The Social Arithmetics Module Based on Islamic Values and Realistic Mathematics Education to Improve Students' Problem-Solving Skills

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Abstract. Mathematics learning must be made more exciting and meaningful to overcome the perception that mathematics is a tricky subject. Students must be facilitated to build their knowledge through mathematics learning linked to realistic problems and integrated with Islamic values so that they can solve relevant daily problems. This research aims to develop a Social Arithmetic module based on Islamic values and Realistic Mathematics Education (RME) to help junior high school students improve their problem-solving skills. This research uses R&D with the ADDIE development model. The development of the mathematics module consists of three stages, namely the preliminary, development and evaluation stages. The resulting module prototype has been assessed as valid by material and media experts. Meanwhile, based on student and teacher responses to the questionnaire, the module was proven suitable for use in mathematics learning. In addition, the results of the paired t-test stated that the module was effective in improving students' problem-solving skills. Therefore, this research concluded that the Social Arithmetics module based on Islamic values and RME that were developed has met the valid and practical criteria and has proven effective in improving the problem-solving abilities of seventh-grade junior high school students.

Keywords: Islamic Values; Mathematics Module; Problem-Solving Skills, Realistic Mathematics Education; Social Arithmetics

Abstrak. Pembelajaran matematika harus dibuat lebih menarik dan bermakna untuk mengatasi anggapan bahwa matematika adalah mata pelajaran yang sulit. Siswa harus difasilitasi untuk membangun pengetahuannya melalui pembelajaran matematika yang dikaitkan dengan permasalahan realistik dan terintegrasi dengan nilai-nilai Islam sehingga mampu memecahkan permasalahan sehari-hari yang relevan. Penelitian ini bertujuan untuk mengembangkan modul Aritmatika Sosial berbasis nilai-nilai Islam dan Realistic Mathematics Education (RME) untuk membantu siswa SMP meningkatkan kemampuan pemecahan masalah. Penelitian ini menggunakan R&D dengan model pengembangan ADDIE. Pengembangan modul matematika terdiri dari tiga tahap, yaitu tahap pendahuluan, pengembangan, dan evaluasi. Prototipe modul yang dihasilkan telah dinilai valid oleh ahli materi dan media. Selain itu, berdasarkan respon siswa dan guru terhadap angket, modul juga terbukti layak digunakan dalam pembelajaran matematika. Hasil uji t berpasangan juga menyatakan bahwa modul efektif meningkatkan kemampuan pemecahan masalah siswa. Oleh karena itu, penelitian ini menyimpulkan bahwa modul Aritmatika Sosial berbasis nilai-nilai Islam dan RME yang dikembangkan telah memenuhi kriteria valid dan praktis serta terbukti efektif dalam meningkatkan kemampuan pemecahan masalah siswa kelas VII SMP.

Kata kunci: Aritmatika Sosial; Kemampuan Pemecahan Masalah, Modul Matematika; Nilai Keislaman; *Realistic Mathematics Education*

INTRODUCTION

Mathematics, an integral science in education, assumes a crucial role, despite students frequently perceiving it as a challenging subject, grappling with the application of mathematical concepts to real-life situations (Sarismah, 2013; Rakhmawati & Alifia, 2018). A contributing factor to students' struggles in mastering mathematics lies in the persisting teacher-centered learning approach. Shifting the focus of the learning process from the teacher to a more student-centric model is imperative. In fostering intelligence, skills, and shaping students' personalities, mathematics emerges as a pivotal tool. A skill intimately entwined with mathematical learning is problem-solving ability (Rosiani & Sudia, 2016; Alifia & Rakhmawati, 2018), underscoring the need for a holistic approach to nurture students' capabilities.

The development of problem-solving abilities stands out as a crucial goal in educating students, preparing them to tackle both routine and non-routine problems effectively (Gunawan et al., 2019; Komalasari et al., 2019). This skill serves as a strategic educational approach, guiding students to independently determine solutions to mathematical problems across various difficulty levels (Yuhani, 2018). Despite this, practical observations reveal that students encounter challenges, particularly in addressing social arithmetic problems (Yuliastuti, 2014). An underlying factor contributing to students' struggles is the limited availability of teaching materials, constraining teachers in effectively conveying social arithmetic concepts (Nu'man, 2015). Thus, addressing the scarcity of teaching resources becomes imperative to enhance students' comprehension of social arithmetic material.

The teaching materials devised in this study take the form of modules, defined as printed instructional resources intended for independent study by participants with minimal external assistance (Susilo, 2016; Munadi, 2013). Echoing this perspective, Martiningsih (2019), Daryanto & Dwicahyono (2014), and Nasution (2011) emphasize that modules constitute a printed educational tool offered in integrated, systematic, and comprehensive packages, facilitating self-learning to attain students' educational objectives in the absence of direct teacher involvement. The crafting of these modules necessitates meticulous design to ensure they empower students for autonomous learning and goal achievement. Evaluation criteria for the developed module's quality include its validity, practicality, and effectiveness, with the assertion that high-quality modules must align with these criteria.

In this study, the validity criteria employed pertain specifically to content validity, which gauges the extent to which the intervention design aligns with current knowledge standards (Rochmad, 2012; Van den Akker, 1999). Content validity, also referred to as expert validity, serves as the mechanism for evaluating the validity of the developed module. Expert validity involves the scrutiny of the module by specialists who determine its validity based on content. The assessment is

carried out by soliciting feedback from a panel of experts, and the module is deemed valid when no further suggestions for improvement are provided by the experts. Conforming to this perspective, Van den Akker (1999) asserts that a product is considered valid if it meets the specified requirements. Therefore, the developed mathematics module attains validity status when all expert validators concur with the stipulated criteria.

Practicality, as defined in this study, revolves around the extent to which users find the intervention usable and preferable in regular circumstances (Van den Akker, 1999). Additionally, Nieveen, as cited in Rochmad (2012), assesses the practicality of the module by gauging whether teachers perceive the material as user-friendly and suitable for both teachers and students. The module's practicality is affirmed if both teachers and students assert its usability. The evaluation of the module's practicality in this study involves the administration of questionnaires to gather responses from both teachers and students. Criteria for practicality are measured after teachers and students have engaged in learning activities using the developed mathematics module.

Effectiveness, as conceptualized in this study, aligns with Van den Akker's (1999) perspective, where it denotes the degree to which the experiences and outcomes with the intervention align with the intended aims. Morrison et al. (2019) further define effectiveness in terms of the extent to which students can attain predetermined learning goals. The assessment of effectiveness in this study relies on the examination of students' problem-solving abilities before and after engaging with the developed mathematics module. The module is deemed effective if there is a noticeable improvement in students' abilities following its utilization in the learning process. The effectiveness of the mathematics module is thus measured by the tangible enhancement observed in students' problem-solving skills after its incorporation into the learning curriculum.

According to insights garnered from interviews with seventh-grade mathematics teachers, the predominant reliance on school-issued textbooks, including student worksheets and government-endorsed mathematics textbooks, remains prevalent. Notably, educators have yet to discover teaching materials that specifically cater to the intricacies of social arithmetic content, consequently leaving students with a deficit in problem-solving skills. Furthermore, there is a recognized need for instructional resources that resonate with students' daily experiences, as social arithmetic holds close relevance to their everyday activities. It is worth noting that students exhibit a greater inclination toward religious studies compared to mathematics, a sentiment echoed in the findings of Rahmawati and Rizki (2017), who assert that students prioritize religious lessons over mathematics. Consequently, the development of mathematics teaching materials imbued with Islamic values becomes imperative to capture and sustain student interest in the subject.

Islamic values, rooted in the teachings of Islam derived from the Qur'an and As-Sunnah, constitute beliefs and principles that can be comprehended, internalized, and transmitted through

Islamic education efforts (Anwar, 2006). Yasri (2013) delineates various strategies for infusing Islamic teaching values into the learning of mathematics. These include consistently invoking the name of Allah, employing specific terms, incorporating visual illustrations, providing practical applications or examples, integrating relevant verses or hadiths, tracing historical connections, establishing topic networks, and utilizing symbols representative of the verses of the kauniyah (verses of the universe). Such approaches aim to instill Islamic values into the learning process, fostering a holistic integration of religious principles with the study of mathematics.

The integration of Islamic values into the mathematics learning process is a feasible approach, as emphasized by Yuniati and Sari (2018). This integration can be seamlessly combined with the Realistic Mathematics Education (RME) learning model. The RME learning model, as highlighted by Hidayat and Irawan (2017), offers students the opportunity to directly experience the learning process. Implementing the RME learning model not only makes the learning process more enjoyable but also more meaningful for students (Lubis et al., 2020). This model engages students actively, fostering independent understanding by presenting problems that relate to their daily lives (Lestari A., 2014).

In light of the identified challenges in teaching social arithmetic and the acknowledged need for effective learning resources, this research endeavors to develop a module. The module, rooted in both Islamic values and the Realistic Mathematics Education (RME) model, is designed to address the existing gaps in students' problem-solving abilities related to social arithmetic material. The primary objective of this research is to provide junior high school students with a comprehensive and tailored learning resource that not only aligns with Islamic values but also integrates the interactive and experiential aspects of the RME model. By doing so, it aspires to enhance students' problem-solving skills in the realm of social arithmetic, promoting a more engaging and effective learning experience.

METHOD

This research employs the research and development method to create educational products, specifically a module for social arithmetic based on Islamic values and Realistic Mathematics Education (RME). The research procedure is structured into three key stages: the preliminary stage, the development stage, and the evaluation stage, following the model proposed by Budiyono (2017).

The preliminary stage aims to establish the parameters and specifications for the mathematics module under development. It encompasses a needs analysis stage, where the fundamental challenges faced by students in learning social arithmetic are explored. Concurrently, an analysis of the mathematics learning process is conducted with the active involvement of junior high school mathematics teachers. The literature study stage complements these efforts, entailing an assessment

based on an exploration of various sources such as books, journals, proceedings, and other relevant materials. This literature review focuses on aspects critical for creating and developing high-quality modules, including content eligibility, language appropriateness, presentation quality, and graphic suitability.

The development stage is geared towards transforming theoretical products in alignment with the findings from the needs analysis and literature studies into tangible learning module prototypes. The development stage adheres to the ADDIE development model (Analysis, Design, Develop, Implement, and Evaluate), a widely recognized and comprehensive model in educational product development (Spatioti et al., 2022). In this study, the ADDIE model was tailored to suit the specific needs and constraints of the research. Activities conducted during this stage encompass theoretical product development, prototype creation, expert validation, and trial runs. The theoretical product development phase aims to generate a theoretical product, comprising the design of the developed mathematical module, along with accompanying research instruments such as tests and questionnaires. Subsequently, the prototyping development phase aspires to compile an initial version of the developed mathematics module, poised for subsequent validation. The developed mathematics module is tailored to the context of social arithmetic material for seventh-grade junior high school students.

The assessment of the module's validity involves the expertise of a designated expert validator. This study employs expert judgement by soliciting assessments from individuals recognized for their competence in the field. The selection of validators is meticulous, considering their expertise. The expert validation process centers on evaluating the content validity of the developed mathematics module. Multiple experts participate in the assessment, providing feedback on the module. Following the validation process for the initial mathematics module draft, revisions are made to address identified areas for improvement. The module is deemed valid when no further suggestions for enhancement are offered by the experts. Echoing the sentiment, Van den Akker (1999) posits that a product is considered valid when it meets the specified requirements. A module attains validity when it aligns with predetermined criteria, at least falling within the valid category. If the module is initially deemed invalid, it undergoes revisions based on the validator's suggestions. Subsequent rounds of validation and analysis are conducted until the module achieves a satisfactory level of validity.

The instruments utilized in this study encompass tests and questionnaires designed to gauge students' problem-solving abilities. To ensure the accuracy of data on problem-solving abilities, the test instrument must adhere to content validity criteria. The evaluation of content validity for both the initial and final problem-solving ability tests is conducted by an expert validator. In addition to the test instruments, the study incorporates questionnaire instruments in the form of student and teacher response questionnaires. The teacher response questionnaire aligns with the criteria

established by the National Education Standards Agency (BSNP). It adopts a hybrid format, combining closed and open-ended questions. Conversely, the student response questionnaire exclusively employs a closed questionnaire format. The closed questionnaire features queries related to the utilization of the developed mathematics module, employing a Likert scale with specific assessment criteria.

Before administering the instruments to students, both the test instruments and questionnaires must meet the valid criteria, falling within the valid category, which spans an interval of 3.40 to 4.20 on the Likert scale. The validation process ensures the reliability and effectiveness of the instruments in capturing meaningful data on students' problem-solving abilities and perceptions of the module. Upon establishing the initial and final problem-solving ability test instruments as valid, they were subsequently subjected to a trial on students to assess their overall feasibility. The testing phase aimed to evaluate the test instruments, considering factors such as the level of difficulty, discriminating power, and reliability coefficient.

The selected items for the study were those deemed valid based on content validation, with a difficulty index falling within the range of 0.3 to 0.7, and a discriminating power index (D) equal to or greater than 0.3. Moreover, the test instrument, comprising the chosen items, needed to exhibit a reliability coefficient exceeding 0.7 to ensure its consistency and dependability in measuring students' problem-solving abilities. This meticulous testing process helps ensure the effectiveness and reliability of the developed test instrument for accurately gauging students' performance.

The module trial phase serves the purpose of evaluating the validated module draft through practicality and effectiveness tests. Practicality tests aim to determine the usability of the developed mathematics module, with the module being considered practical if both teachers and students affirm its suitability for use. On the other hand, the effectiveness of the developed mathematics module is gauged by observing an improvement in students' problem-solving abilities following its utilization. In this study, the effectiveness of the module is assessed using the mean difference t-test for paired data. This statistical analysis allows for a quantitative evaluation of the impact of the developed mathematics module on students' problem-solving skills. By employing rigorous testing methodologies, the research aims to provide empirical evidence supporting the practicality and effectiveness of the module in enhancing students' proficiency in social arithmetic problem-solving.

The evaluation phase of this study was conducted to determine the comparative effectiveness of the developed mathematics module in comparison to the conventional mathematics textbooks used in schools. Employing an experimental method, the research instruments utilized during the testing stage included teacher response questionnaires, student response questionnaires, and tests assessing students' problem-solving abilities, both in the form of pre-tests and post-tests. Teacher response questionnaires and student response questionnaires were instrumental in measuring the practicality

of the module, providing insights into the perceptions of both educators and students regarding the usability and appropriateness of the developed mathematics module. In parallel, the assessment of students' problem-solving abilities through pre-tests and post-tests served as a means to gauge the effectiveness and efficacy of the developed mathematics module in comparison to traditional textbooks. Through a comprehensive evaluation utilizing these instruments, the study sought to draw conclusions on the relative advantages and impact of the developed module compared to conventional instructional materials used in schools.

The study's population comprised all seventh-grade students attending Islamic junior high schools in Pati, Central Java. Stratification was employed based on the results of the National Examination (UN) for the 2018/2019 academic year. The testing activities were conducted through an experimental design, comparing two groups: the experimental group and the control group. The experimental group, consisting of 32 students from group B, was taught using the developed mathematics module. In contrast, the control group, comprising 32 students from group A, was taught using the standard mathematics textbooks provided at school. The experimental test model used in this study is illustrated in Figure 1, depicting the comparative nature of the experimental and control groups in the evaluation process.

$$\boxed{O_1} \qquad\qquad \boxed{O_2}$$
$$\qquad\qquad X \qquad\qquad$$
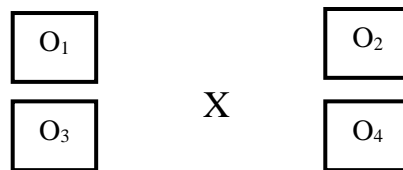$$\boxed{O_3} \qquad\qquad \boxed{O_4}$$

Figure 1. The Experimental Test Model

The study design involves comparing the pre-test and post-test scores of problem-solving ability between the experimental and control groups. O_1 represents the pre-test score of problem-solving ability for the experimental group, O_3 is the pre-test score for the control group, O_2 is the post-test score for the experimental group, and O_4 is the post-test score for the control group. To ensure a fair comparison, the study performed normality tests and homogeneity tests to assess the initial positions (O_1 and O_3) of the two groups. Once the equivalence of O_1 and O_3 was established, the experimental group received treatment in the form of learning using the developed mathematics module, while the control group did not receive this treatment and continued learning with standard mathematics textbooks. The final measurement of problem-solving ability (O_2 and O_4) was then conducted after the experimental group had undergone the teaching process using the developed mathematics module. This design allows for a comparative assessment of the effectiveness of the developed module in enhancing students' problem-solving abilities in relation to the control group, which followed the traditional textbook-based instruction.

In assessing the effectiveness of the developed mathematics module, the criterion for success is the improvement in students' problem-solving abilities after using the module in the learning process. The effectiveness test of the module employs the paired t-test with a significance level of 5%. Before conducting the module effectiveness test, it is essential to perform a prerequisite analysis, specifically the normality test and homogeneity test. The normality test assesses whether the data from both the experimental and control groups follow a normal distribution. This is crucial for ensuring that the paired t-test results are valid. The homogeneity test, on the other hand, checks the equality of variances between the two groups, verifying that the groups have comparable variability.

RESULTS AND DISCUSSION

The developed product in this study is a social arithmetic module based on Islamic values and the Realistic Mathematics Education (RME) model, designed to enhance problem-solving abilities among seventh-grade junior high students. The development process adheres to the four phases of the ADDIE model: analysis, design, develop, implementation, and evaluation.

The initial phase, referred to as the preliminary stage, encompasses the analysis stage, incorporating needs analysis and a literature study. Preliminary research, including interviews and literature reviews, is conducted to identify issues in learning, collect information, and summarize the challenges faced. As per Puslitjaknov (2008), interviews with mathematics teachers and seventh-grade students are conducted to ascertain the need for modules, understand student characteristics, and determine the specific material to be developed. The findings reveal that social arithmetic material is considered challenging, and there is a shortage of teaching materials focusing on this content. Teachers primarily rely on school-issued textbooks, and students express the need for materials closely tied to their daily lives.

The literature study analyzes the Basic Competency (KD) in junior high school mathematics, focusing on the social arithmetic KD for seventh-grade students. The needs analysis and literature study highlight a deficiency in teaching materials for social arithmetic, prompting the development of a mathematics module in this study. The module incorporates Islamic values and RME principles, aiming to improve students' problem-solving skills in social arithmetic. Additionally, the module is designed to encourage active student participation, reducing the teacher's role in the learning process.

The second phase of the study involves product development, encompassing theoretical product development, prototype development, expert validation, and testing. The developed product is a social arithmetic module based on Islamic values and the Realistic Mathematics Education (RME) model, aiming to enhance problem-solving skills in social arithmetic material for seventh-grade junior high students.

The developed module is structured into three parts: the initial, the middle, and the end. The initial section comprises elements such as the title page, module description, preface, table of contents, guide for readers, basic competencies and competency achievement indicators, learning experiences, and concept maps. The middle section includes the main instructional materials, student activity sheets, and additional questions. The final part incorporates a competency test, summary, answer key, glossary, and bibliography.

The design of the module's cover is illustrated in Figure 2, presenting a visual representation of the developed module. This comprehensive structure aims to provide a holistic and engaging learning experience for students, integrating Islamic values and the RME model to foster effective problem-solving skills in the context of social arithmetic material.
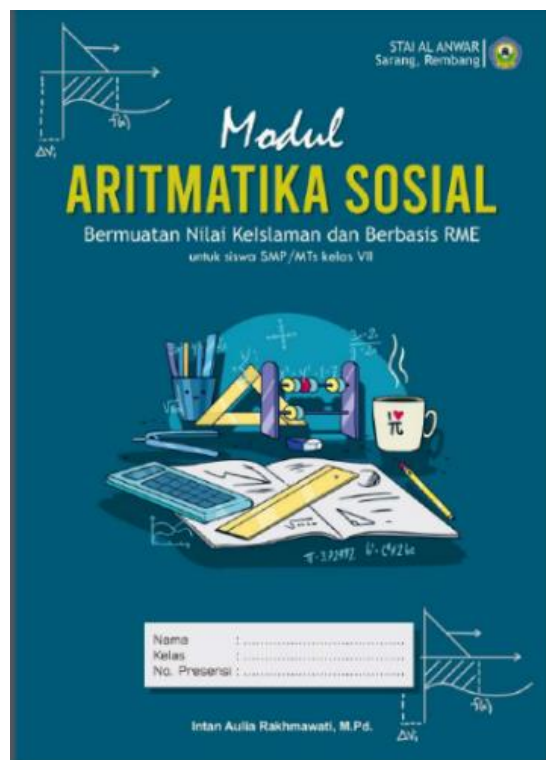

Figure 1. The Design of Module's Cover

The material incorporated into the module is tailored to suit the social arithmetic curriculum for seventh-grade junior high students. Furthermore, the module's content is intentionally connected to the practical challenges of students' daily lives, integrating seamlessly with Islamic values. Figures 3 and 4 provide a visual representation of the material design for both the modules and student activity sheets.

This deliberate integration of relevant, real-world scenarios in the module's content not only enhances the applicability of the material but also ensures a meaningful and relatable learning experience for students. By embedding Islamic values within the material, the module aims to foster

a holistic understanding of social arithmetic while addressing the specific needs and interests of the students.
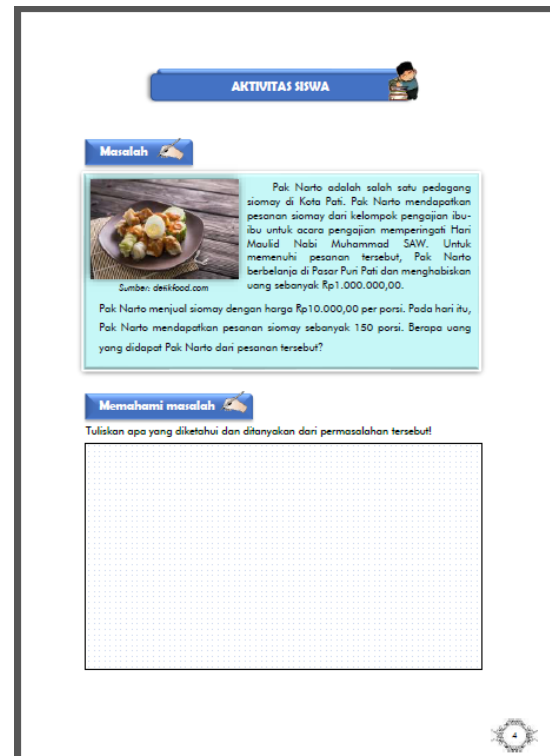

Figure 3. Modules' Material Design

Figure 4. Student Activity Sheets

Following the conversion of the theoretical product into a prototype, the initial draft of the social arithmetic module undergoes a crucial validation process by experts prior to testing. This validation involves assessments by both material experts and media experts. According to expert evaluations, the developed module successfully satisfies criteria related to content feasibility, presentation components, linguistic viability, graphic suitability, assessment alignment with the Realistic Mathematics Education (RME) model, and integration of Islamic values.

The module's validity scores, as determined by the assessments from material experts and media experts, are 4.15 and 4.18, respectively. These scores indicate that, based on expert evaluations, the developed mathematics module is deemed suitable for testing. The validation criteria align with the findings of Finariyati et al. (2020), where the ethnomathematics-based mathematics module also met valid criteria, achieving an average score of 4.5.

After receiving validation from expert validators, the modules underwent testing on students to assess their practicality. The student response questionnaire yielded a result of 3.30, while the teacher's response questionnaire resulted in a score of 4.76. These outcomes indicate that the mathematics module, enriched with Islamic values and grounded in the Realistic Mathematics Education (RME) model, is deemed practical for use in educational settings. This practicality assessment aligns with the findings of Khalil et al. (2020), where a practicality test achieved a

percentage of 87.46%, signifying a very practical module that could be employed without the need for further revisions.

Moreover, the effectiveness of the developed module is established through the observation of an improvement in students' abilities following its utilization in the learning process. The study exclusively employed the developed mathematics module for the learning activities, without investigating other variables external to the module. As a result, the conditions and learning environments within the classroom are assumed to remain consistent. Consequently, any enhancement in students' problem-solving abilities is attributed to the impact of employing the developed mathematics module.

The evaluation of the module's effectiveness employed a paired t-test, comparing scores from the problem-solving ability pre-test to those of the problem-solving ability post-test. The results revealed a statistically significant improvement in students' problem-solving abilities, with a t-observation of 1.974 and a critical t-value threshold of t-critical = 1.701. This outcome aligns with the findings of Efrata (2019), asserting that the Realistic Mathematics Education (RME) learning approach exerts a positive impact on student learning. This approach, oriented towards discovering mathematical concepts within real-life contexts, fosters a meaningful learning environment and enhances students' problem-solving capabilities (Anggraini, & Fauzan, 2020). Consequently, the developed mathematics module proves to be effective when integrated into the learning process.

CONCLUSION

The Social Arithmetic module developed, grounded in Islamic values and Realistic Mathematics Education, has been deemed valid, practical, and effective for enhancing the problem-solving skills of seventh-grade junior high school students. Teachers can leverage this module as a valuable resource for teaching social arithmetic, thereby contributing to the improvement of students' mathematical problem-solving abilities. While the module's impact on other mathematical skills or abilities is acknowledged, further research is recommended to explore these aspects. Furthermore, both researchers and teachers are encouraged to consider developing similar modules based on Islamic values and Realistic Mathematics Education, targeting various topics within the mathematics subject to foster the enhancement of diverse mathematical skills among students.

REFERENCES

Alifia, N. N. & Rakhmawati, I. A. (2018). Kajian Kemampuan Self-Efficacy Matematis Siswa dalam Pemecahan Masalah Matematika. *Jurnal Elektronik Pembelajaran Matematika*, 5(1), 44-54. https://jurnal.uns.ac.id/jpm/article/view/26024/18242

Anggraini, R. S., & Fauzan, A. (2020). The Effect of Realistic Mathematics Education Approach on Mathematical Problem Solving Ability. *Edumatika : Jurnal Riset Pendidikan Matematika, 3*(2), 94–102. https://doi.org/10.32939/ejrpm.v3i2.595

Lestari A., A. (2014). Penerapan Pendekatan Realistic Mathematics Education untuk Meningkatkan Hasil Belajar Siswa pada Materi Soal Cerita tentang Himpunan di Kelas VII MTsN Palu Barat. *Jurnal Elektronik Pendidikan Matematika Tadulako*, 2(1), 1-11. https://jurnal.untad.ac.id/jurnal/index.php/JEPMT/article/view/3226/2281

Anwar, E. (2006). *Integrasi Ilmu Umum dengan Ilmu Agama*. Gunung Djati Press.

Budiyono. (2017). *Pengantar Metodologi Penelitian Pendidikan*. UNS Press.

Daryanto, D & Dwicahyono, A. (2014). *Pengembangan Perangkat Pembelajaran (Silabus, RPP, PHB, Bahan Ajar)*. Penerbit Gava Media.

Finariyati, F. Rahman, A. A., & Amalia, Y. (2020). Pengembangan Modul Matematika Berbasis Etnomatematika Untuk Meningkatkan Kemampuan Pemecahan Masalah Siswa. *Maju, 7*(1), 89-97. https://media.neliti.com/media/publications/502688-none-b5cb876d.pdf

Gunawan, G., Fitriana, U., Kushendri, K., Fatimah, F., Mustika, C. Z., & Hidayat, W. (2019). Kemampuan Pemecahan Masalah Matematis Siswa SMP Melalui Pemberian Perlakuan Pembelajaran. *Journal on Education*, 1(3), 1-8. https://www.jonedu.org/index.php/joe/article/view/108/90

Hidayat, A. & Irawan, I. (2017). Pengembangan LKS Berbasis RME dengan Pendekatan Problem Solving untuk Memfasilitasi Kemampuan Pemecahan Masalah Matematis Siswa. *Journal Cendekia: Jurnal Pendidikan Matematika*, 1(2), 51-63. https://doi.org/10.31004/cendekia.v1i2.20

Morrison, G. R., Ross, S. J., Morrison, J. R., & Kalman, H. K. (2019). *Designing Effective Instruction*. John Wiley & Sons.

Khalil, M., Amin, M., & Lukiati, B. (2020). Validitas dan Kepraktisan Modul Bioinformatika Berbasis Problem-Based Learning untuk Mahasiswa S2 Biologi. *Jurnal Pendidikan: Teori, Penelitian, dan Pengembangan*, 5(5). 677-682. https://doi.org/10.17977/jptpp.v5i5.13538

Komalasari, Y., Naila NT, R., Maryani, N., Nursalamah, F., Marlina, N., & Hidayat, W. (2019). Meningkatkan Kemampuan Pemecahan Masalah Melalui Pendekatan Kontekstual pada Siswa Kelas VIII di Kabupaten Bandung Barat. *Jurnal Cendekia: Jurnal Pendidikan Matematika*, 3(1), 187-196. https://doi.org/10.31004/cendekia.v3i1.93

Lubis, W. A., Ariswoyo, S., & Syahputra, E. (2020). Kemampuan Pemecahan Masalah Matematika Melalui Pendekatan Pendidikan Matematika Realistik dan Pendekatan Penemuan Terbimbing Berbantuan Autograph. *Edumatika : Jurnal Riset Pendidikan Matematika, 3*(1), 1–12. https://doi.org/10.32939/ejrpm.v3i1.483

Martiningsih, I., Lisdiana, L., & Susilowati, S. M. E. (2019). Development of Module Based on Scientific Contextual Additives Material to Increase Learning Outcomes and Science Process Skills in Junior High School. *Journal of Innovative Science Education*, 8(2), 128-137. https://journal.unnes.ac.id/sju/index.php/jise/article/view/27790/12199

Munadi, Y. (2013). *Media Pembelajaran*. Referensi (GP Press Group).

Nasution. (2011). *Berbagai Pendekatan dalam Proses Belajar & Mengajar*. Bumi Aksara.

Nu'man, M. (2015). Pengembangan Bahan Ajar Matematika Berbasis Ekonomi Syariah untuk Madrasah Tsanawiyah. *Jurnal Fourier*, 4(2), 123-134. https://doi.org/10.14421/fourier.2015.42.123-134

Puslitjaknov. (2008). *Metode Penelitian Pengembangan*. Depdiknas.

Rahmawati, A. & Rizki, S. (2017). Pengembangan Bahan Ajar Matematika Berbasis Nilai-nilai Islam pada Materi Aritmatika Sosial. *Aksioma*, 6(1), 81-88. http://doi.org/10.24127/ajpm.v6i1.860

Rakhmawati, I. A. & Alifia, N. N. (2018). Kearifan Lokal dalam Pembelajaran Matematika Sebagai Penguat Karakter Siswa. *Jurnal Elektronik Pembelajaran Matematika*, 5(2), 186-196. https://jurnal.uns.ac.id/jpm/article/download/26054/18268

Rochmad. (2012). Desain Model Perangkat Pembelajaran Matematika. *Jurnal Kreano, 3*(1), 59-72. https://doi.org/10.15294/kreano.v3i1.2613

Rosiani, A., M. & Sudia, M. (2016). Pengaruh Pembelajaran Berbasis Masalah Kontekstual dengan Pendekatan Metakognisi terhadap Kemampuan Pemecahan Masalah Matematika Siswa Kelas VIII SMP. *Jurnal Pembelajaran Berpikir Matematika*, 1(1).

http://ojs.uho.ac.id/index.php/JPBM/article/download/5419/4029

Sarismah. (2013). Penerapan RME untuk Meningkatkan Prestasi Belajar Siswa pada Segitiga Kelas VII-H SMPN 7 Malang. *Jurnal PTK*, 1. http://mulok.library.um.ac.id/index3.php/62244.html

Spatioti, A. G., Kazanidis, G., & Pange, J. (2022). A Comparative Study of the ADDIE Instructional Design Model in Distance Education. *Information, 13*(9), 402. https://doi.org/10.3390/info13090402

Susilo, A., Siswandari, S., & Bandi, B. (2016). Pengembangan Modul Berbasis Pembelajaran Saintifik untuk Peningkatan Kemampuan Mencipta Siswa dalam Proses Pembelajaran Akuntansi Siswa Kelas XII SMAN 1 Slogohimo 2014. *Jurnal Pendidikan Ilmu Sosial*, 26(1), 50-56. https://doi.org/10.2317/jpis.v26i1.2127

Van den Akker, J. (1999). *Design Approaches and Tools in Education and Training.* Kluwer Academic Publishers.

Yasri. (2013). *Strategi Pembelajaran Matematika Bernuansa Islami.* [Online]. http://bdkpadang.kemenang.go.id

Yuhani, A., Zhanty, L. S., & Hendriana, H. (2018). Pengaruh Pembelajaran Berbasis Masalah terhadap Kemampuan Pemecahan Masalah Matemtis Siswa SMP. *Jurnal Pembelajaran Matematika Inovatif*, 1 (3), 445-452. http://doi.org/10.22460/jpmi.v1i3.p445-452

Yuliastuti, M. (2014). Pengembangan Bahan Ajar Aritmatika Sosial pada Siswa SMP Kelas VII dengan Pendekatan Saintifik. *Prosiding Mathematics and Sciences Forum.* http://prosiding.upgris.ac.id/index.php/masif2014/masif2014/paper/viewFile/486/435

Yuniati, S. & Sari, A. (2018). Pengembangan Modul Matematika Terintegrasi Nilai-Nilai Keislaman Melalui Pendekatan Realistic Mathematics Education (RME) di Propinsi Riau. *Jurnal Analisa*, 4(1), 1-9. https://doi.org/10.15575/ja.v4i1.1588