Jurnal Info Sains : Informatika dan Sains
Volume 14 , Number 02, 2024, DOI 10.58471/infosains.v14i02
ESSN 2797-7889 (Online)
https://ejournal.seaninstitute.or.id/index.php/InfoSains

Development of Learning-Based Teaching Materials Realistic Mathematics to Improve Elementary Students Mathematics Learning Results Serdang Bedagai

Ramnah Sinaga[1], Kms. Muhammad Amin Fauzi[2], Adi Sutopo[3]
[1,2,3]Graduate Program, Universitas Terbuka, Indonesia

Article Info
Keywords:
Development,
Teaching Materials,
Realistic Mathematics Learning,
Mathematics.

ABSTRACT
This study aims to describe the validity of teaching materials based on Realistic Mathematics Learning. The research instrument consisted of expert assessment sheets and student learning outcomes tests. The analysis technique uses expert validation and calculates Gain and N-gain with student test results. The results of the study stated that mathematics teaching materials developed based on realistic mathematics learning had a validity value according to material experts of 88.54%, design experts at 87.33%, and linguists at 90.63%. Mathematics teaching materials developed based on realistic mathematics learning have a practicality value based on student assessment of 0.96 so they are very practical to use in the implementation of learning in class V SD Negeri 104335 Marjan Serdang Bedagai Mathematics teaching materials developed have an effectiveness value based on student learning activities, namely how much increasing the effectiveness of student learning by 55.49% to 88.46% with a very effective category. There was an increase in student learning outcomes in fractional arithmetic operations material using realistic mathematics-based teaching materials in which the average pre-test result of 41.73 increased to 87.69, the N-Gain value was 0.79 in the high category and the statistical test score was sig. 0.000< sig. 0.05.

Corresponding Author:
Ramnah Sinaga
Universitas Terbuka, Medan
sinagaramnah@gmail.com

INTRODUCTION

Nowadays, mastering the field of study of mathematics is an absolute must because mathematics is the way or gateway to enter the era of knowledge and technology which we feel is developing very quickly. By studying mathematics, we can develop the needs in our lives, namely thinking mathematically, logically, critically, and creatively. For this reason, mathematics is a subject that must be taught starting from elementary school. (Rohman, 2021).

The concept of mathematics learning is an interactive process between teachers and students in developing thinking and logical learning models that have been created by teachers using methods so that mathematics learning develops and grows optimally, and students can learn more effectively and efficiently. The measure of learning success is not

Jurnal Info Sains : Informatika dan Sains
Volume 14 , Number 02, 2024, DOI 10.58471/infosains.v14i02
ESSN 2797-7889 (Online)
https://ejournal.seaninstitute.or.id/index.php/InfoSains

only the results of achievement at school but learning that can improve and develop what is learned and then apply it in everyday life (Anggreini, D., & Priyojadmiko, 2022).

In the 2013 curriculum, it is stated that the aim of providing subjects at school is so that students can communicate ideas, and reason, and be able to compose mathematical evidence with complete sentences to clarify situations or problems. Mathematics is a universal science that has an important role in various scientific disciplines. The learning process emphasizes contextualization and the use of learning resources that are appropriate to student characteristics (Sofyan, et.al., 2021).

Mathematics as one of the subjects taught in schools contributes to realizing national education goals and building an Indonesian nation that is productive, creative, innovative, and insightful. Students need mathematics to meet real-world needs and solve problems. There are still many students who think mathematics is difficult because previously students were afraid, and not enthusiastic about learning so they ended up being lazy about studying mathematics (Widayati, 2022).

Various indicators show that the quality of education, especially mathematics education, which automatically affects students' mathematics learning achievement from elementary school, and middle school to university, has not improved significantly. Why this could happen is that there is most likely an internal problem with the student. For example, their desire to learn mathematics is less because they consider mathematics difficult to learn. Apart from that, they have difficulty answering questions because of their lack of thinking skills.

Siloto further added that the teaching module is a learning medium that contains a learning implementation plan that can direct the learning process so that learning activities achieve learning outcomes. A module is a unit of learning resources designed to help students achieve learning goals. The module is in the form of a book written with the aim that students can learn independently without or with teacher guidance so that the module contains at least all the basic components of teaching materials (Siloto, et.al., 2023).

Student Activity Sheets (LKPD) or worksheets are teaching materials that can be used to support the learning process. LKPD is a guide for students to carry out investigation or problem-solving activities. This LKPD can be in the form of a guide to developing cognitive aspects or a guide to developing all aspects of learning (Anwar, et.al., 2021).

The learning required must be able to foster students' desire to learn by activating all students' potential both visually, auditorily, and kinetically. Therefore, the existing teaching materials in the form of learning modules and LKPD are part of the printed teaching materials that students use as a guide to facilitate the student learning process and train learning independence.

Researchers analyzed the factors that cause difficulties in learning mathematics, such as prerequisite mathematics skills, learning motivation, support at home, and psychological factors such as anxiety and self-confidence. Uses a mixed quantitative and qualitative approach to explore various aspects that influence learning, including the use of language and appropriate mathematical representations. Pay attention to the concept of mathematical modeling in learning to help students understand the concept of fractions and calculation

Jurnal Info Sains : Informatika dan Sains
Volume 14 , Number 02, 2024, DOI 10.58471/infosains.v14i02
ESSN 2797-7889 (Online)
https://ejournal.seaninstitute.or.id/index.php/InfoSains

operations. Develop more effective and inclusive learning strategies, using varied methods and appropriate media or teaching aids. Emphasizes the important role of the family in supporting mathematics learning at home. Understand students' thinking processes related to understanding, comprehending, and using the concept of fractions and calculation operations.

METHODS

The Nature of Learning Outcomes

Learning is understood as a process that lasts throughout life, therefore, attention to learning, how to learn, the learning process, and learning outcomes has become an important part of the teacher's attention. Learning is a process experienced by every individual throughout his life. Every activity carried out by an individual cannot be separated from the meaning of learning. No space, time, or place can limit the learning process experienced by individuals (Lumban Gaol, et.al., 2022).

Learning is a process of effort carried out by a person to obtain a new change in behavior as a whole, as a result of his own experience in interaction with the environment. Learning involves mental processes in understanding human behavior, involving several factors, namely association, motivation, variability, habits, sensitivity, imprinting, and inhibition (Henniwati, 2021).

The learning outcomes in this research are students' ability to receive and process information in the form of main ideas expressed in the form of teaching delivered instructional. Student learning outcomes are assessed from three aspects, namely knowledge, attitudes, and skills, after following the teaching and learning process. The assessment results are expressed in the form of numbers or scores for each question item answered correctly (Tumulo, 2022).

Learning outcomes are changes in behavior as a result of learning in a broader sense covering the cognitive, affective, and psychomotor fields. In simple terms, what is meant by student learning outcomes are the abilities that children acquire after going through learning activities. More practically, learning outcomes are also intended to express students' abilities in the form of numbers. Learning outcomes are of course the results of an assessment of students' abilities which are determined in the form of numbers after undergoing the learning process. The use of numbers in certain test results is intended to determine students' absorption capacity after receiving the lesson material (Muflihah, 2021).

Student learning outcomes are achievements achieved by students academically through exams and assignments, active asking and answering questions that support the acquisition of these learning outcomes. In academic circles, the idea often arises that educational success is not determined by a student's grades listed on a report card or diploma, but the measure of success in the cognitive field can be determined through a student's learning outcomes (Andriyannisa, M. et.al., 2023).

According to Bloom, learning outcomes cover the cognitive, affective, and psychomotor domains. The cognitive domain is knowledge, understanding, application, analysis, synthesis, and evaluation. The affective domain is attitude, receiving, responding, values, organization,

Jurnal Info Sains : Informatika dan Sains
Volume 14 , Number 02, 2024, DOI 10.58471/infosains.v14i02
ESSN 2797-7889 (Online)
https://ejournal.seaninstitute.or.id/index.php/InfoSains

and character. The psychomotor domain includes productive, technical, physical, managerial, and intellectual skills (Yulianto, 2021).

Realistic Mathematics Learning

The Realistic Mathematics Approach is an approach that can be a solution to increase students' conceptual understanding of every mathematics problem. The ability to understand the concept of a mathematical problem improves students' understanding, reasoning, and interpretation of mathematical problems. Learning begins with contextual problems then converted into mathematical language, then solved mathematically. In this lesson, the teacher connects mathematical material concepts and students' experiences in their daily lives to apply them again when learning new mathematical material concepts (Putra and Purnomo, 2023).

Realistic Mathematics Learning is a theory of teaching and learning mathematics education. This theory relates that mathematics must be related to reality and that mathematics is a human activity. This means that mathematics must be suitable for children and relevant to everyday life. Realistic mathematics learning utilizes the reality and environment that students understand to accelerate mathematics learning to achieve better mathematics education goals than before. Reality refers to real or real things that students can observe or understand through imagination, while environment refers to the environment where students are in the school, family, and community that students can understand (Ilham, 2022).

The Realistic Mathematics Approach is a mathematics lesson that reveals the experiences and events students encounter so that they can understand mathematical problems. The Realistic Mathematics Approach uses realistic problems as a starting point. Learning can be linked to their daily life processes. Linking real-life experiences with mathematical ideas in classroom learning is very important to encourage meaningful learning so that students enjoy it more (Herdiansyah and Purwanto, 2022).

Realistic mathematics learning is related to learning that is presented in a real way, realistically according to existing conditions. The conditions referred to are real conditions experienced by the students around him. The realistic implementation of developing ideas during learning can be shown in Figure 2.1 (Afsari, S. et.al., 2021).

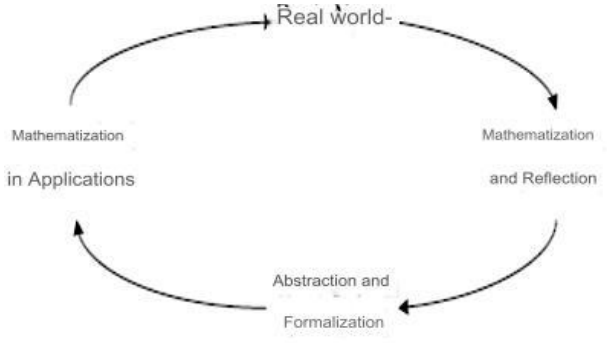

Figure 1. Conceptual Mathematical Image

Jurnal Info Sains : Informatika dan Sains
Volume 14 , Number 02, 2024, DOI 10.58471/infosains.v14i02
ESSN 2797-7889 (Online)
https://ejournal.seaninstitute.or.id/index.php/InfoSains

Based on the above, it can be emphasized that the learning process with the development of the concepts above has no endpoint, this shows that the process is much more important than just the results obtained in learning activities. Therefore, understanding existing concepts will be very important for improving students' abilities during the learning process.

This research uses development research on teaching materials that fulfill the provisions carried out in the research referring to the needs for the development of Plomp types and models. This model was chosen because it was based on the consideration that this model is general in designing educational processes. In this way, it is hoped that it can cover the desired and representative aspects to fulfill the development of realistic learning-based teaching materials.

Research design for developing teaching materials based on Realistic Mathematics Learning (PMR) usually involves a research and development (R&D) approach using models such as ADDIE or 4-D. The following are details of research designs that are generally used:

1. Research Type research and development (R&D) with a modification of the ADDIE model or 4-D model which includes the stages of definition, design, development, and dissemination.
2. Sampling Technique Samples are usually selected through purposive sampling techniques or sampling based on certain criteria that are relevant to the research objectives.
3. How to Collect Data:
    a. Expert Validation Involving material experts, language experts, and product design experts to assess the quality of the teaching materials being developed.
    b. User Response Get responses from teachers or students who are the targets for using teaching materials.
4. Data Processing Method:
    a. Descriptive Statistical Analysis Uses descriptive statistics to analyze expert validation results and user responses.
    b. Descriptive Qualitative Analysis Analyze comments and suggestions from expert validation and user responses to improve teaching materials.
5. Data analysis:
    a. Field Trials Conduct field trials to assess the practicality and effectiveness of teaching materials in real conditions.
    b. Revision Based on Feedback Revise teaching materials based on feedback received during field trials.

This research aims to produce valid, practical, and effective teaching materials for improving students' mathematical literacy skills using the PMR approach.

Jurnal Info Sains : Informatika dan Sains
Volume 14 , Number 02, 2024, DOI 10.58471/infosains.v14i02
ESSN 2797-7889 (Online)
https://ejournal.seaninstitute.or.id/index.php/InfoSains

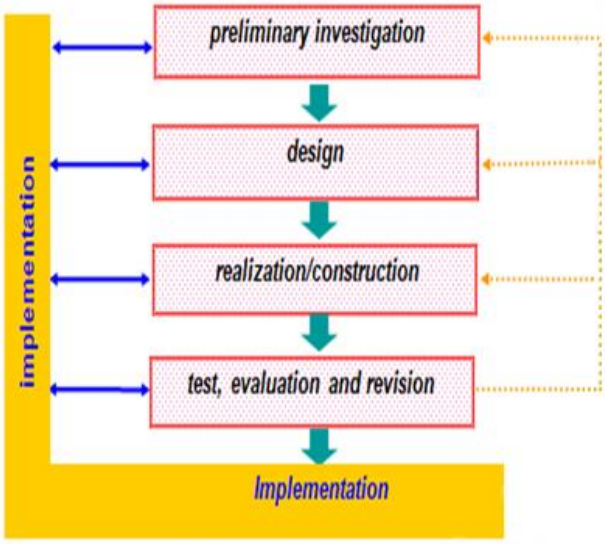

Figure 2. The Stages of Teaching Material Development Procedures with Modifications

In the initial investigation phase, namely observing learning in the classroom, it was discovered that learning, especially mathematics, in the material on operations to calculate fractions, was not found in learning resource materials or teaching materials that presented certain learning models. The curriculum is also related to the formulation of learning objectives, namely the indicators for achieving learning outcomes which are translated into more specific indicators. The characteristics of elementary school aged children need to be paid attention to, especially in terms of their learning success. Teachers need to design learning that is able to stimulate growth and improve student learning outcomes.

The design phase is selecting appropriate materials, selecting the format and initial design of the learning materials being developed. The realization/construction phase, namely the teaching materials developed are adapted to the curriculum, learning subject matter, competencies to be achieved and the approach used. The evaluation and revision test phase (test, evaluation and revision) is a realization activity that has been created and then validated by experts before being tested. This test, evaluation and revision stage is of course a test of whether the teaching materials developed meet the needs in the implementation of learning, namely teaching materials that support the learning process, especially to improve student learning outcomes. The implementation phase is carrying out wide-scale testing of the product being developed to prove the practicality and effectiveness of the product being developed.

Implementation of research into the development of teaching materials consisting of Modules and LKPD was carried out in the odd semester of Academic Year 202 2/2023 in class V of SD Negeri 104335 Marjaga. This research uses subjects and research objects. Used as the subject of this research were all students in the class V SD Negeri 104335 Marjanjai Academic Year 202 2 /202 3 as many as 26 students. This research determines a research object namely the development of Modules and LKPD mathematics based on Realistic Mathematics Learning used in mathematics learning fraction material.

Jurnal Info Sains : Informatika dan Sains
Volume 14 , Number 02, 2024, DOI 10.58471/infosains.v14i02
ESSN 2797-7889 (Online)
https://ejournal.seaninstitute.or.id/index.php/InfoSains

RESULTS AND DISCUSSION

The research was carried out on students at SD Negeri 104335 Marjaja Serdang Bedagai Academic Year 2022 / 2023. This research determined as a research object namely the development of Mathematics Modules and LKPD Based on Realistic Mathematics Learning used in Mathematics Learning Fractional Number Operations Materials. Based on the results of observations made, the researcher saw that the learning model used by the teacher was conventional, meaning that learning was teacher-centered, students only heard the teacher's explanation through the installed projector so students were less enthusiastic about learning, as a result, students did not understand the concept of the material being taught.

Curriculum analysis is also related to mathematics subject material, material for calculating fraction operations in elementary schools. This curriculum analysis of mathematics lessons on fraction counting operations material is to systematically identify, detail, and indicate the materials that will be studied by students, especially fraction counting operations material into a concept map. Elementary school age is an individual who is developing with all the courage that cannot be doubted. Elementary school students in general are undergoing physical and mental changes for the better. Their behavior in dealing with social and non-social environments improves. These students have a higher capacity for tolerance and cooperation, some of them even display behavior approaching that of teenagers in general.

The results of initial observations of students are related to the material on operations for calculating fractions, this material is very important for students to understand. Teachers of course play a very active role in innovatively developing models and learning methods so that students enjoy learning and can master subject matter related to solving abilities and motivation to learn mathematics.

The level of achievement of material expert validation for teaching materials based on realistic mathematics learning to improve student learning outcomes is stated with the criteria " Very Good and Does Not Need to Be Revised ", with a percentage gain of 88.54 %. Based on the conversion of achievement levels, it can be concluded that the results of material expert validation of learning tools based on realistic mathematics learning are very good and do not need to be revised.

The achievement level of validation of mathematics learning materials based on realistic mathematics learning based on design experts' assessment was stated with the criteria " Very Good and No Revision Required ", with a percentage of 87.33 %. Based on the conversion of achievement levels, it can be concluded that the results of the design expert's validation of realistic mathematics learning-based teaching materials developed for mathematics learning are very good to use and do not need to be revised.

The achievement level of validation of mathematics teaching materials based on realistic mathematics learning, assessed by language experts, is stated with the criteria " Very Good and Doesn't Need to Be Revised " with an average score of 90, 63 %. Based on the conversion of achievement levels, it can be concluded that the results of the linguist's validation of the mathematics teaching materials based on realistic mathematics learning that were developed are very good to use and do not need to be revised.

Jurnal Info Sains : Informatika dan Sains
Volume 14 , Number 02, 2024, DOI 10.58471/infosains.v14i02
ESSN 2797-7889 (Online)
https://ejournal.seaninstitute.or.id/index.php/InfoSains

The results of individual trials on mathematics teaching materials based on realistic mathematics learning that were developed obtained an average score of 0.87 and this score was included in the category Very Appropriate /practical for use. Thus, it can be concluded that the results of individual trials on mathematics teaching materials based on realistic mathematics learning are very suitable /practical for use.

Small group trials on mathematics teaching materials based on realistic mathematics learning that were developed obtained an average score of 0.89 and this score was included in the category Very Appropriate /practical for use. Thus, it can be concluded that the results of small group trials on mathematics teaching materials based on realistic mathematics learning are very feasible /practical to use.

The results of a field group trial of 26 students on mathematics teaching materials based on realistic mathematics learning that were developed obtained an average score of 0.96 and this score was included in the category Very Appropriate /practical for use. The calculated results of the N-Gain score test above show that the average N-Gain score was obtained in the medium and high categories and no N-Gain was found in students in the low category. This means that there is an increase in student learning outcomes with the use of mathematics teaching materials based on realistic mathematics learning.

Overall, to improve students' mathematics learning outcomes using teaching material products based on realistic mathematics learning, a G-Gain value of 0.7 9 is obtained and is in the high category. The interpreted value of the N-Gain effectiveness category in the form of % is 79.00%, which means that the effectiveness category for using teaching material products based on realistic mathematics learning in fraction counting operations is considered effective.

To determine the effectiveness of improving student learning outcomes by using data analysis in effectiveness tests using the experimental equivalent time series design method according to Creswell, 2012, namely by comparing pretest scores with posttest scores. Meanwhile, Campbell & Julian 1963 also stated that usually, the measurement analysis of this research design is paired in the experimental class. To determine the effectiveness of improving student learning outcomes by using data analysis in effectiveness tests using the experimental equivalent time series design method by comparing pretest scores with posttest scores.

Table 1 Effectiveness Test Statistics

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Posttest - Pretest	45,962	7,748	1,520	42,832	49,091	30,246	25	,000

Based on the table above, it is known that the calculated results of the significance level of 0.000 are smaller than the significance of 0.05 (0.000<0.05), which means that there is a difference in student learning outcomes before and after learning. Thus, it can be concluded

Jurnal Info Sains : Informatika dan Sains
Volume 14 , Number 02, 2024, DOI 10.58471/infosains.v14i02
ESSN 2797-7889 (Online)
https://ejournal.seaninstitute.or.id/index.php/InfoSains

that mathematics teaching materials based on realistic mathematics learning are effectively used to improve student learning outcomes.

CONCLUSION

Based on the research results, it can be concluded that mathematics teaching materials based on realistic mathematics learning are valid for use in the implementation of learning in class V of SD Negeri 104335 Marjaja Serdang Bedagai. Mathematics teaching materials based on practical realistic mathematics learning are used in the implementation of learning in class V of SD Negeri 104335 Marjaja Serdang Bedagai. Mathematics teaching materials based on realistic mathematics learning are effectively used in the implementation of learning in class V of SD Negeri 104335 Marjaja Serdang Bedagai. There was an increase in student learning outcomes in fraction calculation operation material using realistic mathematics-based teaching materials, namely the average pre-test result increased to 87.69, the N-Gain value was 0.79 in the high category and the statistical test value was sig. 0.000<sig.0.05. Based on the research results, suggestions need to be made, namely that school principals need to pay attention to and provide training for teachers in compiling learning tools, including teaching materials that are valid, practical, and effective for use during learning. Teachers need to improve their ability to prepare teaching materials that are valid, practical, and effective for use during learning. For other researchers who wish to conduct research using the same approach as this research, it is recommended that they minimize the weaknesses contained in this research, including student characteristics, time management in teaching and learning activities, and the facilities provided at the research site.

REFERENCE

Afsari, S., Safitri, I., Harahap, S. K., & Munthe, L.S. (2021) 'Systematic Literature Review: Efektivitas Pendekatan Pendidikan Matematika Realistik Pada Pembelajaran Matematika', *Indonesian Journal Of Intellectual Publication, 1(3), 189–197*.

Andriyannisa, M. Wahyudi. Sayekti, S. (2023) 'Upaya Meningkatkan Hasil Belajar Siswa Dengan Menggunakan Metode Resitasi Pada Mata Pelajaran Akidah Akhlak Di Sd Islam Riyadhul Jannah Depok', *Pediaqu: Jurnal Pendidikan Sosial dan Humaniora Vol. 2, No. 3*.

Anggreini, D., & Priyojadmiko, E. (2022) Peran Guru dalam Menghadapi Tantangan Implementasi Merdeka Belajar untuk Meningkatkan Pembelajaran Matematika pada Era Omricon dan Era Society 5.0.', *Prosiding Seminar Nasional Pendidikan Guru Sekolah Dasar 2022, 75–87.* [Preprint].

Anwar, M.S., Azizah, I.N. and Wahyudi, A. (2021) 'Pengembangan Lkpd Matematika Berbasis Kaligrafi', *Jurnal Pendidikan Matematika*, 7(1), pp. 52–61.

FH, Y., Fatimah, S. and Barlian, I. (2021) 'Development of Interactive Digital Teaching Materials with a Contextual Approach in Microeconomics Theory Courses', *Jurnal PROFIT Kajian Pendidikan Ekonomi dan Ilmu Ekonomi*, 8(1), pp. 36–46.

Henniwati, H. (2021) 'Efektifitas Metode Problem Based Learning Untuk Meningkatkan Hasil Belajar Matematika Pokok Bahasan Determinan Dan Invers Matriks Pada Siswa Kelas

X Mm1 Smk Negeri 1 Kabanjahe Di Semester Genap Tahun Pelajaran 2019/2020', *Serunai : Jurnal Ilmiah Ilmu Pendidikan*, 7(1), pp. 83–88. Available at: https://doi.org/10.37755/sjip.v7i1.424.

Herdiansyah, F. and Purwanto, S.E. (2022) 'Pengaruh Pembelajaran Matematika Realistik (PMR) Terhadap Kemampuan Pemecahan Masalah Matematis Siswa Kelas II pada Materi Operasi Hitung Penjumlahan dan Pengurangan', *Jurnal Basicedu*, 6(4), pp. 7496–7502. Available at: https://doi.org/10.31004/basicedu.v6i4.3525.

Ilham, K. (2022) 'Jurnal pema tarbiyah', *Jurnal Pema Tarbiyah*, 1(1), pp. 44–53.

Lumban Gaol, B.K., Silaban, P.J. and Sitepu, A. (2022) 'Pengaruh Kemampuan Berpikir Kritis Terhadap Hasil Belajar Siswa Pada Tema Lingkungan Sahabat Kita Di Kelas V Sd', *JURNAL PAJAR (Pendidikan dan Pengajaran)*, 6(3), p. 767. Available at: https://doi.org/10.33578/pjr.v6i3.8538.

Putra, D.O.P. and Purnomo, Y.W. (2023) 'Pengaruh Pendekatan Pendidikan Matematika Realistik Indonesia (Pmri) Terhadap Kemampuan Numerasi Siswa', *AKSIOMA: Jurnal Program Studi Pendidikan Matematika*, 12(1), p. 512. Available at: https://doi.org/10.24127/ajpm.v12i1.6231.

Rohman, Syaifudin, N.A. (2021) '*Jurnal Penelitian Pendidikan Matematika*, 5, pp. 165–173.

Siloto, E.N.T. (2023) 'Pengembangan Modul Ajar Berbasis Kurikulum Merdeka Pada Materi Bentuk Aljabar Di Kelas Vii Smp Negeri 13 Medan', *Sepren*, 4(02), pp. 194–209. Available at: https://doi.org/10.36655/sepren.v4i02.1155.

Sofyan, Y., Sumarni, S. and Riyadi, M. (2021) 'Pengembangan Perangkat Pembelajaran Pada Materi Bangun Ruang Sisi Datar Berbasis Model Project Based Learning Untuk Meningkatkan Kemampuan Pemecahan Masalah Matematis Siswa', *Sigma: Jurnal Pendidikan Matematika*, 13(2), pp. 129–142. Available at: https://doi.org/10.26618/sigma.v13i2.5832.

Sugiyono (2021) *Metode Penelitian Kualitatif, Kuantitatif, Reserach and Development, Mixed Metod, dan Penelitian Tindakan*. Bandung: Alpa Beta.

Syahidan Nurdin, Nurliani Anjani Cibro and Wati Oviana (2023) 'Pengembangan Bahan Ajar Berbasis Model Pembelajaran Discovery Learning Di Sd/Mi', *FITRAH: International Islamic Education Journal*, 5(1), pp. 37–52. Available at: https://doi.org/10.22373/fitrah.v5i1.2462.

Trianto (2015) *Model Pembelajaran Terpadu: Konsep, Strategi, dan Implementasinya dalam Kurikulum Tingkat Satuan Pendidikan (KTSP) - Edisi Revisi*. Jakarta: Bumi Aksara.

Triyono (2019) *Metodologi Penelitian Pendidikan*. Yogyakarta : Ombak.

Tumulo, T.I. (2022) 'Volume 02, (2), June 2022 http://ejurnal.pps.ung.ac.id/index.php/dikmas', *Pendidikan Masyarakat Dan Pengabdia*, 02(23), pp. 539–552.

Widayati, E.W. (2022) 'P Pembelajaran Matematika di Era "Merdeka Belajar", Suatu Tantangan bagi Guru Matematika', *Sepren*, 4(01), pp. 01–10. Available at: https://doi.org/10.36655/sepren.v4i01.770.

Yulianto, A. (2021) 'Penerapan Model Kooperatif Tipe Tps (Think Pair Share) Untuk Meningkatkan Hasil Belajar Siswa Di Kelas Vi Sdn 42 Kota Bima', *Jurnal Pendidikan Sekolah Dasar*, 1(2), pp. 6–11.