, D. S., Juliana, & HS, D. W. S. (2023). Improving Fourth-Grade Students' Learning Outcomes Using the Discovery Learning Method in Indonesian at SD Negeri 200111 Padangsidimpuan. Primary: Jurnal Pendidikan Guru Sekolah Dasar, 12(5), 1302–1313.

Tanjung, D. S., Mahulae, S., & Tumanggor, A. F. M. (2022). Pengaruh Model Pembelajaran Picture and Picture Berbantuan Media Audio Visual Terhadap Hasil Belajar Siswa. Jurnal Mutiara Pendidikan Indonesia, 7(2), 145–154.

Tanjung, D. S., Sembiring, R. K., & Habeahan, D. F. (2022). Pengaruh Penggunaan Gadget terhadap Hasil Belajar Siswa Pada Mata Pelajaran Bahasa Indonesia Kelas III di Sekolah Dasar Medan. School Education Journal PGSD Fip Unimed, 12(2), 176–184.

Widana, I. W. (2021). Realistic Mathematics Education (RME) untuk Meningkatkan Kemampuan Pemecahan Masalah Matematis Siswa di Indonesia. Jurnal Elemen, 7(2), 450–462. https://doi.org/10.29408/jel.v7i2.3744

Windayanti, Mihrab Afnanda, Ria Agustina, Emanuel B S Kase, Muh Safar, & Sabil Mokodenseho. (2023). Problematika Guru Dalam Menerapkan Kurikulum Merdeka. Journal on Education, 6(1), 2056–2063.

Yeti. (2020). Model Pembelajaran Inovatif Untuk Pembelajaran Matematika Di Kelas VI Sekolah Dasar. 5–8.