



MATHEMATICS LEARNING STRATEGIES FOR DEAF CHILDREN IN UNDERSTANDING STORY PROBLEMS

STRATEGI PEMBELAJARAN MATEMATIKA PADA ANAK TUNARUNGU DALAM MEMAHAMI SOAL CERITA

Fasya Zahira Shofa^{1*}, Muhammad Rafael Al Farez², Fajar Yunia Dewi³, Fika Nur Rahma⁴,
Noor Laila Sari⁵, Yeny Rahma⁶

^{1*} Walisongo State Islamic University, Email: fasyazahirashofa@gmail.com

² Walisongo State Islamic University, Email: alfarezrafael75@gmail.com

³ Walisongo State Islamic University, Email: yuniadewi865@gmail.com

⁴ Walisongo State Islamic University, Email: rfika5147@gmail.com

⁵ Walisongo State Islamic University, Email: 23030960065@student.walisongo.ac.id

⁶ Walisongo State Islamic University, Email: yrahma@gmail.com

*email koresponden: fasyazahirashofa@gmail.com

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Abstract

Mathematics learning plays an important role in developing logical thinking and problem-solving skills. However, for deaf students, understanding mathematical word problems remains a fairly complex challenge, mainly due to limitations in language and communication aspects. This study aims to examine the characteristics of the difficulties experienced by deaf students, analyze the implementation of the learning strategies used, and investigate their effectiveness in improving understanding of mathematical word problems. This research employs a qualitative approach using a literature study method. The findings indicate that the main difficulties lie in understanding the language used in the problems, identifying important information, and transforming it into mathematical models. Effective learning strategies tend to be visual, contextual, and communicative, supported by the use of interactive media. Nevertheless, the use of media alone is not sufficient without well-structured instructional strategies. These findings emphasize that the integration of adaptive learning strategies plays a more significant role in improving deaf students' understanding of mathematical word problems.

Keywords : Deaf Students, Learning Strategies, Mathematics, Word Problems, Inclusive Education.

Abstrak

Pembelajaran matematika memiliki peran penting dalam mengembangkan kemampuan berpikir logis dan pemecahan masalah. Namun, bagi siswa tunarungu, pemahaman terhadap soal cerita masih menjadi tantangan yang cukup kompleks, terutama karena keterbatasan dalam aspek bahasa dan komunikasi. Penelitian ini bertujuan untuk mengkaji karakteristik kesulitan yang dialami siswa tunarungu, menganalisis implementasi strategi pembelajaran yang digunakan, serta menelaah efektivitasnya dalam meningkatkan pemahaman soal cerita matematika. Penelitian ini menggunakan pendekatan kualitatif dengan metode studi literatur. Hasil kajian menunjukkan bahwa kesulitan utama



terletak pada kemampuan memahami bahasa dalam soal, mengidentifikasi informasi penting, serta mengubahnya ke dalam model matematika. Strategi pembelajaran yang efektif cenderung bersifat visual, kontekstual, dan komunikatif, serta didukung penggunaan media interaktif. Namun demikian, penggunaan media saja tidak cukup tanpa didukung strategi pembelajaran yang terstruktur. Temuan ini menegaskan bahwa integrasi strategi pembelajaran yang adaptif memiliki peran yang lebih menentukan dalam meningkatkan pemahaman siswa tunarungu terhadap soal cerita matematika.

Kata Kunci : Tunarungu, Strategi Pembelajaran, Matematika, Soal Cerita, Pendidikan Inklusif.

1. INTRODUCTION

Mathematics plays a fundamental role in fostering logical thinking, systematic reasoning, and problem-solving abilities (Utami et al., 2025). In educational settings, mathematics learning extends beyond computational skills and contributes to the development of critical and analytical thinking required in everyday life. Therefore, ensuring the quality of mathematics instruction is essential for all learners, including students with special educational needs. Among students with special needs, deaf students often encounter significant challenges in mathematics learning. Hearing impairments can affect language acquisition and communication development, which subsequently influence students' ability to understand academic content (Damayanti, 2023; MA. BETTY P, 2023). As a result, deaf students frequently experience difficulties in receiving and processing verbally delivered information, particularly mathematical word problems that require comprehensive language comprehension.

The difficulties experienced by deaf students in mathematics are not limited to performing calculations. Rather, they are closely related to understanding the meaning and context of problems. Previous studies have reported that deaf students often struggle to interpret sentences, identify relevant information, and translate word problems into appropriate mathematical representations (Amiruzzaman et al., 2025; Cakrawala et al., 2026). Limited vocabulary knowledge and difficulties in understanding linguistic structures have been identified as major factors contributing to their lower problem-solving performance (Anditiasari, 2020). In addition to these internal factors, several external factors also influence the learning process, including the use of instructional media and the implementation of learning strategies that may not adequately accommodate students' needs (Nirma et al., 2021). Within inclusive education settings, mathematics instruction for deaf students should be designed according to their learning characteristics, as they generally respond more effectively to visual, concrete, and communicative learning experiences (et al., 2021). Consequently, instructional approaches used for deaf students require specific adaptations rather than direct application of methods designed for hearing students.

Various efforts have been undertaken to address these challenges, particularly through the development of instructional media such as board games and technology-based interactive learning tools (Razi et al., 2020). Previous findings indicate that such media can improve students' learning outcomes, as reflected in increased achievement and engagement. Visual-based learning resources are also believed to reduce cognitive load and facilitate conceptual understanding through more concrete representations.

Nevertheless, the assumption that instructional media automatically improve students' understanding deserves critical examination. The effectiveness of learning media largely depends on the instructional strategies accompanying their use (Siregar & Ananda, 2023). Without appropriate planning and pedagogical implementation, media may function merely as supplementary tools and may not necessarily lead to substantial improvements in conceptual understanding (Nurhanifah, 2021). In some cases, observed improvements may even result from the novelty effect rather than from the pedagogical effectiveness of the intervention itself.

Furthermore, contemporary mathematics education emphasizes the importance of Higher Order Thinking Skills (HOTS), particularly in solving mathematical word problems (Elevena Laras Suci



Juniar & Kowiyah, 2023). However, the application of HOTS-oriented instruction to deaf students cannot be implemented effectively without first establishing a strong foundation of conceptual understanding (Rahmasantika & Prahmana, 2022). Without such a foundation, students may encounter difficulties in analyzing problems and generating independent solutions. Taken together, these findings suggest that the challenges faced by deaf students in learning mathematics are multidimensional, involving linguistic, cognitive, and instructional aspects (Linda & Muliarsari, 2021). While many previous studies have focused primarily on the development of instructional media, relatively few have comprehensively examined the relationship between instructional strategies and their effectiveness in enhancing students' understanding of mathematical word problems.

This situation highlights an important research gap that warrants further investigation. Effective mathematics instruction for deaf students should not rely solely on learning media but should also incorporate systematic, structured, and developmentally appropriate instructional strategies that align with students' unique characteristics (Azizah & Irvan, 2019). Therefore, successful learning outcomes depend not only on the tools employed but also on how instructional strategies are designed and implemented.

Based on these considerations, this study aims to analyze the characteristics of the difficulties experienced by deaf students in understanding mathematical word problems, examine the instructional strategies implemented to address these difficulties, and review empirical findings regarding the effectiveness of such strategies. It is expected that the findings of this study will contribute to the development of more adaptive and contextually relevant instructional approaches that can enhance deaf students' ability to understand and solve mathematical word problems.

2. RESEARCH METHOD

This study adopted a Systematic Literature Review (SLR) approach to comprehensively examine previous studies concerning mathematics instructional strategies for deaf students in understanding mathematical word problems. This approach was selected because it enables researchers to conduct a systematic, selective, and transparent review of existing literature, thereby providing a comprehensive overview of current research findings (Diziró et al., 2025; Alifulloh et al., 2024). Through this method, the study aimed to identify the instructional strategies employed, evaluate trends in research outcomes, and investigate challenges associated with their implementation.

The first stage of the study involved formulating research questions to guide the literature search and analysis process. These questions focused on the cognitive and linguistic difficulties experienced by deaf students in understanding mathematical word problems, the implementation of instructional strategies used to address these difficulties, and the overall effectiveness of these strategies as reported in previous studies. The formulation of these questions was intended to provide a comprehensive understanding of both learning challenges and pedagogical approaches within mathematics education for deaf learners (Pratiwi & Pujaningsih, 2026).

To ensure the quality and relevance of the selected literature, explicit inclusion and exclusion criteria were established. The review included studies that directly addressed mathematics learning among deaf students, particularly those related to word-problem comprehension. Only peer-reviewed articles published in reputable journals indexed by Scopus or accredited by SINTA, and written in either English or Indonesian, were considered. Publications that were not based on empirical research, such as editorials, book reviews, and studies unrelated to the focus of the review, were excluded from the analysis (Scarpelli et al., 2022). Data were collected through systematic searches of the Scopus and SINTA databases using relevant keywords, including "deaf students," "mathematics learning strategies," and "word problem comprehension." The literature selection process followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) framework, which consists of identification, screening, eligibility assessment, and inclusion stages. Initially, articles were screened based on their titles and abstracts. Subsequently, full-text reviews were conducted to determine their suitability for inclusion in the study (Nelson et al., 2022).



Information from the selected studies was extracted using a structured data extraction form. The collected data included the authors and year of publication, study location and context, participant characteristics, instructional strategies implemented, and key findings related to students' ability to understand mathematical word problems. Furthermore, the methodological approaches employed in each study were examined to identify their strengths and limitations (Pratiwi & Pujaningsih, 2026).

The extracted data were analyzed using thematic analysis. This approach enabled the identification of recurring patterns across studies, the categorization of instructional strategies, and the examination of relationships between instructional approaches and reported learning outcomes. In addition, thematic analysis facilitated the exploration of variations in findings and contextual factors that may influence the effectiveness of specific instructional strategies (Diziró et al., 2025).

To enhance the validity of the review, all selected studies underwent a quality assessment process before being included in the synthesis. The assessment considered several criteria, including the appropriateness of the research design, sample size and characteristics, data analysis procedures, and the clarity of the conclusions drawn. Consequently, only studies that met the predetermined quality standards were included in the final synthesis (Nelson et al., 2022). The findings of the review were synthesized and presented in an integrated narrative form. This synthesis not only summarized the major findings reported in previous studies but also highlighted emerging trends, inconsistencies across studies, and existing gaps in the literature. Furthermore, the review provides implications and recommendations that may serve as a foundation for developing more effective and inclusive mathematics instructional strategies for deaf students (Alifulloh et al., 2024).

3. RESULT AND DISCUSSION

This discussion synthesizes findings from the studies included in the Systematic Literature Review (SLR) to address three primary research focuses: (1) the cognitive and linguistic difficulties experienced by deaf students in understanding mathematical word problems, (2) the implementation of instructional strategies used to address these difficulties, and (3) the varying effectiveness of these strategies. The analysis was conducted inductively by identifying recurring patterns, emerging trends, and inconsistencies across the selected studies.

Cognitive and Linguistic Difficulties in Understanding Mathematical Word Problems

The findings indicate that the challenges faced by deaf students in solving mathematical word problems are multidimensional, with linguistic difficulties closely intertwined with cognitive processes. From a linguistic perspective, limited vocabulary knowledge, difficulties in understanding sentence structures, and challenges in language interpretation were consistently identified as major barriers to comprehending word problems (Anditiasari, 2020; Nurhanifah, 2021). As a result, students often struggle to interpret mathematical terminology presented in narrative form and fail to identify essential information embedded within the problem statements.

However, attributing these challenges solely to language limitations would oversimplify the issue. Several studies suggest that linguistic difficulties directly influence cognitive processes, particularly students' ability to construct meaningful mental representations of mathematical situations (Linda & Muliastari, 2021). When learners are unable to derive meaning from written text, they experience difficulties connecting the information provided with relevant mathematical concepts. Consequently, the process of translating word problems into mathematical models becomes significantly impaired (Amiruzzaman et al., 2025). Furthermore, difficulties were observed throughout the problem-solving process, particularly during the stages of understanding the problem and planning a solution, as described in Polya's framework. Deaf students tended to encounter greater obstacles during these initial stages than during the computational stage itself (Junior & Kowiyah, 2023). This finding suggests that the primary challenge lies in cognitive-linguistic processing rather than in mathematical calculation. Therefore, the difficulties experienced by deaf students should be viewed as systemic, where weaknesses in language comprehension negatively affect the entire problem-solving process.



Implementation of Instructional Strategies

A variety of instructional strategies have been employed to address these challenges, with a strong emphasis on visual, concrete, and media-supported approaches. Interactive learning media, including digital applications and educational board games, have been reported to enhance student engagement and facilitate conceptual understanding through visual representations (Razi et al., 2020; Siregar & Ananda, 2023). Similarly, mathematics comics have been identified as an alternative instructional medium that provides more accessible and communicative representations for deaf learners (Azizah & Irvan, 2019). Despite these positive outcomes, the effectiveness of such approaches is not universal. Some studies have shown that the use of instructional media without a clearly defined pedagogical framework tends to increase motivation and participation but does not necessarily lead to significant improvements in conceptual understanding (Nirma et al., 2021). This suggests that instructional media should not be viewed as the primary determinant of learning success; rather, their effectiveness depends largely on the quality of the instructional design in which they are embedded.

Contextual learning approaches have also emerged as a prominent strategy. By connecting mathematical concepts to students' real-life experiences, these approaches support meaning-making and facilitate understanding (Utami et al., 2025). For deaf students, contextual learning helps bridge the gap between language and mathematical concepts by grounding instruction in concrete experiences. Nevertheless, the effectiveness of this approach may be reduced when implemented inconsistently or without adequate scaffolding. In addition, strategies aimed at fostering higher-order thinking skills, such as the use of mathematics e-comics, have demonstrated potential for improving students' analytical abilities (Rahmasantika & Prahmana, 2022). However, these approaches require a sufficient foundation of conceptual understanding. Without such a foundation, students may encounter additional difficulties when engaging with more complex reasoning processes. Overall, the reviewed studies suggest that the most effective instructional strategies are those that simultaneously integrate visual supports, language development, and conceptual understanding. Fragmented or poorly structured approaches tend to produce limited educational benefits.

Variations in the Effectiveness of Instructional Strategies

One of the key findings of this review is that the effectiveness of mathematics instructional strategies for deaf students varies considerably across studies and is influenced by multiple contextual factors. No single instructional strategy consistently outperformed others in all learning environments. This variation reflects the complex interaction between student characteristics, instructional design, and implementation quality. Visual based and interactive media approaches generally demonstrated positive short-term outcomes, particularly in increasing student engagement and supporting initial understanding of mathematical concepts (Yusliana Bakti et al., 2021). However, several studies reported that these improvements were not always sustained over time. This raises an important question regarding whether observed gains reflect deep conceptual understanding or merely temporary effects associated with the novelty of instructional media. Conversely, strategies that explicitly integrate language development with mathematical instruction appear to produce more stable and lasting improvements, although progress tends to occur gradually. These findings highlight the importance of strengthening linguistic competencies as a means of improving word-problem comprehension. Nevertheless, the success of such strategies depends heavily on teachers' ability to adapt instructional language to students' specific communication needs.

The effectiveness of instructional strategies is also influenced by implementation-related factors, including teacher competence and the availability of educational resources. Evidence suggests that systematically designed interventions with clear instructional stages and continuous support are more effective than strategies implemented sporadically or without careful planning (Damayanti, 2023). In addition, insufficient teacher training remains a significant barrier to the successful implementation of inclusive instructional practices. From a methodological perspective, differences in research designs, sample sizes, and assessment indicators also contribute to variations in reported outcomes. Many studies relied on experimental designs involving relatively small samples, limiting



the generalizability of their findings. Furthermore, inconsistencies in how “word-problem comprehension” was defined and measured across studies contributed to variations in research conclusions.

Taken together, these findings indicate that the effectiveness of instructional strategies cannot be understood in simplistic terms. Successful instruction is determined not only by the type of strategy employed but also by how effectively it is designed, implemented, and adapted to the unique characteristics of deaf learners. A holistic and flexible approach that integrates linguistic, visual, and cognitive dimensions appears to be essential for improving mathematical word-problem comprehension. Based on the three aspects examined in this review, it can be concluded that the primary challenge in mathematics learning among deaf students lies in the complex interaction between language and cognition. Effective instructional strategies are those that bridge this gap through integrated and contextually relevant approaches.

The findings further suggest that future instructional development should focus not only on the selection of learning media but also on the design of systematic pedagogical frameworks that support meaningful learning. Moreover, enhancing teachers’ understanding of the characteristics and learning needs of deaf students is crucial for improving instructional effectiveness. In conclusion, this review contributes to the growing body of knowledge on mathematics education for deaf students by highlighting the diverse effectiveness of instructional strategies and emphasizing the importance of evidence-based, adaptive, and inclusive approaches to teaching mathematical word problems.

4. CONCLUSION

Based on the synthesis of findings obtained through the Systematic Literature Review (SLR), this study reveals that the difficulties experienced by deaf students in understanding mathematical word problems are complex and multidimensional, primarily arising from the interaction between linguistic and cognitive factors. Challenges related to language comprehension, vocabulary acquisition, and meaning interpretation significantly affect students’ ability to construct mathematical representations and engage in effective problem-solving. Furthermore, the review demonstrates that various instructional strategies including visual approaches, interactive learning media, and problem-solving-based methods produce mixed outcomes across different studies. These findings suggest that no single instructional strategy can be considered universally effective. Rather, its success depends on the alignment between instructional design, student characteristics, and the quality of classroom implementation. In addition, strategies that rely heavily on instructional media without strong pedagogical integration tend to yield limited and short-term effects.

A key finding of this review is that effective instructional strategies for deaf students are those that systematically integrate visual, linguistic, and conceptual elements within the learning process. Adaptive and contextualized approaches, supported by careful instructional planning, appear to be more effective in enhancing students’ comprehension of mathematical word problems than isolated or fragmented interventions. These findings highlight the critical role of teachers as instructional designers who are responsible not only for selecting appropriate learning media but also for organizing and implementing comprehensive teaching strategies that address students’ specific learning needs. Consequently, successful learning outcomes are determined not merely by the use of innovative media but by the quality of instructional integration that promotes deep conceptual understanding.

From a theoretical perspective, this study contributes to the growing body of literature on inclusive education by providing a deeper understanding of the varying effectiveness of mathematics instructional strategies for deaf students. The findings emphasize the need to move beyond a predominantly media-oriented perspective and to recognize instructional strategy as a central component of effective mathematics learning. Nevertheless, this review has several limitations. As it relies on secondary sources, the findings are influenced by variations in research designs, sample sizes, and measurement indicators across the included studies, which may limit the generalizability of the conclusions. Therefore, future research is encouraged to conduct empirical investigations using more



rigorous research designs, larger and more diverse participant groups, and more comprehensive analyses of both cognitive and linguistic processes involved in mathematical problem-solving. Such efforts are expected to generate a more comprehensive understanding of how effective and sustainable mathematics instructional strategies can be developed to support deaf students in understanding and solving mathematical word problems.

5. REFERENCES

- Alifulloh, W., Juandi, D., Hasanah, A., Usdiyana, D., & Nuralam, H. (2024). *Research trends of mathematics learning for deaf junior high school students in Indonesia: A systematic literature review*. *The Eurasia Proceedings of Educational and Social Sciences*. <https://doi.org/10.55549/epess.788>
- Amiruzzaman, S., Amiruzzaman, M., Begum, H., Bhati, D., & Wu, T. H. (2025). Deepening Mathematical Understanding Using Visualization and Interactive Learning for Deaf Students †. *Engineering Proceedings*, 89(1), 1–10. <https://doi.org/10.3390/engproc2025089004>
- Anditiasari, N. (2020). Analisis Kesulitan Belajar Anak Berkebutuhan Khusus dalam Menyelesaikan Soal Cerita Matematika. *MATHLINE: Jurnal Matematika Dan Pendidikan Matematika*, 5(8), 183–194.
- Azizah, I., & Irvan, M. (2019). Media Komik Matematika Perkalian untuk Tunarungu. *Jurnal ORTOPEDAGOGIA*, 5(2), 100. <https://doi.org/10.17977/um031v5i22019p100-106>
- Cakrawala, J., Nusantara, P., & Indonesia, K. (2026). *CAWANARA : Strategi Efektif Pembelajaran Matematika untuk Anak Berkebutuhan*. 1(1), 11–23.
- Damayanti, M. (2023). Strategi Pembelajaran Mengatasi Kesulitan Anak Sd Dalam Mengerjakan Soal Cerita Matematika. *Khazanah Pendidikan*, 17(1), 197. <https://doi.org/10.30595/jkp.v17i1.16092>
- Diziró, N. D. O., Nervis, J. J., & Martin, G. F. S. (2025). O ensino de matemática para alunos surdos: uma revisão sistemática da literatura. *Educação Matemática em Revista*, 30(87), 1–16. <https://doi.org/10.37001/emr.v30i87.3958>
- Elevena Laras Suci Juniar, & Kowiyah. (2023). Analisis Kemampuan Siswa Tunarungu dalam Menyelesaikan Soal Cerita Matematika Berdasarkan Prosedur Polya. *Journal of Education Research*, 4(3), 1183–1192. <https://doi.org/10.37985/jer.v4i3.367>
- Linda, L. L., & Muliastari, A. (2021). Analisis Kebutuhan dan Perilaku ABK Tunarungu dan Wicara dalam Pembelajaran Matematika Dasar di SKh Kabupaten Pandeglang. *JP3M (Jurnal Penelitian Pendidikan Dan Pengajaran Matematika)*, 7(1), 09–22. <https://doi.org/10.37058/jp3m.v7i1.2145>
- MA. BETTY P, D. (2023). Visual Representations in Teaching Mathematics. *Sprin Journal of Arts, Humanities and Social Sciences*, 2(05), 21–30. <https://doi.org/10.55559/sjahss.v2i05.107>
- Nelson, G., Crawford, A., Hunt, J., Park, S., Leckie, E., Duarte, A., Brafford, T., Ramos-Duke, M., & Zarate, K. (2022). A systematic review of research syntheses on students with mathematics learning disabilities and difficulties. *Learning Disabilities Research & Practice*, 37(1). <https://doi.org/10.1111/ldrp.12272>
- Nirma, Angga Pratama, R., & Intan Permatasari, B. (2021). Media Pembelajaran Buku Pintar (BUPI) Matematika Bagi Anak Berkebutuhan Khusus (ABK). *Jurnal Cendekia: Jurnal Pendidikan Matematika*, 05(02), 1359–1374.
- Nurhanifah. (2021). *Analisis kesulitan belajar matematika pada anak tunarungu*. <https://www.academia.edu/download/117889248/828.pdf>
- Pratiwi, T. A., & Pujaningsih. (2026). Transforming mathematics learning for deaf students: The effectiveness of the ATI instructional model. *Desimal: Jurnal Matematika*, 9(1). <https://doi.org/10.24042/djm.v9i1.29194>
- Rahmasantika, D., & Rully Charitas Indra Prahmana. (2022). *MATH E-COMIC CERITA RAKYAT JOKO KENDIL DAN SI GUNDUL UNTUK MENUMBUHKAN KEMAMPUAN BERPIKIR*



- KRITIS SISWA TUNARUNGU*. 11, 787–805. https://www.researchgate.net/profile/Rully-Prahmana/publication/361981475_MATH_E-COMIC_CERITA_RAKYAT_JOKO_KENDIL_DAN_SI_GUNDUL_UNTUK_MENGEMBANGKAN_KEMAMPUAN_BERPIKIR_KRITIS_SISWA_TUNARUNGU/links/62cf86fee2a5013989057671/MATH-E-COMIC-CERITA-RAKYAT-JOKO-KENDIL-DAN-SI-GUNDUL-UNTUK-MENGEMBANGKAN-KEMAMPUAN-BERPIKIR-KRITIS-SISWA-TUNARUNGU.pdf
- Razi, F., Muksar, M., & Qohar, A. (2020). Pengembangan Media Pembelajaran Matematika Interaktif untuk Siswa Tunarungu. *Jurnal Pendidikan: Teori, Penelitian, Dan Pengembangan*, 5(6), 835. <https://doi.org/10.17977/jptpp.v5i6.13656>
- Scarpelli, R. T., Vianna, C. C. S., & Madalena, S. P. (2022). Resolução de problemas do campo multiplicativo e surdez: uma revisão bibliográfica. Em Teia: Revista de Educação Matemática e Tecnológica Iberoamericana. <https://doi.org/10.51359/2177-9309.2022.252631>
- Siregar, D. S., & Ananda, R. (2023). Pengembangan Media Pembelajaran Board Game Matematika Ular Tangga untuk Siswa Tunarungu. *Jurnal Cendekia : Jurnal Pendidikan Matematika*, 7(2), 1924–1935. <https://doi.org/10.31004/cendekia.v7i2.2340>
- Utami, D. P. S., Tyas, N. J. M., Kamaludin, I., & Darmadi, D. (2025). Prespektif Penerapan Pembelajaran Kontekstual Bagi Anak Tunarungu dalam Menyelesaikan Soal Cerita Matematika di SLBN Banjarsari Wetan. *MARAS: Jurnal Penelitian Multidisiplin*, 3(2), 793–804. <https://doi.org/10.60126/maras.v3i2.1035>
- Yusliana Bakti, R., Wahyuni, T., Hayat, M. A. M., & Ridwang, R. (2021). Game Edukasi Berbasis Android sebagai Media Pembelajaran Matematika untuk Anak Tunarungu. *PROtek : Jurnal Ilmiah Teknik Elektro*, 8(1), 40–44. <https://doi.org/10.33387/protk.v8i1.2377>