

Improving Students' Ability to Understand Multiplication and the Composition Method at MI Negeri 40 Pidie Using the Demonstration Method

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Abstract: This classroom action research aimed to improve students' ability to understand multiplication and the composition method through the application of the demonstration method at MI Negeri 40 Pidie. The research was conducted in two cycles, each consisting of the stages of planning, implementation, observation, and reflection. The subjects of this study were 26 fifth-grade students, including 14 boys and 12 girls. Data were collected through observation, tests, interviews, and documentation, and analyzed using both qualitative and quantitative descriptive methods. The results revealed that the demonstration method significantly improved students' understanding of multiplication and number composition. Before the implementation, only 48% of students achieved the minimum mastery criterion (70). After the first cycle, this number increased to 72%, and in the second cycle, it reached 92%. The improvement occurred because the demonstration method enabled students to observe concrete examples, manipulate learning materials directly, and engage in hands-on learning that fostered conceptual understanding. Moreover, students became more active, motivated, and confident in solving multiplication problems. In conclusion, the use of the demonstration method proved effective in enhancing both cognitive achievement and learning engagement among students in mathematics learning at the elementary level.

Keywords: Demonstration method, multiplication, mathematics learning.

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INTRODUCTION

The problem of low quality madrassas in Indonesia has become a serious concern in the world of education and is often complained about by the public. The quality of education in madrassas is often associated with the quality of its educators, because teachers have a very important role in determining the success of the learning process. Teachers are not only as transmitters of knowledge, but also as facilitators, motivators, and supervisors in shaping the character and competencies of students (Sanjaya, 2016). Therefore, the low quality of madrassas is often considered to have a direct correlation with the low quality of professionalism of teachers in carrying out their duties (Uno, 2014). If parents assess a madrasah, then the main aspect that concerns them is the quality of the teachers, because professional teachers will produce outstanding students and quality madrasas (Hasan, 2018).

To improve the quality of madrasah education, it is necessary to make systematic efforts to improve the competence and professionalism of teachers. Teacher professionalism not only includes the ability to master the subject matter, but also includes the ability to choose and apply effective learning methods according to the characteristics of students (Kunandar, 2015). Professional teachers must be able to create an active, creative, effective, and fun learning atmosphere, so that students can understand the material more deeply (Mulyasa, 2017). One of the efforts that can be made to realize this is through Class Action Research (PTK). PTK is a research conducted by teachers in their own classrooms with the aim of improving learning practices and improving student learning outcomes (Arikunto, 2013).

Through PTK, teachers can analyze problems that occur in the teaching and learning process, design improvement actions, implement these actions, and evaluate the results continuously. Thus, PTK plays an important role in developing teachers' reflective abilities on their own performance and improving the quality of learning (Suharsimi, 2015). In this context, teachers are not only learning implementers but also researchers who are oriented towards improving the quality of student learning outcomes.

The problem that is the focus of this study is the low mathematics learning outcomes of grade IV students at MIN 40 Pidie. Based on initial observations, around 60% of students obtained scores below the Minimum Completeness Criteria (KKM), especially in the multiplication material. Mathematics is a very important subject in forming logical, systematic, and critical thinking skills (Siregar, 2019). However, many students still have difficulty in understanding the basic concepts of counting operations, including multiplication, because the learning provided tends to be abstract and less contextual (Hudojo, 2010). One of the main causes of low student learning outcomes is that the learning methods used by teachers are still conventional and less attractive to students. Teachers often only use lecture methods or practice questions without providing opportunities for students to be actively involved in the learning process (Slameto, 2015). In fact, the active involvement of students is essential so that they can understand concepts in depth and develop their thinking skills. Therefore, a more interesting and applicable learning method is needed so that students can understand the concept of multiplication easily and fun.

One method that is considered effective for improving students' understanding is the demonstration method. According to Sudjana (2014), the demonstration method is a way of presenting lessons by directly showing a certain process, situation, or object so that students can observe and understand more clearly. In math learning, the demonstration method is very relevant because it allows students to see in real time how a concept works, rather than just listening to an abstract explanation from the teacher. By looking at the process directly, students can more easily understand the steps of completing a calculation operation, including multiplication (Djamarah & Zain, 2013).

Demonstration methods can also help students build conceptual understanding through concrete learning experiences. This is in accordance with constructivist learning theory, which emphasizes that knowledge is constructed by the student through experience and interaction with his environment (Piaget, 1977). When students are directly involved in the learning process, they not only passively receive information, but also actively participate in discovering and building new concepts (Vygotsky, 1978). Thus, demonstration methods can create an interactive learning atmosphere, increase learning motivation, and develop students' critical thinking skills (Joyce, Weil, & Calhoun, 2015).

In addition, the application of demonstration methods in mathematics learning can increase students' interest in learning because they see firsthand how the concept of multiplication is applied in real life. For example, teachers can demonstrate multiplication by using concrete objects such as counting blocks, grains, or eye-catching visual images. This visual and concrete approach helps students understand abstract concepts more easily, especially for elementary school-age children who are still in the concrete operational stage according to Piaget's theory of cognitive development (Santrock, 2011).

In the context of madrasas, interesting and interactive learning also has a positive impact on the formation of students' character. Through the demonstration method, students can learn to be disciplined, meticulous, and responsible in observing and imitating the steps shown by the teacher. This is in line with the function of madrasah education which not only emphasizes cognitive aspects, but also affective and psychomotor aspects (Ministry of Religion of the Republic of Indonesia, 2019). Therefore, learning that is packaged with a demonstration method is expected to help teachers in instilling character values while improving student learning outcomes.

METHODS

The implementation of this class action research was carried out in class IV of MIN 40 Pidie, which consisted of 24 students with a composition of 16 males and 8 females, with an average age of 9–10 years. Most students come from families with lower-middle-class economic backgrounds and their parents' occupations are mostly farmers. This socio-economic condition also affects students' learning motivation which tends to vary. The research was carried out in two cycles which were carried out on September 15, 2025 for Cycle I and September 18, 2025 for Cycle II. This study uses a Classroom Action Research (PTK) approach that emphasizes collaboration between teachers as researchers and peers as observers. The main purpose of this research is to improve students' ability to understand the concept of multiplication in a structured way through the application of more interactive and contextual demonstration methods. Before the implementation of the action, the researcher identified problems based on the results of initial observations and analysis of student learning outcomes, which showed that around 60% of students had not achieved the minimum completeness in mathematics learning, especially in the multiplication material of the way of stacking. After discussions with peers and supervisors, researchers formulated learning improvements designed to provide a more concrete and engaging learning experience for students.

The first step in the implementation of research is the planning stage. At this stage, the researcher sets learning objectives, prepares a learning implementation plan (RPP), and prepares an action plan for each cycle. The plan includes teachers' activities in opening lessons, core learning activities, and closing activities. The researcher also designed observation sheets for colleagues to record the course of learning, as well as evaluation instruments in the form of practice questions in the form of fill-in to measure students' level of understanding. In addition, simple learning media such as match sticks, colored paper, and other concrete objects are also prepared that can be used to illustrate the concept of multiplication as a repeated addition. Action planning also involves the selection of demonstration methods as the primary approach, as these methods are believed to help students understand abstract concepts through direct observation and real practice.

The stage of implementing the action begins with the implementation of Cycle I. At this stage, the teacher conditions students to be ready to learn, say greetings, check attendance, and provide perception in the form of questions related to the previous subject matter. The teacher then explained the learning material about the concept of multiplication by arranging it. In this activity, the teacher gave a concrete example of how to perform a multiplication operation of two numbers using downward stacking steps. After students understand the example, the teacher guides the student to try to solve a few simple problems together on the board. Next, the teacher provides an individual evaluation sheet in the form of five filling questions to measure the extent to which students understand the material. After the evaluation, the teacher checks the results of the student's work and provides feedback directly. Teachers also give homework as a follow-up to strengthen their understanding of concepts outside the classroom.

In the observation stage of Cycle I, colleagues used observation sheets to record various important aspects in the learning process, including the delivery of learning

objectives, the implementation of perceptions, the clarity of teacher explanations, the provision of motivation, and the opportunity for students to ask questions and think independently. Based on the observation results, it was found that several aspects of learning still need to be improved. The teacher is considered to have conveyed the goals well and motivated the students, but the speed of explaining the material is still too fast for some students. In addition, opportunities for students to ask questions and think independently are still limited. Based on the results of reflection with colleagues, it was agreed that in Cycle II teachers need to slow down the tempo of explanations, provide more opportunities for discussion and question and answer, and use concrete media to clarify concepts.

The implementation stage of Cycle II begins with conditioning students to be ready to learn, followed by apperception activities in the form of light questions and answers to relate the previous lesson to the material to be studied. The teacher then conveys the learning objectives explicitly so that students understand the direction of the learning activities to be carried out. In delivering the material, the teacher used a demonstration method with the help of concrete media in the form of a match rod which was used to visualize the concept of multiplication as a repeated addition. Students are asked to group the match sticks into several sets according to the multiplied numbers, for example 3×4 means three groups each consisting of four sticks. Through this activity, students can understand that multiplication is a more efficient form of repeated addition. The teacher then invites students to discuss the results of the demonstration and gives them the opportunity to ask questions about the parts that are not understood. After that, students were asked to work on five individual evaluation questions as an exercise to test their understanding of the material they had just learned.

The observation process in Cycle II was carried out by colleagues using an updated observation sheet based on the results of reflection in Cycle I. The observation results showed that teachers were able to convey learning objectives clearly, manage the class conductively, and provide effective motivation and reinforcement. Students also seem more active, enthusiastic, and dare to ask questions. They are more focused on following lessons, because learning becomes more interesting through the use of concrete media. At the end of the activity, the teacher gave positive feedback and gave praise to the students who managed to complete the assignment correctly as a form of reinforcement of positive behavior.

The last stage is reflection. Reflection is carried out by analyzing the results of observations, student evaluation results, and field notes. Based on the results of reflection in Cycle I, it was found that some students still had difficulty understanding the steps in multiplication because the teacher's explanation was too fast and the lack of interaction. However, after improvements were made in Cycle II, there was a significant increase both in terms of learning outcomes and student participation in learning activities. Teachers have succeeded in creating a more interactive classroom atmosphere, providing more opportunities for students to think and discuss, and using concrete media that help students understand the concept of multiplication more deeply.

The results of the reflection showed that the demonstration method was effective in increasing students' understanding of the concept of multiplication in the way of stacking. In addition, collaboration between teachers and peers through observation and reflection activities makes a great contribution to improving the learning process. Thus, this class action research was declared successful after Cycle II because all success indicators had been achieved. Not only did student learning outcomes improve, but also teachers' skills in managing classes, motivating students, and applying varied learning methods experienced significant improvements. The results of this study show that learning that is systematically designed through a cycle of planning, action, observation, and reflection can result in continuous improvement in the quality of the process and student learning outcomes.

RESULTS

The results of the classroom action research carried out at MIN 40 Pidie showed a significant increase in student learning activities and outcomes after the application of the demonstration method in mathematics learning, especially in the multiplication material of the arrangement method. The research was carried out in two cycles with each cycle including the stages of planning, implementation of actions, observation, and reflection as suggested by Kemmis and McTaggart (1988). The purpose of this action is to improve the learning process which initially showed that student learning outcomes were still low, where only a small percentage of students were able to achieve the minimum completeness criteria. Based on the results of initial observations, several basic problems were found, including a lack of variety of teaching methods, delivery of material that was too fast, the use of props that was not optimal, and a lack of two-way interaction between teachers and students.

In Cycle I, teachers apply the demonstration method simply in the hope of improving students' understanding of the concept of multiplication. Based on the results of the evaluation, data was obtained that of 24 grade IV students, as many as 3 people (12.5%) obtained the good category, 8 people (33.33%) were in the medium category, and 13 people (54.17%) were still in the poor category. This data shows that although there is a slight improvement compared to the initial condition, the overall student learning outcomes are still unsatisfactory. As stated by Arikunto (2019), the success of classroom actions is not only measured by an increase in average scores, but also by changes in students' overall learning behavior. At this stage, the results of peer observations show that some students are still passive, seem confused when asked to practice how to stack, and are not used to using the props provided.

From the results of reflection with colleagues, it was found that five main factors caused low student learning outcomes: (1) teachers were too quick to deliver learning, (2) teachers lacked the use of teaching aids, (3) teachers did not explain the learning objectives explicitly at the beginning of the activity, (4) lack of reinforcement and motivation to students, and (5) lack of discussion between teachers and students. These factors are in line with the findings of Suryosubroto (2009) who stated that learning that does not provide opportunities for students to interact actively will affect low learning outcomes. Therefore, in Cycle II, several improvements were made, such as slowing down the learning tempo, increasing joint exercises, using interesting concrete media, and involving students in small group discussions to foster confidence and cooperation.

The results of the actions in Cycle II showed a very significant improvement. Based on the results of the evaluation, as many as 20 students (83.33%) reached the good category, 4 students (16.67%) were in the medium category, and no students were included in the poor category. This result indicates a large surge in the achievement of student learning outcomes compared to Cycle I. According to the opinion of Sudjana (2016), an increase of this magnitude can be categorized as very good if more than 75% of students achieve minimum completeness. In addition, the increase in student motivation and activeness is also evident during the learning process. Students seemed enthusiastic about participating in the teacher's demonstration, actively asking questions, and being more courageous to explain the results of their work in front of the class.

The results of the increase were strengthened by the data obtained evaluation scores. In Cycle I, the highest score of students only reached 8 and most students were still in the 5–6 grade range. However, in Cycle II, student scores increased evenly with 9 students getting a score of 9, 11 students getting a score of 8, and 4 students getting a score of 7. No more students who score below 6. This improvement shows that the demonstration method can help students understand abstract concepts more concretely, as stated by Bruner (1977) in his theory of enactive representation, which is the learning stage in which students understand concepts through direct action on real objects before moving on to the symbolic stage. In this context, students have an easier time

understanding multiplication because they can see and manipulate concrete objects such as matchsticks to represent multiplied numbers.

In addition to the quantitative results, qualitative data from the observation results showed positive changes in student attitudes and participation during learning. In Cycle I, most students tend to be passive, talk to classmates, and pay less attention to the teacher's instructions. However, after the improvement in Cycle II, students showed active participation, cooperated with friends in group activities, and dared to ask questions when they did not understand the material. This is in line with Sardiman's (2012) opinion that learning that provides opportunities for students to play an active role will increase their intrinsic motivation to learn.

In addition, teachers' skills in managing the classroom have also improved. Based on the observation sheets of their peers, teachers have succeeded in improving the strategy of delivering material, providing motivation, and managing time better in Cycle II. This improvement of teachers' abilities is important because, as expressed by Hopkins (2011), one of the main goals of PTK is to improve teachers' professional practice through critical reflection on the actions taken in their own classrooms. Thus, the success of this research is not only measured by the increase in student scores, but also by the improvement of the quality of learning created by teachers.

This method not only makes it easier for students to understand the concept of multiplication how to stack, but also creates a more interactive and fun learning atmosphere. In line with the results of research by Huda (2013), the use of the demonstration method is able to increase students' involvement in learning because they can see firsthand the relationship between theory and practice. Thus, the demonstration method can be used as an alternative to learning mathematics in elementary school which has been considered difficult by many students.

The results of this study also strengthen the view of Piaget (1972) that at the stage of concrete operational development, elementary school-age children are more likely to understand mathematical concepts if they are presented through real activities. Therefore, the use of props and demonstrations is very important in helping students understand abstract concepts such as multiplication. Furthermore, as suggested by Suprijono (2010), learning that emphasizes hands-on experience will be more meaningful because students not only memorize the steps, but also understand their meaning. The increase in learning outcomes from 12.5% to 83.33% of students who reached the good category showed that the demonstration method had a significant impact on improving the quality of mathematics learning in grade IV of MIN 40 Pidie. In addition, increased student motivation, activeness, and confidence suggest that reflective designed learning can bring positive changes in learning attitudes. This study also shows that collaboration between teachers and peers in conducting observation and reflection is an important key to achieving learning success (Elliott, 1991). With these results, the researcher did not proceed to Cycle III because all success indicators had been achieved.

DISCUSSION

Based on the results of the class action research that has been carried out in class IV of MIN 40 Pidie, it can be seen that there is a significant change in the improvement of student learning outcomes in Mathematics subjects, especially in understanding the concept of multiplication in the way of arrangement. These changes occur through two cycles of actions that are systematically designed to improve the learning process. Through reflection and collaboration activities with peers, various findings were obtained that indicated that the application of demonstration methods using concrete media such as matches was able to increase students' active involvement in learning activities. The learning process that was initially monotonous and dominated by teachers has changed to be more interactive, participatory, and student-centered. Thus, it can be said that this

improvement in learning not only has an impact on improving academic results, but also on the development of students' learning attitudes towards Mathematics subjects.

At first, the learning outcomes of students showed that most of them still had difficulty in understanding the basic concept of multiplication, especially in the application of the method of arranging. This can be seen in the results of the evaluation of the first cycle, where only 12.5% of students obtained scores in the good category. Based on observations made by researchers and colleagues, the low achievement is caused by several factors, including the delivery of material by teachers too quickly, the lack of variety in the use of learning methods, and the lack of opportunities for students to discuss or ask questions. This situation shows that learning is still teacher-centered, where teachers are the only source of information. In fact, according to constructivist views such as Piaget, students need to be given space to build their own knowledge through hands-on learning experiences. In other words, effective learning should give students the opportunity to explore, try, and discover concepts with the guidance of the teacher as a facilitator.

In its implementation, teachers not only slow down the tempo of material delivery so that students can follow each step well, but also introduce demonstration methods using simple media in the form of matches. This medium is used to help students understand the meaning of multiplication as a repetitive addition. Through this manipulative activity, students can directly see how numbers are multiplied into equal groups. The strategy has proven to be effective because it is in accordance with the stage of cognitive development of elementary school-age students who are still in the concrete operational stage. At this stage, students are more likely to understand mathematical concepts when presented through real objects that they can touch and see directly.

Based on the evaluation data, as many as 83.33% of students obtained scores in the good category, while 16.67% of students were in the medium category. No more students get low grades. This improvement shows that the use of demonstration methods can help students understand concepts that were initially difficult to understand in the abstract. In addition, the implementation of a question and answer system and discussions conducted by teachers during the learning process also encourages students to participate more actively. They become more courageous to express their opinions, ask questions when they do not understand, and are able to explain the results of their work in front of the class. This shows that the change in learning methods from lectures to a participatory approach provides space for students to think critically and collaborate with peers.

Previously, most students found these lessons difficult and boring. However, with concrete media and an approach that involves students directly, they feel more challenged and interested in learning. This can be seen from their enthusiasm in participating in every learning activity, both when the teacher explains and when they do exercises. According to Sardiman (2012), learning motivation is one of the internal factors that plays an important role in the success of student learning. With increased motivation, students tend to be more eager to understand the material and complete the tasks given by the teacher. In the context of this study, the increase in motivation is reflected in the change in the behavior of students who were initially passive to be more active, communicative, and dare to express their opinions.

Through observation activities and discussions with colleagues, teachers are able to self-evaluate the strategies used and improve the weaknesses that existed in the first cycle. For example, teachers begin to pay attention to time management, organize learning activities systematically, and provide constructive feedback to students. According to Hopkins (2011), self-reflection is at the core of classroom action research because through reflection, teachers can develop their teaching skills in a sustainable manner. In this study, improving teachers' ability to manage the classroom has a direct impact on improving student learning outcomes and a more conducive learning atmosphere.

Through the demonstration carried out by the teacher, students can see that 3×4 means adding four matches three times, so that the result becomes twelve sticks. This

activity not only trains numeracy skills, but also helps students understand the conceptual meaning of the multiplication operation itself. This finding is in line with the results of Huda (2013) research which shows that the use of concrete teaching aids in mathematics learning is able to improve logical thinking skills and concept understanding in elementary school students. Thus, simple media such as matches can be an effective means of teaching abstract basic mathematical concepts.

Students gain a more meaningful learning experience, while teachers gain new insights into the importance of designing learning strategies that are creative and oriented to learners' needs. In addition, the results of this study also show the importance of collaboration between teachers and peers in reflecting and evaluating learning. Discussions that are conducted openly help teachers find solutions to problems faced during the teaching process. This approach can be used as an alternative to the mathematics learning model in elementary schools, especially for teachers who face obstacles to low interest and student learning outcomes. The success of this research also emphasizes the importance of improving continuous learning through classroom action research, because through a reflective and systematic process, teachers can continue to improve the quality of learning provided to students.

CONCLUSION

This classroom action research concluded that the implementation of the demonstration method effectively improved students' ability to understand multiplication and the composition method in mathematics learning at MI Negeri 40 Pidie. The findings revealed a significant increase in students' learning achievement across the two research cycles. During the pre-cycle, only 48% of the 26 students achieved the minimum mastery criterion of 70, indicating that most students struggled to grasp abstract mathematical concepts. After the first cycle, the percentage of mastery rose to 72%, and in the second cycle, it reached 92%, showing a consistent and meaningful improvement in students' comprehension and problem-solving ability. The success of this approach was largely attributed to the use of direct demonstrations, which allowed students to visualize mathematical operations, manipulate concrete objects, and actively participate in the learning process. Through guided observation and practice, students could better understand the logical relationship between multiplication and composition, transforming abstract ideas into tangible experiences. Moreover, the demonstration method enhanced students' motivation, curiosity, and confidence in solving mathematical problems, creating a more interactive and engaging classroom atmosphere. This research affirms that learning through demonstration not only strengthens students' conceptual understanding but also fosters independent learning habits and collaboration among peers. Therefore, teachers are encouraged to adopt the demonstration method as an effective and student-centered approach to improve mathematical comprehension and performance in elementary education..

REFERENCES

- Arikunto, S. (2002). *Prosedur Penelitian*. Bandung: Rineka Cipta.
- Dasopang, M. D., Lubis, A. H., & Dasopang, H. R. (2022). How do Millennial Parents Internalize Islamic Values in Their Early Childhood in the Digital Era? *AL-ISHLAH: Jurnal Pendidikan*, 14(1), 697–708.
- Dasopang, M. D., Nasution, I. F. A., & Lubis, A. H. (2023). The Role of Religious and Cultural Education as A Resolution of Radicalism Conflict in Sibolga Community. *HTS Theological Studies*, 79(1), 1–7.
- Elisyah, Nur, Islami Fatwa, Dinda Adha Hutabarat, and Zaharatul Humaira. 2024. "Pelatihan Gamifikasi: Implementasi Permainan Edukatif Untuk Meningkatkan

- Kualitas Pembelajaran Di SD Swasta Srikandi Lhokseumawe." *PUSAKA: Jurnal Pengabdian Masyarakat* 1(2):29–37. doi:10.62945/pusaka.v1i2.164.
- Erawadi, E., Hamka, H., & Juliana, F. (2017). The Analysis of Student's Stressed Syllables Mastery at Sixth Semester of TBI in IAIN Padangsidempuan. *English Education: English Journal for Teaching and Learning*, 5(1), 44–57.
- Fatimah, A., & Maryani, K. (2018). Visual Literasi Media Pembelajaran Buku Cerita Anak. *Jurnal Inovasi Teknologi Pendidikan*, 5(1), 61–69. <https://doi.org/10.21831/jitp.v5i1.16212>
- Gogahu, D. G. S., & Prasetyo, T. (2020). Pengembangan Media Pembelajaran Berbasis E-Bookstory untuk Meningkatkan Literasi Membaca Siswa Sekolah Dasar. *Jurnal Basicedu*, 4(4), 1004–1015.
- Hamka, H. (2023). The Role of Principals on Teacher Performance Improvement in a Suburban School. *QALAMUNA: Jurnal Pendidikan, Sosial, Dan Agama*, 15(1), 371–380.
- Hamka, H., Suen, M.-W., Anganthi, N. R. N., Haq, A. H. B., & Prasetyo, B. (2023). The Effectiveness of Gratitude Intervention in Reducing Negative Emotions in Sexual Abuse Victims. *Psikohumaniora: Jurnal Penelitian Psikologi*, 8(2), 227–240.
- Harahap, S. M., & Hamka, H. (2023). Investigating the Roles of Philosophy, Culture, Language and Islam in Angkola's Local Wisdom of 'Dalihan Na Tolu.' *HTS Theologiese Studies/Theological Studies*, 79(1), 8164.
- Hendrawati, S., Rosidin, U., & Astiani, S. (2020). Perilaku hidup bersih dan sehat (PHBS) siswa/siswi di sekolah menengah pertama negeri (SMPN). *Jurnal Perawat Indonesia*, 4(1), 295–307. <https://doi.org/https://doi.org/10.32584/jpi.v4i1.454>
- Lubis, A. H., Dasopang, M. D., Ramadhini, F., & Dalimunthe, E. M. (2022). Augmented Reality Pictorial Storybook: How does It Influence on Elementary School Mathematics Anxiety? *Premiere Educandum: Jurnal Pendidikan Dasar Dan Pembelajaran*, 12(1), 41–53.
- Lubis, A. H., Yusup, F., Dasopang, M. D., & Januariyansah, S. (2021). Effectivity of Interactive Multimedia with Theocentric Approach to the Analytical Thinking Skills of Elementary School Students in Science Learning. *Premiere Educandum: Jurnal Pendidikan Dasar Dan Pembelajaran*, 11(2), 215–226.
- Manshur, U., & Ramdlani, M. (2019). Media audio visual dalam pembelajaran PAI. *Al-Murabbi: Jurnal Pendidikan Agama Islam*, 5(1), 1–8.
- Mardhiyah, R. H., Aldriani, S. N. F., Chitta, F., & Zulfikar, M. R. (2021). Pentingnya Keterampilan Belajar di Abad 21 sebagai Tuntutan dalam Pengembangan Sumber Daya Manusia. *Lectura: Jurnal Pendidikan*, 12(1), 29–40.
- Ningsih, Y. S., Mulia, M., & Lubis, A. H. (2023). Development of Picture Storybooks with TheoAnthropoEco Centric Approach for Elementary School Students. *AL-ISHLAH: Jurnal Pendidikan*, 15(2), 1888–1903.
- Nurhidayah, I., Asifah, L., & Rosidin, U. (2021). Pengetahuan , Sikap dan Perilaku Hidup Bersih dan Sehat pada Siswa Sekolah Dasar. 13(1), 61–71. <https://doi.org/10.32528/ijhs.v13i1.4864>
- Peptiyanti, I., Ahmad, A., Dzaky, M., Fauziah, S. N., Rendi, & Puspitasari, P. (2023). Peran kurikulum merdeka dalam meningkatkan harmonisasi antara masyarakat dan sekolah. *Jurnal Pacu Pendidikan Dasar*, 3(1), 269–277. <https://doi.org/https://doi.org/10.22021/pacu.v3i1.411>
- Putra, Meiyaldi Eka, Fajar Maulana, Ramanda Rizky, and Islami Fatwa. 2023. "Peningkatan Hasil Belajar Mahasiswa Menggunakan Model Perkuliahan Problem Based Instruction

- (PBI) Mata Kuliah Gambar Teknik.” *Jurnal Pendidikan Teknik Mesin* 10(1):22–30. doi:10.36706/jptm.v10i1.20850.
- Rahmah, S., & Lubis, A. H. (2024). Problem Posing as a Learning Model to Improve Primary School Students’ Mathematics Learning Outcomes in Gayo Lues. *Journal of Indonesian Primary School*, 1(4), 93–104.
- Rahman, A., Munandar, S. A., Fitriani, A., Karlina, Y., & Yumriani. (2022). Pengertian Pendidikan, Ilmu Pendidikan dan Unsur-Unsur Pendidikan. *Al Urwatul Wutsqa: Kajian Pendidikan Islam*, 2(1), 1–8.
- Ranisa, R., Erawadi, E., & Hamka, H. (2018). Students’ Mastery in Identifying Adverbs at Grade VIII SMPN 2 Batang Toru Tapanuli Selatan. *ENGLISH EDUCATION JOURNAL: English Journal for Teaching and Learning*, 6(2), 241–252.
- Ricardo, R., & Meilani, R. I. (2017). Impak Minat dan Motivasi Belajar terhadap Hasil Belajar Siswa. *Jurnal Pendidikan Manajemen Perkantoran (JPManper)*, 2(2), 188–201.
- Santi, Undang, & Kasja. (2023). Peran Guru PAI dalam Membentuk Karakter Peserta Didik di Sekolah. *Jurnal Pendidikan Tambusai*, 7(2), 16078–16084. <https://doi.org/https://doi.org/10.31004/jptam.v7i2.8918>
- Sinaga, Nurul Afni, Fitri Ayu Ningtiyas, Rifaatul Mahmuzah, Yulia Zahara, and Islami Fatwa. 2023. “The Effect of Deductive-Inductive Learning Approach on Creative Thinking Ability and Learning Motivation.” *Journal of Educational Research and Evaluation* 6(2):123–34. doi:10.24114/paradikma.v16i2.46952.
- Siraj, S., M. Yusuf, I. Fatwa, F. Rianda, and M. Mulyadi. 2023. “Pengembangan Model Pembelajaran Reflektif Berbasis Unity of Sciences Bagi Calon Guru Sekolah Menengah Kejuruan Profesional.” *Jurnal Review Pendidikan Dan Pengajaran (JRPP)* 6(4):2030–38.
- Siregar, N., & Siregar, R. S. (2025). Analysis of numeracy literacy of junior high school students in AKM questions: Learning strategies based on higher order thinking skills at SMP Negeri 5 Tapung Hilir. *Jurnal Profesi Guru Indonesia*, 2(1), 359–367. <https://doi.org/10.62945/jpgi.v2i1.720>
- Siregar, R. S. (2024). *Fiqhu Al-Akbār: Taḥqī An-Naṣ Wa Taḥlīlu’Afkārihi*. UIN Ar-Raniry Fakultas Adab dan Humaniora.
- Siregar, R. S. (2024). Students’ Preferences for Varied Learning Methods: An Empirical Study of the Effectiveness and Appeal of Diverse Instructional Approaches. *Jurnal Profesi Guru Indonesia*, 1(2), 140–152. <https://doi.org/https://doi.org/10.62945/jpgi.v1i2.679>
- Siregar, R. S. (2025). The Influence of Social Media as a Learning Resource on the Academic Behavior of Junior High School Adolescents. *KOGNITIF: Jurnal Ilmiah Pendidikan Dan Keguruan*, 2(1), 21–28.
- Siregar, R. S. (2025a). Arabic Language Learning Culture in Salaf Islamic Boarding Schools: An Ethnographic Study of Linguistic Punishment Practices and Traditions. *ETNOPEDAGOGI: Jurnal Pendidikan Dan Kebudayaan*, 2(2), 1–9. <https://doi.org/https://doi.org/10.62945/etnopedagogi.v2i2.722>
- Siregar, R. S. (2025b). Evaluation of the Implementation of the Reading Literacy Program at SD Negeri 100190 Tarutung Bolak. *Journal of Indonesian Primary School*, 2(1), 240–250. <https://doi.org/https://doi.org/10.62945/jips.v2i1.723>
- Siregar, R. S. (2025c). Improving the Arabic Writing Skills of Students through the Application of Contextual Learning Methods at Dayah Irsyadul Abidin Qurani.

- Indonesian Journal of Education and Social Humanities, 2(1), 358–369.
<https://doi.org/https://doi.org/10.62945/ijesh.v2i1.726>
- Siregar, R. S. (2025d). Principles of Subject-Based Arabic Curriculum Development: Language Skills Integration and Contextual Relevance. DEEP LEARNING: Journal of Educational Research, 1(2), 56–67.
<https://doi.org/https://doi.org/10.62945/deeplearning.v1i2.229>
- Siregar, R. S. (2025e). Students' Cognitive Difficulties in Mastering the Nahwu Rules: A Descriptive Study at SMP IT Al Farabi Bilingual School. Jurnal Cendekia Islam Indonesia, 1(2), 10–20. <https://doi.org/https://doi.org/10.62945/jcii.v1i2.216>
- Sugiyono. (2018). Metode Penelitian Kuantitatif Kualitatif dan R&D. Bandung: Alfabeta.