Literature Study: Teaching Modules Based on Realistic Mathematics Approach to Improve Learning Outcomes of Elementary School Students Between 2019 - 2024

Sri Iftinawati[1*]; Eko Handoyo[2]; Sri Wardani[3]; Bambang Subali[4]; Nuni Widiarti[5]

[1]Elementary Education, Universitas Negeri Semarang, Indonesia
[2]Pancasila and Civics Education, Universitas Negeri Semarang, Indonesia
[3,5]Chemistry Education, Universitas Negeri Semarang, Indonesia
[4]Physics Education, Universitas Negeri Semarang, Indonesia
[1]Corresponding Email: sriiftinawati1983@gmail.com, Phone Number: 0895 xxxx xxxx*

How to cite:
Iftinawati, S., Handoyo, E., Wardani, S., Subali, B., & Widiarti, N. (2025). Literature Study: Teaching Modules Based on Realistic Mathematics Approach to Improve Learning Outcomes of Elementary School Students Between 2019 - 2024. *Edunesia : Jurnal Ilmiah Pendidikan, 6*(2), 1011-1023.

Abstract: This literature review departs from the problems in learning mathematics in elementary schools related to teaching abstract material, such as fractions, which affects the low achievement of student learning outcomes. This literature review aims to theoretically analyze the impact of using teaching modules based on the Realistic Mathematics Approach (PMR) in improving student learning outcomes in primary schools. The method used in this review is a Systematic Literature Review (SLR) covering 25 articles from five databases: Google Scholar, DOAJ, Sinta, ResearchGate, and Scopus. The articles were keyworded "teaching module", "realistic mathematics", "learning outcomes", "primary school", "RME", and "teaching module", using the Boolean operator "AND". The results showed that using PMR-based teaching modules positively impacted student learning outcomes. The main findings of this literature review are: 1) Better understanding of math concepts; 2) Increased active participation of students; 3) Increased critical thinking and problem-solving skills; 4) Teaching modules are considered practical and feasible; 5) Positive responses from teachers and students. In conclusion, PMR-based teaching modules have proven effective in improving the learning outcomes of elementary school students. This study recommends the need for development and training for teachers in designing PMR-based teaching modules to produce more relevant and efficient learning experiences in elementary schools.

Abstrak: Kajian literatur ini berangkat dari permasalahan dalam pembelajaran matematika di sekolah dasar, berkaitan dengan pengajaran materi yang bersifat abstrak, seperti pecahan, yang mempengaruhi rendahnya capaian hasil belajar siswa. Tujuan kajian literatur ini untuk menganalisis secara teori dampak penggunaan modul ajar yang didasarkan pada Pendekatan Matematika Realistik (PMR) dalam meningkatkan hasil belajar siswa di sekolah dasar. Metode yang digunakan dalam kajian ini adalah Systematic Literature Review (SLR), mencakup 25 artikel dari lima database, yaitu Google Scholar, DOAJ, Sinta, ResearchGate, dan Scopus. Artikel-artikel tersebut dengan kata kunci "modul ajar", "matematika realistik", "hasil belajar", "sekolah dasar", "RME", dan "teaching module", menggunakan operator Boolean "AND". Hasil kajian menunjukkan penerapan modul ajar berbasis PMR berdampak positif dalam peningkatan hasil belajar siswa. Temuan utama kajian literatur ini adalah: 1) Pemahaman konsep matematika yang lebih baik; 2) Meningkatnya partisipasi aktif siswa; 3) Peningkatan keterampilan berpikir kritis dan pemecahan masalah; 4) Modul ajar dianggap praktis dan layak; 5) Tanggapan positif dari guru dan siswa. kesimpulannya, modul ajar berbasis PMR terbukti efektif meningkatkan hasil belajar siswa sekolah dasar. Penelitian ini merekomendasikan perlunya pengembangan dan pelatihan bagi guru dalam merancang modul ajar berbasis PMR guna menghasilkan pengalaman belajar yang lebih relevan dan efisien di sekolah dasar.

A. Introduction

Innovation in education has a crucial role in creating learning experiences that are not only effective but also meaningful, creative, and relevant to students' needs (Rahmawati & Nurachadija, 2023). It involves the application of new approaches, techniques, strategies or technologies in educational activities that aim to improve the quality and effectiveness of the teaching-learning process (Septikasari et al., 2025). Although this innovation has great potential, many challenges must be faced in its application, especially in teaching mathematics at the primary school level.

Mathematics is a discipline that has an important role in developing students' logical thinking, analytical, and problem-solving skills (Almita et al., 2024). Many students consider math difficult, mainly because of its abstract concepts (Amir & Andong, 2022). Many students consider math difficult, mainly because of its abstract concepts (Atiaturrahmaniah et al., 2021). The main factors causing this are teaching approaches that tend to be monotonous, limited concrete learning media, and a curriculum that is not sufficiently relevant to students' daily lives (Riyadi & Supriatna, 2025). This situation illustrates how crucial the role of the teacher is in learning activities.

The role of the teacher is crucial. Teachers are responsible for creating a learning atmosphere that conveys information and builds a deeper and more meaningful understanding for students. A professional teacher can make the learning process more interesting and compelling to help students achieve learning objectives optimally (Saputri et al., 2024). Efforts to support the teacher's task include providing efficient and systematically organized learning tools.

One of the teaching tools that can improve the quality of learning is teaching modules. Teaching modules are learning tools compiled based on the applicable curriculum and designed to help achieve predetermined competencies (Putri et al., 2024). Teaching modules play a significant role in helping students learn the material in a structured and in-depth manner, allowing them to master the concepts presented. Based on Kemendikbudristek, teaching modules are a form of development of the Learning Implementation Plan (RPP), which includes implementation guidelines, activity sheets for students, and assessment tools to measure the achievement of learning objectives (Ismah et al., 2024).

The success of the learning process is not solely determined by the quality of the teaching module but also by the relevance of the material to the needs of students and alignment with the learning objectives that have been designed. The learning process can experience obstacles if the material taught is not aligned with the needs and characteristics of students (Ilahiyah et al., 2019). Thus, preparing practical teaching modules can help students understand the material more systematically, positively impacting their learning outcomes. Student learning achievement at the primary school level is an important benchmark in assessing the success of the education process. This achievement shows how students understand the material and reflects their ability to use that knowledge in real-life situations (Anissa & Lutfi, 2024). In order to improve students' academic achievement,

especially in mathematics subjects that are often considered challenging, creative learning methods are needed in their daily experiences. A method that can be applied is Realistic Mathematics, which relates mathematical concepts to the context of everyday life to facilitate student understanding.

The Realistic Mathematics Approach is a learning method that links mathematical concepts with students' daily lives and concrete experiences to help students understand the material more easily (Nurhandayani et al., 2021). This method aims to help students develop and deepen their understanding of mathematical concepts through interactive problem-solving activities relevant to everyday situations (Anggraeni et al., 2024). This method is very suitable for use at the elementary school level because students at that age tend to understand the material more easily through direct experience and require a connection between lessons and everyday life (Utami, 2024).

Elementary school students generally have a limited attention span and are more interested in learning that involves practical activities and examples directly related to their lives (Pania et al., 2023). Therefore, a mathematical approach relevant to everyday life can make it easier for students to understand and apply mathematical concepts (Suciyanti et al., 2024). This approach can also encourage students' active participation in learning activities, improving understanding and maximizing learning outcomes (Koesnadi & Astuti, 2024).

Although the PMR approach has various advantages, its implementation in the field often encounters challenges. One of the problems is the less-than-optimal use of teaching modules by learning objectives and student needs. Many teachers have not adopted teaching modules that focus on contexts relevant to student's lives, and often, the teaching modules used do not integrate the realistic mathematics approach (Selviyani et al., 2024). This condition causes learning to be less meaningful, so students have difficulty connecting mathematical material with their daily experiences.

This literature review aims to theoretically analyze the effect of implementing teaching modules based on the Realistic Mathematics Approach (PMR) on improving student learning outcomes at the primary school level. The review will identify key trends and findings from research addressing the application of PMR in teaching modules and its impact on student understanding and learning outcomes in primary schools between 2019 and 2024. With this aim, this study is expected to provide a more comprehensive understanding of the successes and obstacles faced in the implementation of PMR-based teaching modules in primary schools, as well as provide insights for the development of teaching modules that are more suitable and efficient in improving the quality of mathematics teaching at the primary school level.

B. Method

This literature review was prepared using the Systematic Literature Review (SLR) approach, which aims to identify, evaluate, and analyze findings from various scientific studies relevant to the topic discussed (Sukasno et al., 2023). The topic of writing this literature review is the development and effectiveness of teaching modules based on a

realistic mathematics approach to improve student learning achievement at the elementary school level. The steps taken in the *Systematic Literature Review (SLR)* involve a series of processes starting with (1) identification of articles, (2) review of the articles found, (3) evaluation of the quality and relevance of the articles, and (4) interpretation of the overall data that has been collected (Kirom & Ridho, 2024). In writing this literature review, the authors systematically reviewed and identified literature and references from various journals. In addition, the authors followed the sequence of steps set out in the applicable guidelines. This process was thorough and structured to ensure that each article included in the review contributed significantly to understanding the topic under study.

The information used in writing this literature review was obtained from various scientific journals that can be accessed through various academic databases, such as Google Scholar, DOAJ, Sinta, ResearchGate, Publish or Perish, and Scopus, which focus on the development and implementation of teaching modules based on a realistic mathematics approach (PMR) in improving student learning outcomes in elementary schools. The articles selected are related to relevant topics, use quality methodology, and contribute to a deeper understanding of the effectiveness of PMR in mathematics education. The source articles that have been accessed aim to compile a comprehensive literature review that supports efforts to develop teaching modules that are more effective and relevant to the context of students' lives.

The search for articles in this literature review used keywords such as "teaching module", "realistic mathematics", "learning outcomes", "primary school", "RME", and "teaching module". The search process was limited to articles published between 2019 and 2024 to ensure relevant and up-to-date information. The articles found were then selected based on their relevance and quality. The relevance of the articles was assessed based on the extent to which they fit the topic of the study, which discussed the development and effectiveness of teaching modules adopting a realistic mathematics approach to improve student learning achievement at the primary school level. Articles that review the application of the realistic mathematics approach (PMR) in teaching modules and its effect on students' understanding and learning outcomes are recognized as relevant and essential references to be included in this study (Sunedi, 2023). The stages of the article selection process can be seen in Figure 1 below.
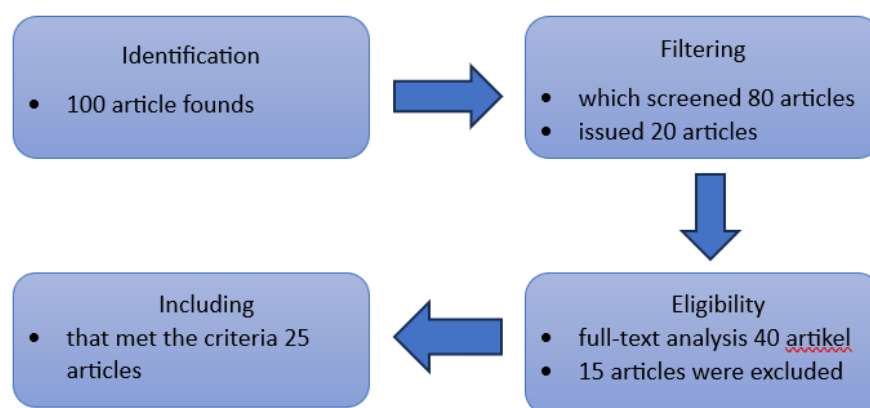
Figure 1. Article Selection Process

The article selection stage also considered inclusion and exclusion criteria. The inclusion criteria included several conditions for articles to be accepted in this literature review. Articles selected had to focus on primary school education, use the RME approach and include measurement of student learning outcomes. All articles included in this review had to be published in Indonesian or English to make them easily accessible and understandable to readers with different language backgrounds. Exclusion criteria were used to exclude articles that did not meet the predetermined criteria, such as articles that did not mention RME in the methodology or discussion, articles that did not use teaching modules as part of the approach and did not focus on the effectiveness of teaching modules based on a realistic mathematics approach in improving student learning outcomes. The article selection process can be structured using specific inclusion and exclusion criteria to ensure that only relevant and quality articles will be included in this literature review. The screening criteria for the following article can be seen in Table 1 below.

Table 1. Article Selection Process

Criteria	Inclusion	Exclusion
Article Type	Articles published in peer-reviewed scientific journals.	Articles published in non-peer-reviewed journals.
Article Topic	An article discusses teaching module application based on the realistic mathematics approach (RME) for elementary school students.	Articles that do not focus on the realistic mathematics approach or are irrelevant to learning in primary schools.
Year of Publication	Articles published within the last 5 years (2019-2024).	Articles published more than 5 years ago.
Language	Articles published in Indonesian or English.	Articles written in languages other than Indonesian and English.
Research Methods	Articles that use quantitative, qualitative, or literature review research methods related to RME and learning outcomes.	Articles do not mention the realistic mathematics approach (RME) in their methodology or do not use teaching modules.

C. Result and Discussion
Result
1. Data Analysis

This literature review adopts the Systematic Literature Review (SLR) approach to analyze and evaluate 25 accepted scientific articles that discuss developing and implementing teaching modules based on the Realistic Mathematics Approach (PMR). The analysis of the 25 articles found that PMR continues to significantly influence student learning achievement, especially in improving understanding of mathematical concepts that were previously considered complex and abstract by many students. The articles revealed significant progress in the cognitive, affective and psychomotor aspects of students taught using PMR-based modules. Various studies show that this approach makes mathematics learning more contextual and relevant to students' daily lives. Thus, the application of PMR in mathematics teaching allows students to connect the concepts learned with the real situations they experience around them.

2. Critical Assessment

A critical appraisal of the selected articles revealed variations in methodological quality but overall significant contributions to the development of mathematics learning at the primary school level. Most studies used research and development (R&D) methods with models such as ADDIE and 4-D, which enabled the development of valid and effective teaching modules to be implemented in the classroom. Studies using quasi-experimental designs and classroom action research (PTK) also show positive results, where the application of PMR improves students' engagement, learning outcomes, and critical thinking skills. One of the main findings in this critical appraisal is that although many studies show the success of implementing PMR, challenges such as limited teacher creativity in designing teaching modules and lack of appropriate resources for classroom implementation remain significant obstacles. Therefore, to maximize the potential of PMR, it is important to pay attention to teacher readiness and the availability of adequate learning facilities.

3. Literature Review Results

The results of this literature review reveal that the application of PMR at the elementary school level greatly influences mathematics learning achievement. Various studies have shown that PMR deepens students' understanding of mathematical concepts and encourages active participation in learning. Research by Claudia et al (2020) showed that the use of the PMR approach in the learning process of multiplication was able to provide a significant increase in student learning outcomes, especially in understanding concepts more deeply. The same thing is also seen in research conducted by Malik et al (2024), who noted the improvement in students' learning outcomes on building space after implementing the PMR approach. Most of the articles reviewed also show that the use of PMR makes it easier for students to relate mathematical concepts to real situations in their

lives, increasing interest in learning and accelerating understanding of the material. This proves that this context-based approach not only helps students master mathematical material but also makes learning more meaningful.

The improvement occurred not only in learning outcomes but also in students' critical thinking skills, which showed rapid development. Isnaini & Aini (2024) found that applying PMR can awaken students' critical thinking ability, which is an important element in developing higher mathematical skills. The same thing was found in a study by Suciyanti et al (2024), who mentioned that traditional games used in PMR-based learning improved students' understanding of basic math concepts, such as division.

4. Data Analysis Matrix Used for Literature Review

The data analysis matrix used in this literature review shows that most of the articles received used R&D methods, specifically the ADDIE and 4-D models, to develop PMR-based teaching modules. Research using quasi-experiments and classroom action research (PTK) also significantly improved student learning outcomes. Quantitative data in these articles showed an increase in students' learning outcome scores in geometry, fractions, and space-building materials. The matrix also reveals that the local cultural context in PMR-based learning is often used as a background for teaching materials, which makes learning more relevant for students in Indonesia.

The following author presents a data analysis matrix diagram based on the methodology used (R&D, Quasi-experiment, PTK, Qualitative, Experiment).
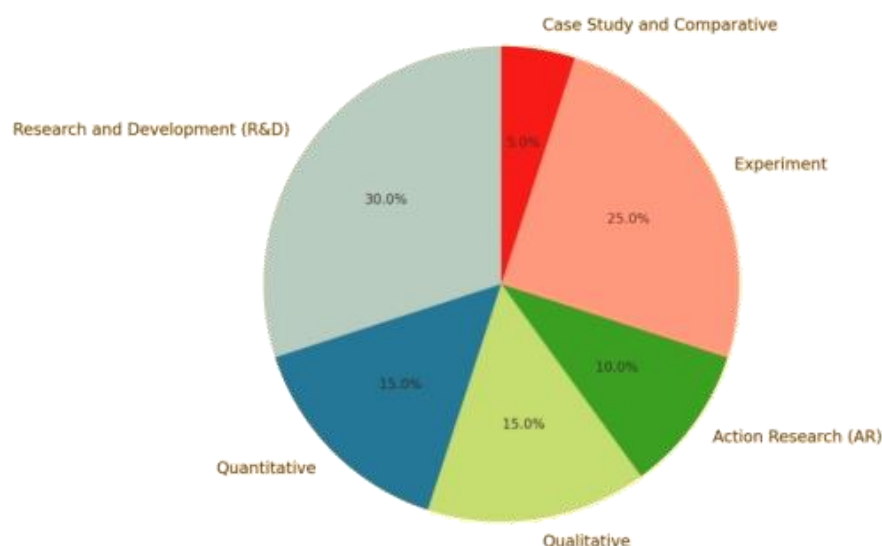

Figure 2. Distribution of 25 articles by Method Type

Discussion

Studies have significantly increased in the last five years, addressing the development of teaching modules based on the Realistic Mathematics Approach (PMR) at the basic education level (Barumbun et al., 2024). This indicates an increased interest in

mathematics learning that is linked to real situations in students' lives (Revina & Leung, 2021). In addition to growing in terms of quantity, the quality of research is also getting better. Research that initially only focused on feasibility testing has now begun to evaluate the effectiveness of learning, the achievement of students' cognitive aspects, and their active participation (Hafizah et al., 2024; Elwijaya et al., 2021). One approach that can be applied in this situation is to design PMR-based learning modules that emphasize the local context so that teaching materials become more aligned with students' reality and easier for them to understand. For example, Matondang (2020) showed that using local cultural contexts in PMR teaching materials can deepen students' understanding and increase their engagement.

This solution is based on Piaget and Vygotsky's Constructivism Theory, which explains that the best learning process occurs when students connect new concepts with their previous experiences. In the context of PMR, students do not just learn math concepts in isolation. Instead, they are encouraged to develop understanding by applying that knowledge to problems relevant to everyday life. This approach helps students make meaning of abstract mathematical concepts, such as fractions and geometry, which are often the main problems faced in learning mathematics at the elementary level (Suciyanti et al., 2024).

In addition, according to Anggraeni et al (2024) and Suciyanti et al (2024), using traditional games, such as congklak, in PMR-based learning can also help students understand basic mathematics concepts better. This approach aligns with Problem-Based Learning (PBL) theory, which emphasizes the importance of using real situations as a tool in the learning process. Thus, PMR-based teaching modules can provide a more meaningful learning experience while helping students develop numeracy and literacy skills.

Although PMR has proven effective, the main challenge in its implementation is the lack of teacher creativity in developing teaching modules based on this approach. Several studies reveal that teachers' creativity in designing appropriate context-based teaching materials remains a significant obstacle (Sampoerno & Meiliasari, 2019). To overcome this problem, one solution that can be applied is to strengthen teacher training to assist them in designing more innovative and relevant PMR-based teaching modules. This statement aligns with Teacher readiness theory, which emphasizes that the effectiveness of implementing learning innovations is primarily determined by the extent to which teachers are ready and understand the approaches used (Elwijaya et al., 2021). Practical training, followed by continuous mentoring, will ensure that teachers can implement PMR well and create teaching materials appropriate to the local cultural context.

Furthermore, the Merdeka Curriculum, which emphasizes more flexible and project-based learning, offers excellent opportunities to integrate PMR in mathematics learning in primary schools (Datu et al., 2024). In this case, PMR aligns with the orientation of the Merdeka Curriculum, which supports context-based learning. Thus, implementing PMR in the classroom is an effective solution to creating learning that is more meaningful and

relevant to students' lives. PMR improves learning outcomes and provides students a more adaptive and enjoyable learning experience.

However, in addition to challenges related to teacher creativity, limited resources and inappropriate context selection are obstacles to implementing PMR. Therefore, another solution can be offered to strengthen teacher collaboration through learning communities. Teachers can exchange ideas and experiences in developing PMR-based teaching modules through this collaboration. The Professional Collaboration Theory supports this solution, which states that collaboration between teachers can improve the quality of teaching and help them overcome challenges that arise in implementing educational innovations (Sunedi, 2023).

This study provides a complete picture of the successes and challenges in implementing PMR. This approach has shown effectiveness in improving student learning achievement, but challenges related to teacher creativity, resources and choosing the correct context need further attention. Therefore, there is a need to expand the research to a broader area to test the effectiveness of PMR in different contexts, as well as to look at its implementation in the growing online or digital learning, given the rapid advancement of technology and the demand for a more flexible learning system (Hafizah et al., 2024; Chuseri et al., 2021).

D. Conclusion

Based on a review of 25 scientific articles published between 2019 and 2024, the Realistic Mathematics Approach (PMR) can be considered a suitable and efficient strategy for learning mathematics at the primary school level. PMR can overcome problems in traditional mathematics learning by linking mathematical material with real-life contexts close to students' experiences. This method strengthens students' understanding of mathematical concepts and increases their active involvement during learning activities. Therefore, PMR should be considered an appropriate strategy for designing adaptive, contextual, and meaningful mathematics learning in primary schools.

This study's results significantly impact mathematics learning practices, especially for educators and curriculum designers. The PMR approach aligns with the principles of the Merdeka Curriculum, which prioritizes adaptive learning and focuses on student needs. Thus, the application of PMR allows teachers to design more contextually appropriate teaching materials closely related to students' daily lives while supporting the achievement of curriculum objectives that emphasize learning experiences. The implementation of PMR has been proven to improve students' academic achievement and strengthen critical thinking and numerical skills that are essential for their future competencies. For effective implementation of PMR, professional training for teachers and cooperation among educators in developing teaching materials are needed.

In future research, a more in-depth analysis of the long-term implementation of PMR should be conducted to assess its impact on improving student competence sustainably. Further research also needs to be conducted to explore the development of PMR-based

teaching modules in digital format, given the rapid development of technology and the demand to provide learning that is more flexible and widely accessible. In addition, the expansion of cultural context in the development of teaching modules is also significant so that the modules made are more sensitive to the diversity of student backgrounds in Indonesia to increase inclusiveness and relevance in mathematics learning.

References

Almita, D., Hasanah, N. P., Ritonga, S. H., & Sofiyah, K. (2024). Masalah Matematika di Sekolah Dasar. *Jurnal Ilmiah Multidisiplin Terpadu, 8*(12), 2246–6111.

Amir, N. F., & Andong, A. (2022). Kesulitan Siswa dalam Memahami Konsep Pecahan. *Journal of Elementary Educational Research,* 2(1), 1–12. https://doi.org/10.30984/jeer.v2i1.48

Anggraeni, B. A., Ernita, D., Aterina, F., & Hidayati, D. (2024). Implementasi Pendekatan Matematika Realistik dalam Pembelajaran Matematika di Kelas V Sekolah Dasar. *Jurnal Kajian Ilmiah Interdisiplinier, 8*(11), 121-126.

Anissa, A. S., & Lutfi. (2024). Meningkatkan Kemampuan Peserta Didik Menghubungkan Materi dalam Kehidupan Sehari-hari dengan Strategy Concept Attainment, Pendekatan Kontekstual, dan Metode Demokrasi. In *Seminar Nasional Dan Publikasi Ilmiah 2024 FIP UMJ*.

Atiaturrahmaniah, A., Kudsiah, M., & Ulfa, E. M. (2021). Analisis Faktor Penyebab Kesulitan Belajar Matematika Materi Pecahan Siswa Kelas IV SDN Sukaraja. *Jurnal DIDIKA: Wahana Ilmiah Pendidikan Dasar*, 7(2), 268-278. https://doi.org/10.29408/didika.v7i2.4657

Barumbun, M., Kusnadi, D., Dwiyanti, A., & Liani, A. M. (2024). Pengembangan Modul Ajar Matematika Sesuai Kurikulum Merdeka Materi Pecahan Berbasis Pendekatan Matematika Realistik uintuk Kelas V Sekolah Dasar. *Proximal: Jurnal Penelitian Matematika Dan Pendidikan Matematika,* 7. https://doi.org/10.30605/proximal.v5i2.3804

Chuseri, A., Anjarini, T., & Purwoko, R. Y. (2021). Pengembangan Modul Matematika Berbasis Realistik Terintegrasi Higher Order Thinking Skills (Hots) pada Materi Bangun Ruang. *Alifmatika: Jurnal Pendidikan Dan Pembelajaran Matematika*, 3(1), 18-31. https://orcid.org/0000-0003-4931-7917

Claudia, S., Suryana, Y., & Pranata, O. H. (2020). Pengaruh Pendekatan Matematika Realistik terhadap Hasil Belajar Siswa Kelas II pada Perkalian Bilangan Cacah di Sekolah Dasar. *Pedadidaktika: Jurnal Ilmiah Pendidikan Guru Sekolah Dasar, 7*(2), 210–221. https://doi.org/10.17509/pedadidaktika.v7i2.26382

Datu, P. A., Pomalato, S. W. D., & Panigoro, H. S. (2024). Pengembangan Modul Ajar Berdiferensiasi Berbasis Kurikulum Merdeka dengan Pendekatan Pendidikan

Matematika Realistik. *Jambura Journal of Mathematics Education, 5*(1), 70–82. https://doi.org/10.37905/jmathedu.v5i1.20132

Elwijaya, F., Firman, F., & Desyandri, D. (2021). Efektivitas Pendekatan Pendidikan Matematika Realistik (PMR) dalam Meningkatkan Hasil Belajar Penjumlahan Pecahan Berpenyebut Berbeda di Sekolah Dasar. *JRTI (Jurnal Riset Tindakan Indonesia), 6*(1), 40–45. https://doi.org/10.29210/3003721000

Hafizah, N., Ahmad, S., Zainil, M., & Bentri, A. (2024). Validity of the Elementary School Mathematics E-Module on Fractional Material Based on the Realistic Mathematics Education (RME) Approach. *Mimbar Sekolah Dasar, 11*(2), 328–338. https://doi.org/10.53400/mimbar-sd.v11i2.72099

Ilahiyah, N., Yandari, I. A. V., & Pamungkas, A. S. (2019). Pengembangan modul Matematika Berbasis Pakem pada Materi Bilangan Pecahan di SD. *Terampil: Jurnal Pendidikan dan Pembelajaran Dasar*, *6*(1), 49-63.

Ismah, Z., Astuti, E. P., & Yuzianah, D. (2024). Pengembangan Modul Ajar Matematika Berbasis Kearifan Lokal untuk Meningkatkan Pemecahan Masalah Siswa SMP. *APOTEMA: Jurnal Program Studi Pendidikan Matematika, 10*(1), 2407–8840. https://doi.org/10.31597/ja.v10i1.1028

Isnaini, R. N., & Aini, N. (2024). Efektivitas Realistic Mathematics Education Terhadap Kemampuan Berpikir Kritis dalam Mata Pelajaran Matematika SDN Ploso. *Jurnal Cendekia : Jurnal Pendidikan Matematika, 8*(2), 1462–1471. https://doi.org/10.31004/cendekia.v8i2.3279

Kirom, M. F., & Ridho, N. (2024). Systematic Literature Review: Analisis Peningkatan Hasil Belajar Melalui Pengembangan LKPD dengan Pendekatan Realistic Mathematic Education. In *SANTIKA: Seminar Nasional Tadris Matematika*, 4, 293-307.

Koesnadi, L. P., & Astuti, R. (2024). Analisis Kesesuaian dan Kelengkapan Modul Ajar terhadap Standar Kompetensi Microteaching. *Journal of Education Research*, *5*(4), 5479-5487. https://doi.org/10.37985/jer.v5i4.1726

Malik, R. F., Riafadilah, A., & Rahayu, S. (2024). Pengaruh Pendekatan Pendidikan Matematika Realistik (PMR) terhadap Hasil Belajar Matematika Siswa Sekolah Dasar. *Basic: Journal of Arts and Science in Primary Education, 3*(2), 39–50. https://doi.org/10.37680/basica.v3i2.4173

Matondang, A. R. (2020). Pengembangan Modul Matematika Berbasis Budaya Mandailing dengan Pendekatan Matematika Realistik (PMR) untuk Meningkatkan Kemampuan Komunikasi Matematik. *AXIOM: Jurnal Pendidikan Dan Matematika*, *9*(1), 26-34. https://doi.org/10.3082/axiom.v%vi%i.7230

Nurhandayani, N., Arjudin, A., & Saputra, H. H. (2021). Pengaruh Pendekatan Matematika Realistik terhadap Motivasi dan Hasil Belajar Matematika Siswa Kelas IV SDN

Gugus II Kecamatan Madapangga Tahun Pelajaran 2020/2021. *Renjana Pendidikan Dasar*, *1*(3), 166-174.

Pania, F. M., Pribadi, R. A., & Jamaludin, U. (2023). Karakteristik Belajar dan Pembelajaran Anak Usia Sekolah Dasar (SD). *Didaktik: Jurnal Ilmiah PGSD STKIP Subang*, *9*(2), 4744-4753. https://doi.org/10.36989/didaktik.v9i2.1131

Putri, T. N., Anwar, R. N., & Afifah, D. R. (2024). Manfaat Modul Ajar terhadap Hasil Belajar Peserta Didik. In *Seminar Nasional Sosial, Sains, Pendidikan, Humaniora (SENASSDRA)*, 3(3), 18-21.

Rahmawati, S., & Nurachadija, K. (2023). Inovasi Pendidikan dalam Meningkatkan Strategi Mutu Pendidikan. *BERSATU: Jurnal Pendidikan Bhinneka Tunggal Ika, 1*(5), 01–12. https://doi.org/10.51903/bersatu.v1i5.303

Revina, S., & Leung, F. K. S. (2021). Issues Involved in the Adoption of Realistic Mathematics Education in Indonesian Culture. *Compare: A Journal of Comparative and International Education, 51*(5), 631–650. https://doi.org/10.1080/03057925.2019.1650636

Riyadi, D. D., & Supriatna, E. (2025). Analisis Kesulitan Siswa Kelas III dalam Memahami Konsep Matematika: Studi Kasus di Sekolah Dasar. *Jurnal Review Pendidikan dan Pengajaran (JRPP)*, *8*(1), 1864-1873.

Sampoerno, P. D., & Meiliasari, M. (2019). Analysis of the Mathematical Learning Materials with the Characteristics of Realistic Mathematics Education in the Design Research Pre-Service Teachers' Theses in Indonesia. *Journal of Physics: Conference Series, 1402*(7). https://doi.org/10.1088/1742-6596/1402/7/077105

Saputri, R. E., Maula, N., Adawiyyah, P., & Putri, R. A. (2024). Peran Guru terhadap Pendidikan Karakter Peserta Didik. *Jurnal Pendidikan Guru Sekolah Dasar, 2*(1), 1-11. https://doi.org/10.47134/pgsd.v2i1.910

Selviyani, A., Refianti, R., & Purwasi, L. A. (2024). Pengembangan Modul Ajar Berbasis PMRI Menggunakan Konteks Pasar Inpres Lubuklinggau pada Materi Aritmatika Sosial Kelas VII. *JP2M (Jurnal Pendidikan Dan Pembelajaran Matematika), 10*(2), 573–586. https://doi.org/10.29100/jp2m.v10i2.5591

Septikasari, D., Nurlaila, Saleh, F., Inayah, S., Warikar, A., Suwarningsih, T., Muslimin, & Suardi M. (2025). *Inovasi Pembelajaran Guna Menciptakan Pengalaman Belajar yang Asyik dan Menarik*. CV. Pustaka Inspirating Minang.

Suciyanti, N., Maulidina, N., Sari, Y. P., Utami, F. diah+, & Anastasya. (2024). Matematika Realistik Meningkatkan Pemahaman Siswa tentang Konsep Pembagian di Sekolah Dasar melalui Pemainan Congklak. In *Prosiding Diskusi Panel Nasional Pendidikan Matematika*, 651–658.

Sukasno, Zulkardi, Putri, R. I. indra+, & Somakim. (2023). Systematic Literatur Review: Pembelajaran Pecahan Menggunakan Pendekatan Pendidikan Matematika Realistik

Indonesia. *Journal of Mathematics Science and Education, 6*(1), 26–36. https://doi.org/10.31540/jmse.v6i1.2616

Sunedi, D. P. O. (2023). Penerapan Pendekatan Matematika Realistik Indonesia untuk Meningkatkan Hasil Belajar Matematika Siswa Kelas IV Sekolah Dasar. *Journal of Education Action Research, 7*(4), 456–462. https://doi.org/10.23887/jear.v7i4.54637

Utami, N. D. (2024). Penerapan Pendekatan Kontekstual untuk Meningkatkan Kemampuan Pemecahan Masalah Matematis Siswa Sekolah Dasar. *Jurnal Pendidikan Guru Sekolah Dasar, 1*(2), 1–9. https://doi.org/10.47134/pgsd.v1i2.134