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The Implementation of The Connecting, Organizing, Reflecting, Extending (CORE) Learning Model is Integrated with the Problem Based Learning (PBL) Model to Enhance The Mathematical Problem-Solving Ability of PGSD Students

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ABSTRACT

This study aims to examine the effectiveness of the Connecting, Organizing, Reflecting, and Extending (CORE) learning model integrated with Problem Based Learning (PBL) in improving the mathematical problem-solving abilities of PGSD students. A quasi-experimental method with a non-equivalent control group pretest–posttest design was employed. The participants consisted of 62 fourth-semester PGSD students at Universitas Muhammadiyah Sumatera Utara in the 2024/2025 academic year, divided into an experimental group (n=32) and a control group (n=30). Research instruments included a mathematical problem-solving test, observation sheets, and reflective journals. Data analysis revealed a significant difference between the two groups, with the experimental group achieving a higher mean score (82.53) than the control group (71.67), supported by a t-value of 5.742 ($p<0.001$). The N-gain results indicated a moderate improvement in the experimental group (0.58), exceeding that of the control group (0.31). Students in the experimental class demonstrated better performance across all problem-solving indicators, particularly in rechecking the solution process and results. Qualitative findings further showed improvements in conceptual understanding, strategic thinking, confidence, and collaboration. Overall, integrating CORE and PBL creates meaningful learning experiences and effectively enhances students' mathematical problem-solving competence.

Keyword: CORE, Problem Based Learning, Mathematical Problem Solving, PGSD Students, Integrated Learning Model

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1. INTRODUCTION

Mathematics plays a fundamental role in shaping systematic, analytical, and critical thinking in students of the Elementary School Teacher Education Program (PGSD) as future educators. Mastery of mathematical concepts and problem-solving abilities are essential competencies that PGSD students must possess to prepare them to become competent teachers in teaching mathematics at the elementary school level (Arifuddin, 2020; Fina Tazkiya, 2023). The ability to solve mathematical problems is not only an important component of the mathematics curriculum but also a crucial prerequisite for facing the complexities of problems in the world of education and everyday life in the era of globalization (Anugraheni, 2020; Irvan et al., 2024; Siregar et al., 2020)

Based on preliminary studies and empirical observations, the mathematical problem-solving abilities of PGSD students are still not optimal. Several recent studies indicate a gap between expectations and reality regarding the mathematical problem-solving abilities of PGSD students (Jesi Alexander Alim et al., 2024). Hadi & Marzuki (2021) revealed that most PGSD students have difficulty identifying problems, formulating solution strategies, and applying mathematical concepts in the context of non-routine problem-solving. In line with that, Pambudi et al. (2020) found that the mathematical problem-solving abilities of PGSD students are still relatively low, especially in the aspects of reasoning, representation, and mathematical connections.

The ability to solve mathematical problems requires a complex thinking process that involves a series of high-level cognitive skills (Restini et al., 2023). Indicators of mathematical problem-solving ability according to Polya, as modified by Muhammda Faisal Khatami et al. (2022) include: (1) understanding the problem, (2) planning the problem-solving process, (3) executing the problem-solving plan, and (4) reviewing the process and results of the solution. The four indicators represent a comprehensive and integrated problem-solving cycle. Optimizing mathematical problem-solving skills requires a learning approach that can accommodate the complexity of mathematical thinking processes.

The Connecting, Organizing, Reflecting, Extending (CORE) learning model is one of the constructivist learning models that emphasizes comprehensive thinking activities through four main stages (Syofitami & Noer, 2021). Recent research by Saregar et al. (2021) reveals that the CORE model is effective in enhancing students' mathematical thinking abilities because it facilitates the process of connecting new knowledge with previously held knowledge (connecting), organizing information into cognitive structures (organizing), reflecting on knowledge (reflecting), and extending the knowledge acquired (extending). Sari & Karyati (2022) added that the CORE model allows students to construct knowledge independently through social interaction and cognitive elaboration.

On the other hand, the Problem Based Learning (PBL) model is an educational approach that emphasizes the process of solving authentic problems as a stimulus for developing knowledge and skills (Denisa Azura et al., 2024; Musna et al., 2021; Nasution, et al., 2023). According to Aprilita & Handican (2023), the PBL model has unique characteristics that focus on cases or problems as the starting point of learning, encourage collaborative activities, and develop critical thinking skills in real-world contexts. Asri et al. (2024) found that the application of the PBL model is effective in developing students' mathematical problem-solving skills because it provides meaningful and relevant learning contexts.

Although there are several studies examining the effectiveness of the CORE model and the PBL model separately, research on the integration of these two models in relation to mathematical problem-solving abilities is still limited, especially in the context of mathematics education for PGSD students. Son et al. (2020) suggest the need for further exploration regarding the integration of various innovative learning models to optimize mathematics learning outcomes. Yunita et al. (2022) revealed that collaboration between learning models has the potential to create comprehensive and effective learning synergy.

The integration of the CORE and PBL models offers a promising pedagogical perspective for developing the mathematical problem-solving abilities of PGSD students. The CORE model with its four stages (connecting, organizing, reflecting, extending) can be harmoniously integrated with the PBL syntax, which emphasizes contextual problem-solving (Irawan & Iasha, 2021). Dewi Mustika Wati et al. (2023) argue that the integration of the CORE model and PBL has the potential to produce a comprehensive learning design, where the strengths of one model can compensate for the limitations of the other. According to Rohmah & Ulya (2021) the integration of learning models can enhance the effectiveness of mathematics learning through the diversification of activities and learning experiences.

Theoretically, the integration of the CORE and PBL models has a strong epistemological foundation in social constructivism theory. According to Vygotsky, as cited by Tohari & Rahman (2024), knowledge construction occurs through social interaction and direct experience with relevant problem contexts. In this context, the CORE model represents the dimension of individual knowledge construction through connection, organization, reflection, and knowledge extension, while the PBL model represents the dimension of social knowledge construction through collaboration in contextual problem-solving (Elfrianto et al., 2020; Imandala et al., 2019; Latri et al., 2024).

Based on the above description, there is an urgency to further examine the application of the CORE learning model integrated with the PBL model on the mathematical problem-solving abilities of PGSD students. This research aims to: (1) analyze the implementation of the CORE learning model integrated

with the PBL model in mathematics education for PGSD students; (2) evaluate the impact of the integration of the CORE and PBL models on the mathematical problem-solving abilities of PGSD students; and (3) identify the factors that influence the effectiveness of the integration of the CORE and PBL models in developing the mathematical problem-solving abilities of PGSD students.

The significance of this research lies in its contribution to the development of innovative and effective mathematics learning models for PGSD students. Theoretically, this research enriches the body of knowledge on the integration of learning models in mathematics education. Practically, the results of this research can serve as a reference for lecturers and curriculum developers in designing effective mathematics learning to enhance the mathematical problem-solving abilities of PGSD students. This research also provides pedagogical implications related to mathematics teaching strategies in higher education, particularly in the PGSD study program.

Moreover, this research fills the gap in the literature regarding the integration of the CORE and PBL models, which is still limited. The majority of previous research has focused on the implementation of the CORE or PBL model separately, while research on the integration of these two models has not been extensively conducted. Through this research, it is hoped that a comprehensive and adaptive integrative learning model can be produced, tailored to the characteristics and needs of PGSD students in developing mathematical problem-solving skills.

2. RESEARCH METHOD

This research uses a quantitative approach with a quasi-experimental method. The research design used is a pretest-posttest non-equivalent control group design, where the research subjects are not randomly grouped but use pre-existing groups (intact group). This research design was chosen because it allows researchers to analyze the effect of the treatment on the dependent variable while considering the initial conditions of the research subjects (Creswell, 2022; Sugiyono, 2021).

The population in this study consists of all PGSD semester IV students for the Academic Year 2024/2025 at the Faculty of Teacher Training and Education, Universitas Muhammadiyah Sumatera Utara. The sampling technique used is purposive sampling, which is the selection of samples based on specific considerations in accordance with the research objectives (Etikan, 2017). The research sample consists of two parallel classes with relatively homogeneous characteristics based on the results of homogeneity and normality tests, namely Class A as the experimental group (n = 32) and Class B as the control group (n = 30). The determination of the experimental and control groups was done randomly through a lottery technique.

The main instrument used in this study is: (1) Mathematics Problem-Solving Ability TestThis instrument consists of essay questions that measure four indicators of mathematical problem-solving ability based on the modified Polya stages by Etikan (2017), namely: (a) understanding the problem, (b) planning the problem-solving, (c) executing the problem-solving plan, and (d) reviewing the process and results of the solution. (2) Observation Sheet Observation sheets are used to observe student activities during the learning process, both in the experimental group and the control group. (3) Reflective Journal The reflective journal is filled out by the experimental group students after participating in learning with the CORE model integrated with the PBL model.

Quantitative data obtained from pretest and posttest results were analyzed using descriptive and inferential statistical techniques. Descriptive statistical analysis includes the calculation of the mean, standard deviation, minimum value, and maximum value. Meanwhile, inferential statistical analysis is conducted to test the research hypothesis. Additionally, to measure the effectiveness of the treatment, the N-gain score is calculated using the formula:

N-gain = (posttest score - pretest score) / (maximum score - pretest score)

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The categorization of N-gain refers to the Hake criteria modified by Sundayana (2020), namely: $g \geq 0.7$ (high); $0.3 \leq g < 0.7$ (medium); and $g < 0.3$ (low).
Qualitative data obtained from observations and reflective journals were analyzed using content analysis techniques. This analysis includes the stages of data reduction, data presentation, and conclusion drawing.This qualitative data is used as supporting data to enrich the interpretation of the quantitative analysis results.

3. RESULTS AND DISCUSSION

This section presents the research results on the application of the Connecting, Organizing, Reflecting, Extending (CORE) learning model integrated with the Problem Based Learning (PBL) model on the mathematical problem-solving abilities of PGSD students. The research results are presented systematically based on the quantitative and qualitative data analysis that has been conducted.

A. Initial Ability to Solve Mathematical Problems

Before the implementation of the learning model, a pretest was conducted to measure the initial problem-solving abilities in mathematics of both groups. Descriptive statistics of the pretest results are presented in Table 1

Table 1. Descriptive Statistics of Pretest Results on Mathematics Problem-Solving Ability

Group	N	Average	Standard Deviation	Minimum Value	Maximum Value
Experiment	32	38,34	10,25	40,00	75,00
Control	30	59,07	9,87	42,00	76,00

The results of the normality test using the Kolmogorov-Smirnov method show that the pretest data in both groups are normally distributed ($p > 0.05$). The homogeneity test using Levene's test also showed that the variances of both groups are homogeneous ($F = 0.214$; $p = 0.645$). Furthermore, the independent t-test results on the pretest scores indicate that there is no significant difference between the initial mathematical problem-solving abilities of the experimental group and the control group ($t = -0.287$; $p = 0.775$). This indicates that both groups had relatively equal initial abilities before being given the treatment.

B. Final Problem-Solving Ability in Mathematics

After the implementation of the learning model, a posttest was conducted to measure the final problem-solving abilities in mathematics of both groups. Descriptive statistics of the posttest results are presented in Table 2

Table 2. Descriptive Statistics of Posttest Results for Mathematical Problem-Solving Ability

Group	N	Average	Standard Deviation	Minimum Value	Maximum Value
Experiment	32	82,53	7,41	68,00	94,00
Control	30	71,67	8,23	56,00	85,00

The results of the normality test using the Kolmogorov-Smirnov method indicate that the posttest data in both groups are normally distributed ($p > 0.05$). The homogeneity test using Levene's test also showed that the variances of both groups are homogeneous ($F = 0.547$; $p = 0.462$). Furthermore, the independent t-test results on the posttest scores indicate a significant difference between the final mathematical problem-solving abilities of the experimental group and the control group ($t = 5.742$; $p <$

0.001). The average posttest score of the experimental group (82.53) was significantly higher than that of the control group (71.67).

C. Improvement in Mathematical Problem-Solving Skills

To measure the improvement in mathematical problem-solving abilities in both groups, an N-gain score analysis was conducted. The results of the N-gain score analysis are presented in Table 3.

Table 3. Results of N-gain Score Analysis for Mathematical Problem-Solving Ability

Group	N	Average N Gain	Standard Deviation	Category
Experiment	32	0,53	0,14	medium
Control	30	0,31	0,12	medium

The independent t-test results on the N-gain scores indicate a significant difference between the improvement in mathematical problem-solving abilities of the experimental group and the control group ($t = 8.321$; $p < 0.001$). The average N-gain of the experimental group (0.58) was significantly higher than that of the control group (0.31), although both were in the moderate category.

D. Analysis of Mathematical Problem-Solving Ability Based on Indicators

To obtain a more comprehensive picture, an analysis of mathematical problem-solving abilities was conducted based on four indicators, namely: (1) understanding the problem, (2) planning the problem-solving process, (3) executing the problem-solving plan, and (4) reviewing the process and results of the solution. The percentage achievement of each indicator on the posttest for both groups is presented in Table 4.

Table 4. Percentage Achievement of Mathematical Problem-Solving Ability Indicators on the Posttest

Indicator	Experimental Group (%)	Control Group (%)
1	92,81	87,67
2	83,44	72,33
3	79,06	68,67
4	74,84	58,00

Based on Table 4, the experimental group showed a higher achievement percentage on all indicators of mathematical problem-solving ability compared to the control group.The largest difference in achievement percentages is seen in the fourth indicator (rechecking the process and results), which is 16.84%. Meanwhile, the smallest percentage difference in achievement is seen in the first indicator (understanding the problem), which is 5.14%.

E. Results of Student Activity Observation

During the implementation of the learning model, observations were made on the activities of students in both groups.Observations were conducted in six meetings, focusing on aspects relevant to mathematical problem-solving skills.The percentage of student activity implementation in both groups is presented in Table 5.

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Table 5. Percentage of Student Activity Implementation

Meeting	Experimental Group (%)	Control Group (%)
1	78,67	70,56
2	82,33	72,89
3	85,78	73,44
4	88,44	75,11
5	90,22	76,33
6	82,33	72,76
Average	83,15	70,56

Based on Table 5, the percentage of student activity implementation in the experimental group shows a consistent increase from the first meeting to the sixth meeting. The average percentage of student activity implementation in the experimental group (83.15%) was higher than in the control group (72.76%). This indicates that the CORE learning model integrated with the PBL model is capable of encouraging students to actively engage in the learning process.

Based on the results of qualitative observations, students in the experimental group showed higher enthusiasm and perseverance in solving the presented math problems. They also demonstrated better collaboration skills in group discussions and were able to produce more creative solutions. Connecting and organizing activities help students build a comprehensive understanding of problems, while reflecting and extending activities facilitate them in evaluating and developing solutions (Eka Sastrawati et al., 2025; Nasution et al., 2024).

F. Student Reflections on the Learning Process

To obtain students' perspectives on the implementation of the CORE learning model integrated with the PBL model, a content analysis was conducted on the reflective journals filled out by the experimental group students. The results of the content analysis show several main themes that emerged from the students' reflections, as presented in Table 6.

Table 6. Main Themes in Students' Reflective Journals

Theme	Description	Frequency (%)
T1	Improvement in understanding mathematical concepts	87,50
T2	Development of problem-solving strategies	81,25
T3	Improvement in confidence in problem-solving	78,13
T4	Collaboration and effective communication within the group	75,00
T5	Understanding the relationship between mathematical concepts and real-world contexts	71,88
T6	Difficulty in the reflecting and extending stage	28,13

Based on Table 6, the majority of students reflected an increase in understanding mathematical concepts (87.50%) and the development of problem-solving strategies (81.25%) after participating in learning with the CORE model integrated with the PBL model. Most students also reflected an increase in confidence in solving math problems (78.13%) and an improvement in collaboration and communication skills within groups (75.00%). However, some students (28.13%) reflected on difficulties in the reflecting and extending stages, particularly in evaluating solutions and developing knowledge in a broader context.

Some representative student reflection quotes are presented as follows:

"This learning model helps me connect the mathematical concepts I have previously learned with new problems I encounter." I feel more capable of organizing my thoughts and seeing patterns in problem-solving. (Student 7)

“The reflecting stage makes me accustomed to rechecking the solutions I find. This helps me reduce calculation errors and ensures that my solution truly addresses the problem at hand.” (Student 15)

"I find it difficult in the extending stage, especially when asked to develop new problems or apply solutions in different contexts. However, after a few meetings, I started to get used to it and even enjoyed the process.” (Student 22)

"Collaboration in groups is very helpful in finding various problem-solving strategies. We learn from different perspectives and approaches, enriching our understanding of mathematical problems.” (Student 30)

The research results show that the CORE learning model integrated with the PBL model is effective in improving the mathematical problem-solving abilities of PGSD students. This is indicated by the significant differences in posttest scores and N-gain between the experimental group and the control group.

The effectiveness of the CORE learning model integrated with the PBL model can be explained through several factors. First, the connecting stage in the CORE model facilitates students in linking new knowledge with previously acquired knowledge. This is in line with the opinion of Latri et al. (2024) who state that the process of connecting knowledge is an important foundation in building comprehensive understanding.

Second, the organizing stage helps students systematically organize information, making it easier for them to plan problem-solving strategies. According to the findings of Whitelock-Wainwright et al. (2020), the ability to organize information is positively correlated with the ability to plan effective problem-solving strategies.

Third, the reflecting stage encourages students to evaluate the process and results of problem-solving. As stated by Restini et al. (2023), reflection is an important component in the development of metacognition that plays a role in solving mathematical problems.

Fourth, the extending stage facilitates students in developing knowledge in a broader context, thereby enhancing their knowledge transfer abilities. This is consistent with the findings of Djudin (2023) that the ability to develop knowledge is positively correlated with adaptive problem-solving skills.

The integration of the CORE model with the PBL model creates a comprehensive learning synergy. The PBL model provides a context of authentic, meaningful, and relevant problems, while the CORE model offers a systematic cognitive structure for solving those problems. This is in line with the opinion of Gunawan et al. (2023) that the integration of learning models can optimize learning outcomes through the combination of the strengths of each model.

The results of the analysis based on the indicators of mathematical problem-solving ability show that the CORE learning model integrated with the PBL model is the most effective in improving problem comprehension skills. However, the most significant difference between the experimental group and the control group was observed in the indicator of reviewing the process and results of the solution. This indicates that the reflecting stage in the CORE model significantly contributes to the development of evaluation skills in solving mathematical problems. Another interesting finding is the consistent increase

in the implementation of student activities in the experimental group from the first meeting to the sixth meeting. This indicates that students are becoming increasingly accustomed to the CORE learning model integrated with the PBL model as their learning experience grows. According to Utami et al. (2023), adapting to innovative learning models requires time and a continuous process (Utami et al., 2023).

Students' reflections on the learning process indicate a positive impact from the implementation of the CORE learning model integrated with the PBL model on their cognitive and affective development. The majority of students reflected an increase in conceptual understanding, the development of problem-solving strategies, and an increase in self-confidence. However, some students experienced difficulties in the reflecting and extending stages. This indicates the need for more attention in facilitating students at those stages, especially at the beginning of the implementation of the learning model.

4. CONCLUSION

The application of the Connecting, Organizing, Reflecting, Extending (CORE) learning model integrated with the Problem Based Learning (PBL) model has proven effective in improving the mathematical problem-solving abilities of PGSD students. This is evidenced by the significant difference in posttest scores between the experimental group (mean=82.53) and the control group (mean=71.67) with a t-value of 5.742 ($p<0.001$), as well as a higher N-gain increase in the experimental group (0.58) compared to the control group (0.31). The experimental group also showed higher achievements on all indicators of mathematical problem-solving, with the largest difference on the indicator "rechecking the process and results" (16.84%), as well as consistently increased learning activities, reaching an average implementation percentage of 83.15%.

The integration of the CORE and PBL models creates a comprehensive learning synergy, where the PBL model provides meaningful authentic problem contexts, while the CORE model offers a systematic cognitive structure for problem-solving. Qualitative analysis through reflective journals revealed that the majority of students experienced positive benefits from the implementation of the model, particularly in the improvement of mathematical concept understanding (87.50%), development of problem-solving strategies (81.25%), increase in self-confidence (78.13%), and development of collaboration skills (75.00%), although a small number of students (28.13%) faced difficulties in the reflecting and extending stages. Based on these findings, the CORE and PBL integrative learning models are recommended for implementation in mathematics education within the PGSD study program, with attention to appropriate adaptation and scaffolding to optimize each stage of learning.

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REFERENCES

Anugraheni, I. (2020). Analisis Kesulitan Mahasiswa dalam Menumbuhkan Berpikir Kritis Melalui Pemecahan Masalah. *Jurnal Cendekia : Jurnal Pendidikan Matematika*, *4*(1), 261–267. https://doi.org/10.31004/cendekia.v4i1.197

Aprilita, T. D., & Handican, R. (2023). Persepsi Siswa Terhadap Implementasi Model Problem Based Learning pada Mata Pelajaran Matematika. *Griya Journal of Mathematics Education and Application*, *3*(3), 546–560. https://doi.org/10.29303/griya.v3i3.353

Arifuddin, A. (2020). The Analysis of Critical Thinking Skills of Primary School Teacher Candidates in Solving Mathematical Problems. *Al Ibtida: Jurnal Pendidikan Guru MI*, *7*(1), 46. https://doi.org/10.24235/al.ibtida.snj.v7i1.6212

Asri, I. H., Jampel, I. N., Putu Arnyana, I. B., Suastra, I. W., & Nitiasih, P. K. (2024). Profile of Problem Based Learning (PBL) Model in Improving Students' Problem Solving and Critical Thinking Ability. *KnE Social Sciences*.

https://doi.org/10.18502/kss.v9i2.14898

Creswell, J. W. (2022). *Research Design: Qualitative, Quantitative and Mixed Methods Approaches (6th)* (6th ed.). Sage Publications.

Denisa Azura, Sahrun Nisa, & Ari Suriani. (2024). Studi Literatur: Implementasi Model Based Learning (PBL) Untuk Meningkatkan Kemampuan Pemecahan Masalah Matematika Siswa SD. *Dewantara : Jurnal Pendidikan Sosial Humaniora*, *3*(2), 267–281. https://doi.org/10.30640/dewantara.v3i2.2651

Dewi Mustika Wati, B., Sarjana, K., Novitasari, D., & Hikmah, N. (2023). Pengaruh Penerapan Model Pembelajaran CORE Berbasis Masalah Kontekstual Terhadap Kemampuan Pemecahan Masalah Matematika Siswa. *Griya Journal of Mathematics Education and Application*, *3*(1), 214–233. https://doi.org/10.29303/griya.v3i1.300

Djudin, T. (2023). Transferring of Mathematics Knowledge into the Physics Learning to Promote Students' Problem-Solving Skills. *International Journal of Instruction*, *16*(4), 231–246. https://doi.org/10.29333/iji.2023.16414a

Eka Sastrawati, Maryono, Yantoro, & Destrinelly. (2025). Project based learning model in digital literacy course in education to improve creativity of pgsd unja students in writing scientific articles. *Primary: Jurnal Pendidikan Guru Sekolah Dasar*, *14*(1), 1–10. https://doi.org/10.33578/jpfkip-v14i1.p1-10

Elfrianto, E., Nasution, I. S., & Siregar, E. F. (2020). Implementasi Pembelajaran Aktif Berorientasi Mikir (Mengamati, Interaksi, Komunikasi, dan Refleksi) di SD Muhammadiyah 12 Medan. *Pelita Masyarakat*, *2*(1), 9–16. https://doi.org/10.31289/pelitamasyarakat.v2i1.4071

Etikan, I. (2017). Sampling and Sampling Methods. *Biometrics & Biostatistics International Journal*, *5*(6). https://doi.org/10.15406/bbij.2017.05.00149

Fina Tazkiya. (2023). THE IMPORTANCE OF MASTERING MATHEMATICAL CONCEPTS IN SOLVING MATHEMATICAL PROBLEMS IN ELEMENTARY SCHOOLS. *EZRA SCIENCE BULLETIN*, *1*(1), 11–17. https://doi.org/10.58526/ez-sci-bin.v1i1.3

Gunawan, R. G., Festiyed, F., Yerimadesi, Y., Ilwandri, I., & Gunawan, R. G. (2023). The Problem-Based Learning Model Integrated with The Integrated Learning Model in Science Learning: A Systematic Literature Review. *Indonesian Journal of Science and Mathematics Education*, *6*(2), 227–237. https://doi.org/10.24042/ijsme.v6i2.17576

Hadi, S., & Marzuki, A. D. (2021). KEMAMPUAN PENALARAN MATEMATIKA MAHASISWA DALAM PEMBELAJARAN MATEMATIKA SD YANG BERKONTEK NALARIA. *JURNAL ILMIAH GLOBAL EDUCATION*, 165–167. https://doi.org/10.55681/jige.v2i2.121

Imandala, I., Li, R., & Supriyadi, A. (2019). Analysis of Problem-Based Learning Models by Typology of Knowledge Pollock and Cruz (1999). *International Journal of Education and Learning*, *1*(1), 1–11. https://doi.org/10.31763/ijele.v1i1.12

Irawan, S., & Iasha, V. (2021). Core Learning Model and Mathematical Disposition, Against Mathematics Problem Solving Ability of Elementary School Students. *Buana Pendidikan: Jurnal Fakultas Keguruan Dan Ilmu Pendidikan*, *17*(2), 122–129. https://doi.org/10.36456/bp.vol17.no2.a3942

Irvan, I., Simangunsong, A. R., & Nasution, M. D. (2024). Statistics Learning Media Innovation B-Tube (Combination Blog and YouTube). *Mosharafa: Jurnal Pendidikan Matematika*, *13*(4), 895–908. https://doi.org/10.31980/mosharafa.v13i4.1748

Jesi Alexander Alim, Sri Retno Asih, & Zetra Hainul Putra. (2024). The effectiveness of realistic mathematics education to enhance elementary students' learning outcomes and motivation. *Primary: Jurnal Pendidikan Guru Sekolah Dasar*, *13*(6), 242–251. https://doi.org/10.33578/jpfkip-v13i6.p242-251

Latri, L., Juhari, A., & Patta, R. (2024). Integrasi Penerapan Model Problem Based Learning (PBL) dengan Model Pembelajaran Connecting, Organizing, Reflecting, Extending (CORE) terhadap Kemampuan Pemecahan Masalah Matematika Calon Guru SD. *Proximal: Jurnal Penelitian Matematika Dan Pendidikan Matematika*, *7*(2), 700–707. https://doi.org/10.30605/proximal.v7i2.3920

Muhammda Faisal Khatami, Nyoman Sridana, Laila Hayati, & Amrullah, A. (2022). Analisis Kemampuan Pemecahan Masalah Matematika Dalam Menyelesaikan Soal Kompetitif Ditinjau Dari Kecerdasan Logis Matematis. *Griya Journal of Mathematics Education and Application*, *2*(1), 214–225. https://doi.org/10.29303/griya.v2i1.146

Musna, R. R., Juandi, D., & Jupri, A. (2021). A meta-analysis study of the effect of Problem-Based Learning model on students' mathematical problem solving skills. *Journal of Physics: Conference Series*, *1882*(1), 012090. https://doi.org/10.1088/1742-6596/1882/1/012090

Nasution, M. D., Irvan, I., & Ramadhan, R. (2023). Pengaruh Model Pembelajaran Problem Solving Terhadap Kemampuan Pemecahan Masalah Siswa Kelas VIII SMPIT Miftahul Jannah. *Innovative: Journal Of Social Science Research*, *3*(4), 260–268.

Nasution, M. F., Rahayu, M., Jannah, N. F., & Tawarnate, M. (2024). Analisis Faktor-Faktor yang Mempengaruhi Kualitas Penyusunan Anggaran Sekolah Menengah Pertama: Studi Kualitatif di Medan. *Jurnal Ilmiah Universitas Batanghari Jambi*, *24*(3), 2638. https://doi.org/10.33087/jiubj.v24i3.5494

Pambudi, D. S., Budayasa, I. K., & Lukito, A. (2020). The Role of Mathematical Connections in Mathematical Problem Solving. *Jurnal Pendidikan Matematika*, *14*(2), 129–144. https://doi.org/10.22342/jpm.14.2.10985.129-144

Restini, I. L., Pathuddin, P., Bakri, B., & Sukayasa, S. (2023). PROFILE OF STUDENTS' METACOGNITIVE SKILLS IN SOLVING MATH PROBLEMS IN TERMS OF MATHEMATICAL ABILITY. *JME (Journal of Mathematics Education)*, *8*(2), 172–187. https://doi.org/10.31327/jme.v8i2.1970

Rohmah, A. N., & Ulya, H. (2021). Pengaruh Pembelajaran CORE Melalui Pendekatan Open-Ended terhadap Kemampuan Berpikir Kritis Matematis Siswa. *Buana Matematika : Jurnal Ilmiah Matematika Dan Pendidikan Matematika*, *11*(2), 137–

150. https://doi.org/10.36456/buanamatematika.v11i2.3684

Saregar, A., Cahyanti, U. N., Misbah, M., Susilowati, N. E., Anugrah, A., & Muhammad, N. (2021). CORE learning model: Its effectiveness towards students' creative thinking. *International Journal of Evaluation and Research in Education (IJERE)*, *10*(1), 35. https://doi.org/10.11591/ijere.v10i1.20813

Sari, E. P., & Karyati. (2022). *CORE learning model (connecting, organizing, reflecting & extending) to improve mathematical representation ability*. 050016. https://doi.org/10.1063/5.0110217

Siregar, N., Siregar, N., & Hasanah, H. (2020). Analisis Kemampuan Pemahaman Konsep Matematis Mahasiswa Program Studi PGSD. *Logaritma : Jurnal Ilmu-Ilmu Pendidikan Dan Sains*, *8*(02), 199–212. https://doi.org/10.24952/logaritma.v8i02.2773

Son, A. L., Darhim, D., & Fatimah, S. (2020). STUDENTS' MATHEMATICAL PROBLEM-SOLVING ABILITY BASED ON TEACHING MODELS INTERVENTION AND COGNITIVE STYLE. *Journal on Mathematics Education*, *11*(2), 209–222. https://doi.org/10.22342/jme.11.2.10744.209-222

Sugiyono. (2021). *Metode Penelitian Kualitatif*. Alfabeta.

Sundayana, R. (2020). *Statistik Penelitian Pendidikan (Edisi ke-2)* (2nd ed.). Alfabeta.

Syofitami, R. A., & Noer, S. H. (2021). The Effect of CORE Learning Model towards Students' Mathematical Reflective Thinking Skills: A Meta Analysis Study. *Jurnal Pendidikan MIPA*, *22*(1), 90–97. https://doi.org/10.23960/jpmipa/v22i1.pp90-97

Tohari, B., & Rahman, A. (2024). Konstruktivisme Lev Semonovich Vygotsky dan Jerome Bruner: Model Pembelajaran Aktif dalam Pengembangan Kemampuan Kognitif Anak. *Nusantara: Jurnal Pendidikan Indonesia*, *4*(1), 209–228. https://doi.org/10.14421/njpi.2024.v4i1-13

Utami, I. tri, Dian Kartika Sari, L., & Surur, M. (2023). Efektivitas Model Pemeblajaran CORE (Connecting, Organizing, Reflecting, Extending) Dengan Strategi Student Facilitator And Explaining Terhadap Pemahaman Konsep Matematis Siswa. *Jurnal Derivat: Jurnal Matematika Dan Pendidikan Matematika*, *10*(1), 1–10. https://doi.org/10.31316/jderivat.v10i1.2736

Whitelock-Wainwright, A., Laan, N., Wen, D., & Gašević, D. (2020). Exploring student information problem solving behaviour using fine-grained concept map and search tool data. *Computers & Education*, *145*, 103731. https://doi.org/10.1016/j.compedu.2019.103731

Yunita, Y., Juandi, D., Hasanah, A., & Suparman. (2022). *Meta-analysis study: How effective is a project-based learning model on students' mathematical problem-solving abilities?* 070024. https://doi.org/10.1063/5.0102458