

Optimizing Multimodal Gender Literacy Skills with Innovative Approaches through Digital Learning Transformation

Arozatulo Bawamenewi^{1*}, Riana Riana²

¹⁻² Faculty of Teacher Training and Education, Nias University, Gunungsitoli, Indonesia

Email: arozatulobawamenewi@unias.ac.id^{1*}, rianampd123@gmail.com²

*Corresponding author: arozatulobawamenewi@unias.ac.id

Abstract: This research aims to optimize multimodal gender literacy skills through an innovative approach in digital learning transformation. This research was conducted in high schools involving students from various gender backgrounds. The research method used is a qualitative method with a descriptive approach. Data were collected through multimodal literacy skills tests, classroom observations, and interviews with students and teachers. The results of the study show that innovative approaches in digital learning transformation significantly improve students' multimodal literacy skills. In addition, this approach also helps reduce the gender gap in multimodal literacy, by providing equal opportunities for male and female students to thrive. From the results of the study obtained from women's data, 65% of female respondents showed a high preference for activities involving text and images, while 70% of male respondents preferred activities involving audio and video. Based on the results of the research, it was concluded that using an innovative approach can optimize multimodal gender literacy skills.

Keywords: Gender Multimodal Literacy, Innovative Approach, Digital Learning Transformation

1. INTRODUCTION

Literacy skills are essential in developing critical thinking, analytical and effective communication skills. Students who have good literacy skills tend to be more successful in understanding subject matter, expressing ideas and ideas, and facing challenges in the real world.

The development of information and communication technology has changed the way students obtain, process, and share information. This creates new opportunities in literacy learning approaches, but also creates challenges in ensuring students have literacy skills that are appropriate to the needs of the times, (Sutrisna & Anhar, 2020). Traditional approaches to literacy learning are often less appealing to students, so innovative approaches that are more interactive, creative, and in line with students' current interests and needs are needed. Teachers have a very important role in improving students' literacy skills, (Saragih et al., 2023). By creating a learning environment that stimulates students' interest and motivation, as well as integrating technology and various learning resources, teachers can help improve literacy among middle school students, (Al-Otaibi et al., 2019).

From a gender perspective, research shows that innovative approaches to multimodal literacy teaching can provide significant benefits, especially in addressing gender disparities in media understanding and use, (Njoroge, 2018). Gender plays a powerful role in innovative educational approaches that open the door to critical thinking and impartial creativity among

students, allowing them to develop diverse literacy in relevant and profound ways, (Busyairi et al., 2023).

The difference in the experiences of male and female students in producing media can affect the way they understand and utilize their multimodal abilities. Innovative approaches should take these differences into account so that students of different genders benefit equally, (Haling et al., 2022). Research shows that gender representation in the media affects students' perception and understanding of various topics. Innovative approaches to multimodal education should consider inclusive gender expression and provide opportunities for students to explore different perspectives. This research aims to make a significant contribution to efforts to optimize multimodal gender literacy skills among junior high school students through innovative approaches that are in accordance with the latest developments and student needs.

Based on the results of observations in the form of interviews conducted by researchers, various problems faced by teachers in schools were found, one of which is the lack of multimodal literacy skills among students, (Firmansyah, n.d.). That is, what is always applied is literacy only, indeed literacy has been applied, but what is meant here is how each student is not only based on literacy or interest in reading, but they must also be able to use the mode of semiotics simultaneously, but also the ability to combine linguistic and visual semiotics to create rich and meaningful interactions in the context of learning communication and action, (Al-Otaibi et al., 2019).

To overcome the above, researchers seek a solution, namely by taking an innovative approach that is considered an interesting alternative because it is able to help students develop their literacy skills holistically, including a deep, critical and creative understanding of the texts they read and their writing, (Akman et al., 2023). Thus, this research aims to create an interesting, relevant and effective learning environment in developing students' literacy skills at various levels. By utilizing technology and creative learning strategies, this approach can help students develop a deep, critical, and contextual understanding of literacy, (Hasanah et al., 2024).

Thus, it is hoped that this research can make a significant contribution in preparing students to become competent and competitive individuals in the digital era, (Henanggil et al., 2023). From the above problems, the researcher is interested in raising the research title "Improving Gender Multimodal Literacy Skills Through Innovative Approaches". The researcher formulated a research problem, namely "How the use of innovative approaches in learning can optimize multimodal gender literacy skills.

2. LITERATURE REVIEW

Junior high schools often face challenges in improving literacy skills in students. Some common problems faced include low interest in reading, limited access to quality reading resources, and lack of understanding of the importance of literacy in daily life and the future.

Literacy is the ability to understand, interpret, and communicate using various forms of text. In today's digital era, literacy is not only limited to reading and writing, but also includes digital and critical skills in understanding information obtained from various sources. It agrees with (Rohman, 2022) Literacy includes not only reading and writing activities but also the ability to think critically using print, visual and digital knowledge sources. In the context of the literacy movement, it is understood as the ability to access, understand, and use information intelligently. Regarding reading and writing activities, the goal is to develop students' ability to become active and creative learners so that they are able to solve various problems in their lives and play a role in social life.

(Henanggil et al., 2023) . Literacy activities in schools depend on the knowledge to be learned and the skills to be acquired. Literacy is the ability to process words, numbers and information obtained through reading and writing activities. (Purab & Purwono, 2022) Say that literacy is also knowledge that refers to a set of abilities and skills in reading, writing, speaking, counting and problem-solving. Based on the above opinions, the authors can conclude that literacy skills not only focus on reading and writing skills, but also involve other aspects that are an important part of communication and problem-solving skills, (Pratiwi & Riyana, 2023).

Multimodal is defined as the use of multiple semiotic modes in product design, or semiotic events simultaneously, and in some way these modes are combined to enhance, complement, or exist in a particular order. (Valentina et al., nd) . Multimodal literacy in learning focuses on discourse design by investigating various possible contributions from semiotic sources (verbal, visual and movement) (Firmansyah, nd 2023) . Meanwhile, Yumin Chen defines multimodal as all the sources of verbal and visual semiotics that can be used to embody the type and level of dialogical engagement in textbooks.

The conclusion of this statement is that multimodal competence is not only the simultaneous use of semiotic modes, but also the ability to combine linguistic and visual semiotic resources to create rich and meaningful interactions in the context of learning and action communication, (Noya et al., 2022).

Multimodal literacy refers to the ability to understand, analyze, and produce text using a variety of means of communication, including oral, visual, auditory, and digital text, (Nurjanah & Nur, 2022). This includes understanding print text, images, videos, and

combinations of various media, (Umam et al., 2023). In this context, innovative approaches refer to learning methods that use technology, digital media, and learning strategies that are interesting and relevant to students' daily lives, (Rantauwati, 2020). This may include the use of apps, project-based learning, simulations, and online collaboration. Multimodal skills involve understanding and producing text using various modes such as written text, images, audio, and video, (Ananda, 2022). Modern communication often involves many ways, so it's important to improve these skills.

In reading and writing activities, junior high school students are given exercises and assignments in different formats. An example of searching for information in an infographic, creating a scrapbook, (Dalle et al., 2023). Multimodal learning not only has a positive impact on receptive language skills, but it also helps to improve language skills productively. Therefore, it is necessary to increase reading and writing activities in complex Indonesian learning. Regarding the inclusion of literacy activities in learning. However, in the implementation, teachers are still guided by textbooks so that literacy activities tend to be monotonous, (Busyairi et al., 2023).

The focus on high school students is important because they are at an important stage of cognitive and social development, (Elvi Rahmi, M. Yemmardotillah, 2022). Improving multimodal literacy skills at this stage can help them develop critical thinking skills, creativity, and communication skills needed in this digital era, (Mulyaningrum et al., 2022). This research aims to increase the effectiveness of learning multimodal literacy skills through an innovative approach. This can include developing a curriculum that incorporates various modes of communication, training teachers in using technology and digital media, and evaluating student learning outcomes after implementing these approaches, (Markova et al., 2024).

Potential benefits of this research include increasing students' understanding of various types of texts, increasing creativity in communicating ideas, and the ability to communicate effectively through digital media, (Bawamenewi & Waruwu, 2023). It also helps students develop digital skills that are essential in an increasingly digitally connected society, (Sapdi, 2023).

Recent developments in this research to improve multimodal literacy skills through innovative approaches include the development of more sophisticated learning technologies, such as the use of specialized applications for multimedia creativity and interactive online learning platforms. In addition, there is a growing interest in investigating the impact of social media use on students' diverse abilities, (Alifia et al., 2022); (Fareeha Javed, 2024).

The weaknesses identified in this study include challenges in properly integrating technology into the learning environment, the availability of appropriate resources, and the need for comprehensive teacher training to implement this innovative approach, (Ramadhani et al., 2023). This research is related to the need to equip the younger generation with skills relevant to the digital era, (Rasmitadila et al., 2020). The benefits include increased creativity, critical thinking skills, and effective communication across multiple media. It also relates to increasing digital literacy, which is important in an ever-evolving information landscape, (Fandir, 2024); (Adriyanti, 2021).

3. METHODS

This study uses a qualitative method with a descriptive approach to explore the improvement of multimodal literacy skills of junior high school students, (A. & Bau, 2023); (Kuusimäki et al., 2019). The subject of the study is junior high school students, with the research object focusing on improving multimodal literacy skills, (Youpika et al., 2024). The researcher collected data through interviews and observations, with the data analysis technique in this study, namely Qualitative Analysis, (Woodhouse et al., 2024). The instruments used in this study include an evaluation of the use of multimodal texts that show strong cohesion and coherence, understanding of creative content, and accuracy in achieving communicative goals.

4. RESULTS

Based on the results of research that has been conducted, it shows that multimodal literacy involving the use of various media such as text, images, audio and video can improve students' overall literacy skills. However, there are differences in how male and female students utilize this modality. Female students tend to be more comfortable and engaged in text and image-based activities, while male students are more interested in modalities involving audio and video.

Table 1. compares the abilities of male and female students in multi-modal reading ability

Student Gender	Description of Multi-modal Reading Ability
Man	Male students demonstrate multimodal reading skills by paying attention to various visual and non-visual elements in the text. They tend to use visual contexts, such as images and graphics, to enrich their understanding of the text they read. In addition, they are also capable of interpreting facial expressions, body movements, and other non-verbal elements in the text.
Woman	Female students have strong multimodal reading skills. They can combine information from a variety of sources, including text, images, graphics, and other non-verbal elements, to gain a holistic understanding. Students also tend to be more sensitive to the nuances and context in the text, and are able to build relationships between various elements.

Table 2. Compares the multi-modal writing ability of male and female students

Man	Male students demonstrate good skills in multimodal writing by utilizing different types of media, including text, images, videos, and other interactive elements. They tend to be more confident in using technology and various stationery tools to express their ideas creatively. However, sometimes male students tend to pay less attention to detail and structure in their compositions, which can reduce the overall quality of the resulting work.
Woman	Female students also demonstrate good skills in multimodal writing. They tend to be more organized and pay attention to small details in composing their compositions. Students also tend to be more sensitive to nuances in language and images, so that they are able to produce more in-depth and colorful works. However, sometimes female students can get caught up in a more conventional pattern in the use of media, thus less exploring creativity in multi-modal writing.

Table 3. Compares the multimodal speaking ability of male and female students

Assessment Aspects	Criterion	Man	Woman
Cohesion and coherence	Clear conversation flow	Boys often have a coherent flow, although there are occasional deviations or a lack of smooth transitions.	Female students tend to have very clear conversation flows and smooth transitions.
Creativeness	Use of visual aids	Male students often use visual aids that are interesting, but sometimes less relevant to the topic.	Female students use relevant and creative visual aids, supporting the overall presentation.
Accuracy of Communicative Goals	Deliver a clear message	The message conveyed by male students is generally clear, but sometimes lacks focus on the main goal.	The message conveyed by the female students is very clear and focuses on the main goal.
Content Understanding	Content depth and accuracy	Male students show good understanding, but sometimes lack depth in some important aspects.	Female students demonstrate a deep and precise understanding of the topics presented.
Response to Questions	Openness and fluency of answers	Male students tend to give good answers, but sometimes lack structure in answering questions.	Female students provide excellent and structured answers, demonstrating deep understanding.
Use of Technology	Effective use of digital tools	Boys are adept at using technology for presentations, but sometimes they go overboard with visual effects.	Female students use technology effectively and appropriately, supporting homework

Survey Data and Questionnaires

Female 65% of female respondents show a high preference for activities involving text and images. They feel more comfortable and confident when dealing with reading and writing. Male 70% of male respondents prefer activities involving audio and video. They are more enthusiastic and motivated when tasks require them to create videos, listen to podcasts, or use interactive apps.

Interview Findings

Female students reported that they tended to be more involved in traditional literacy activities such as reading books and writing essays. They feel that this activity allows them to deepen the material and develop analytical skills. Boys enjoy tasks that allow them to use digital technology, such as making video presentations or using interactive simulations. They find this approach more fun and relevant to their daily lives.

Classroom Observation Analysis

In classes that use digital technology, male students participate more actively in activities such as making short videos or using animation software. Female students are more involved in online discussions and blogging. Collaboration between genders increases when using digital platforms that integrate various modalities. Students share roles based on their strengths, such as one group using text and images, while the other group uses audio and video. Students use apps like Google Classroom, Kahoot!, and Padlet for classwork. The app allows students to collaborate, share materials, and provide real-time feedback. The data showed a 20% increase in student engagement in classroom discussions and project-based assignments after the integration of this technology.

Teachers report that classes have become more dynamic and interactive. Students are more active in participating in class discussions and more motivated to complete group projects. The use of digital technology also helps teachers to provide faster and more specific feedback, which improves the quality of learning.

Surveys show that 75% of students feel more motivated to complete assignments because they can access the material from a variety of devices, anytime and anywhere. The use of Facebook or WhatsApp groups for class discussions and information sharing increases interaction outside of class hours. Students share articles, videos, and other learning resources that are relevant to the topic of the lesson more often.

This study shows that an innovative approach through digital learning transformation can significantly improve students' multimodal literacy skills. Gender differences in modality preferences highlight the need for an inclusive and diverse approach. The application of digital technology not only increases student engagement and participation but also enables more flexible and personalized learning, essential for the development of literacy skills in the future.

5. DISCUSSION

Research shows that there are significant differences in modality preferences between male and female students. Female students tend to be more comfortable with text and image modalities, while male students are more interested in audio and video modalities. These differences can be attributed to variations in individual learning styles and interests. Understanding these preferences is essential for designing inclusive and effective learning strategies. Teachers should ensure that the materials and activities presented cover a variety of modalities to accommodate the needs of all students. This may include tasks such as writing essays, creating video presentations, and using interactive simulations. Students' Multimodal Reading, Writing, and Speaking Skills by Gender are as follows:

Male Multimodal Reading Ability: Male students tend to demonstrate a strong ability to understand complex visual content and diagrams. It is easier for them to understand the information presented in a visual format. However, they are sometimes less careful in understanding the details of the written text. **Women:** Female students generally demonstrate good reading skills in both visual content and written text, (Kailani et al., 2021). They are more thorough in understanding details and are able to better integrate information from different types of media.

Male Multimodal Writing Ability: Male students show high creativity in the use of visual media such as images and videos in their writing. They often produce visually appealing content. However, they sometimes pay less attention to cohesion and coherence in written texts. **Women:** Female students tend to be more structured and meticulous in their writing, (Chen & Rivera-Vernazza, 2023). They are able to integrate various media well and maintain the cohesion and coherence of the written text. Their creativity in using media is also high, but more focused and relevant to the topic. **Male Multimodal Speaking Skills:** Male students often demonstrate proficiency in the use of technology and visual aids when speaking, (Chatzinikola, 2022). They are able to create visually appealing presentations. However, they sometimes lack focus on the main goal and the conversation structure is poorly organized. **Female:** Female students demonstrate excellent speaking skills with a clear and cohesive flow. They use visual aids effectively and appropriately, and are able to maintain focus on the main purpose of the conversation. The responses to the questions are also more structured and in-depth.

Based on the results of this study, in general, female students tend to show better multimodal reading, writing and speaking skills compared to male students, (Tyas & Naibaho, 2020). Female students are more thorough, structured, and focused on details and key goals, (Hsu & Chen, 2023). They are also more effective in integrating various media to support

learning. On the other hand, male college students show high creativity, especially in the use of visual media and technology, but need to pay more attention to structure and relevance in their multimodal tasks.

The findings show that by using innovative approaches, students can be more creative, interested and improve their writing. Innovative approaches in the context of education refer to teaching methods or strategies that use new and creative ideas to increase the effectiveness of learning, (Akman et al., 2023). This approach aims to create a learning environment that is more dynamic, interactive, and relevant to the needs and interests of students today, (Winarti et al., 2022). This approach also improves students' digital literacy. Implementing innovative learning activities will create a classroom atmosphere that is not trapped in a rigid and monotonous atmosphere, (Novitasari & Fauziddin, 2022). Students will be invited to discuss, interact and dialogue more so that they are able to formulate their own scientific concepts and rules, not by being forced or lectured. Students also need to get used to having different opinions, so that they will become intelligent and critical figures. Of course, democratically, without forgetting scientific principles. In addition, teachers also need to provide reinforcement to students so that there are no misunderstandings that will clash with the values of truth itself, (University of Strasbourg, France et al., 2017). Learning is said to be innovative when a teacher combines existing knowledge in a new or unique way or introduces a new process to feed cognition to obtain beneficial outcomes. These can be planned before learning activities or adopted in response to the needs of specific learning contexts.

Qualitative Analysis

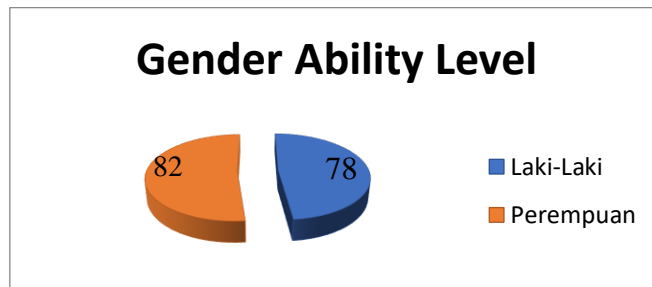
Qualitative analysis was carried out to measure the level of students' abilities based on gender through test instruments, observations and interviews. The results of the qualitative analysis are presented in the form of tables and graphs.

Student Ability Levels by Gender in the Multimodal Reading Proficiency Test

Gender	Average grade	Capability Categories
Man	78	Good
Woman	82	Well

Based on the data presented in table 2.1 above, it can be seen that there is a difference in the level of multimodal reading ability between male and female students. Female students have a higher average score of 82, which is included in the "Very Good" category, while male students have an average score of 78 which belongs to the "Good" category. This difference shows that in general, female students tend to have better multimodal reading skills compared to male students. Multimodal reading skills include not only the ability to read texts, but also understand information presented through various media, such as images, graphics, or videos.

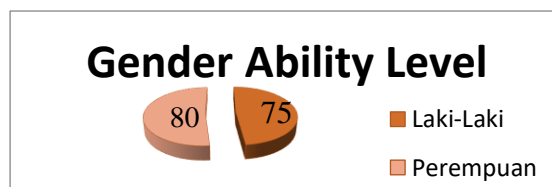
Factors that can affect the difference in multimodal reading ability between male and female students can include differences in learning styles, interests, and motivation in exploring and understanding the information presented through various modalities. In addition, social and cultural factors can also contribute to the differences experienced as depicted in the graph below:



Graphy 1. Student Ability Level Based on Gender in Multimodal Writing Ability Test

Gender	Average grade	Capability Categories
Man	75	Enough
Woman	80	Good

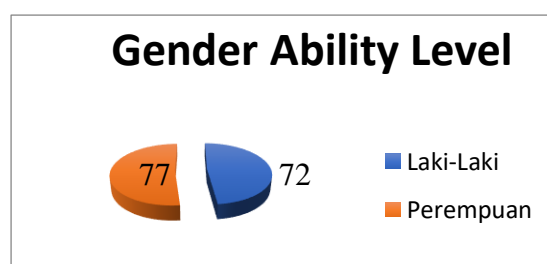
Based on the data presented in table 2.2 above, it can be seen that there is a difference in the level of multimodal writing ability between male and female students. Female students have a higher average score of 80, which belongs to the "Good" category, while male students have an average score of 75, which falls into the "Adequate" category. As depicted in the following graphic:



Graphy 2. Students Ability Level Based Gender in Multimodal Talking Ability Test

Gender	Average grade	Capability Categories
Man	72	Enough
Woman	77	Good

Based on the data presented in table 2.3 above, it can be seen that there is a difference in the level of multimodal speaking ability between male and female students. Female students have a higher average score of 77, which is included in "Good" category, while male students have an average score of 72, which falls into the "Fair" category. As depicted in the following graphic:



Graphy 3. Capability Categories

6. CONCLUSION

Based on the results of the study presented in the form of tables and graphs, it can be concluded that there is a significant difference in the level of ability of male and female students in the multimodal reading, writing, and speaking ability test. The average multimodal reading ability score of male students was 78, which was categorized as 'Good'. Meanwhile, the average score for female students is 82, which is categorized as 'Very Good'. This shows that female students have higher multimodal reading skills than male students. On the multimodal writing ability test, male students obtained an average score of 75, which is in the 'Fair' category. In contrast, female students scored an average of 80, which was categorized as 'Good'. This shows that female students are superior in multimodal writing skills compared to male students. For multimodal speaking skills, male students have an average score of 72, which is categorized as 'Fair'. Meanwhile, female students obtained an average score of 77, which was categorized as 'Good'. Female students again showed higher results than male students in multimodal speaking skills. In general, female students showed better performance in all three categories of multimodal abilities compared to male students. The average scores of female students who were higher in multimodal reading, writing, and speaking skills showed significant differences in abilities based on gender.

In this study, the methods used to optimize multimodal gender literacy skills through digital learning transformation encounter several limitations. First, digital-based data collection tends to face technological bias, as not all participants have equal access to digital devices and stable internet connections. This disparity can impact data representation and lead to results that may not fully capture an accurate picture. Additionally, the varying levels of digital proficiency among learners and educators can create inconsistencies in grasping content and responding to these innovative learning methods, making it challenging to achieve consistent outcomes.

Data collection through digital platforms also faces limitations in terms of validity and reliability. Digital tools like online surveys or virtual interviews may be less effective in capturing deep expressions or nuanced perceptions compared to face-to-face methods. The difficulty of building trust in virtual settings can also impact participants' openness, especially on sensitive topics like gender literacy. Another challenge is the potential for low response rates or data inconsistencies due to participant motivation or time constraints in completing online surveys. These factors must be carefully considered in interpreting results to ensure the study's validity and reliability.

REFERENCES

- A., H., & Bau, R. T. R. L. (2023). E-Learning Sebagai Komplemen dalam Pembelajaran: Perwujudan Akselerasi Transformasi Digital dalam Pendidikan. *Jurnal Studi Kebijakan Publik*, 2(1), 69–79. <https://doi.org/10.21787/jskp.2.2023.69-79>
- Adriyanti, K. Y. (2021). The Implementation of Character Education in Teaching English for Young Learners (A Literature Review).
- Akman, E., İDiL, Ö., & Çakir, R. (2023). An Investigation into the Levels of Digital Parenting, Digital Literacy, and Digital Data Security Awareness among Parents and Teachers in Early Childhood Education. *Participatory Educational Research*, 10(5), 248–263. <https://doi.org/10.17275/per.23.85.10.5>
- Alifia, A., Ratnawati, S., & Prasetijowati, T. (2022). SYNERGY BETWEEN PARENTS AND TEACHERS IN MOTIVATING CHILDREN'S LEARNING DURING THE COVID-19 PANDEMIC. *Jurnal Mediasosian: Jurnal Ilmu Sosial Dan Administrasi Negara*, 6(2), 203. <https://doi.org/10.30737/mediasosian.v6i2.3199>
- Al-Otaibi, S. A., Yusof, S. M., & Ismail, W. K. (2019). The Influence of Organisational Culture on Students' Satisfaction in Saudi Arabia.
- Ananda, R. A. (2022). Pentingnya Pendidikan Karakter pada anak Sekolah Dasar di Era Digital.
- Bawamenewi, A., & Waruwu, Y. (2023). Pengembangan Media Pembelajaran Bahasa melalui Transformasi Digital Berbasis E-Learning. *GHANCARAN: Jurnal Pendidikan Bahasa dan Sastra Indonesia*. <https://doi.org/10.19105/ghancaran.vi.11739>
- Busyairi, A., Harjono, A., A, S., Taufiq, M., Ardhuha, J., & Hasan, Y. (2023). Development of Physics Learning Tools Based on the STEM-Creative Problem Solving Model to Increase Students' Scientific Literacy and Creativity. *Kappa Journal*, 7(3), 443–450. <https://doi.org/10.29408/kpj.v7i3.24197>
- Chatzinikola, M. (2022). Communication Management of Parent Participation in Education Process: Practices of Communication between Teachers and Parents. *European Journal of Education and Pedagogy*, 3(3), 1–6. <https://doi.org/10.24018/ejedu.2022.3.3.312>
- Chen, J. J., & Rivera-Vernazza, D. E. (2023). Communicating Digitally: Building Preschool Teacher-Parent Partnerships Via Digital Technologies During COVID-19. *Early Childhood Education Journal*, 51(7), 1189–1203. <https://doi.org/10.1007/s10643-022-01366-7>
- Dalle, A., Jabu, B., & Rimang, S. S. (2023). Gender Equality in the Foreign Language Textbooks of Indonesian Junior High Schools. *International Journal of Language Education*, 7(2). <https://doi.org/10.26858/ijole.v7i2.48497>
- Elvi Rahmi, M. Yemardotillah, A. I. (2022). Kolaborasi Pendidikan Melalui Pertemuan Guru Dan Orangtua. *Continuous Education: Journal of Science and Research*, 2(3), 30–47. <https://doi.org/10.51178/ce.v2i3.356>

- Fandir, A. (2024). Transformation of Islamic Education: Implementation of Technological Innovation in Education Management. *Jurnal Ilmiah Mandala Education*, 10(1), 187. <https://doi.org/10.58258/jime.v10i1.6625>
- Fareeha Javed. (2024). Transformative Learning Strategies for Effective Teaching and Learning in Digitized Higher Education. *Jurnal Pendidikan*, 25(1), 14–19. <https://doi.org/10.33830/jp.v25i1.7330.2024>
- Firmansyah, M. B. (n.d.). LITERASI MULTIMODAL BERMUATAN KEARIFAN LOKAL SERTA IMPLEMENTASINYA DALAM PEMBELAJARAN.
- Haling, A., Sudirman, S., Nasruddin, N., Syamsuddin, S., & Halik, A. (2022). Development of Character-Based Science Teaching Materials Using the Webbed Model to Improve Students' Creative Thinking Skills. *Journal of Educational Science and Technology (EST)*, 8(3), 172. <https://doi.org/10.26858/est.v8i3.39360>
- Hasanah, U., Santoso, A., Pratiwi, Y., Sulthoni, S., & Farid, M. (2024). Exploring the correlation of self-perception on the use of digital literacy in learning. *International Journal of Evaluation and Research in Education (IJERE)*, 13(6), 4354. <https://doi.org/10.11591/ijere.v13i6.27114>
- Henanggih, M. D. F., Ulya, R. H., Sari, H. Y., Putri, D. S., Zuve, F. O., & Erlianti, G. (2023). Pemanfaatan Literasi Digital dalam Optimalisasi Keterampilan Menulis Artikel Ilmiah Guru SDN 20 Koto Gaek Guguk Kabupaten Solok. 7.
- Hsu, P.-C., & Chen, R.-S. (2023). Analyzing the Mechanisms by Which Digital Platforms Influence Family-School Partnerships among Parents of Young Children. *Sustainability*, 15(24), 16708. <https://doi.org/10.3390/su152416708>
- Kailani, R., Susilana, R., & Rusman, R. (2021). Digital Literacy Curriculum in Elementary School. *Teknodika*, 19(2), 90. <https://doi.org/10.20961/teknodika.v19i2.51784>
- Kuusimäki, A.-M., Uusitalo-Malmivaara, L., & Tirri, K. (2019). Parents' and Teachers' Views on Digital Communication in Finland. *Education Research International*, 2019, 1–7. <https://doi.org/10.1155/2019/8236786>
- Markova, M., Taysever, G., & Angelov, S. (2024). A Theoretical Framework of Developing Leadership Capacity for Successful Organizational Outcomes. *Journal of Leadership in Organizations*, 6(1). <https://doi.org/10.22146/jlo.77232>
- Mulyaningrum, A., Z, F. M., & Norisanti, N. (2022). The Effectiveness of Organizational Culture on Quality of Work. *Almana: Jurnal Manajemen Dan Bisnis*, 6(1), 1–8. <https://doi.org/10.36555/almana.v6i1.1583>
- Njoroge, D. J. K. (2018). University Students Speak Out: A Comparative Study on Performance by Gender in Selected Science and Technology Programmes in Kenyan Universities. 2.
- Novitasari, Y., & Fauziddin, M. (2022). Analisis Literasi Digital Tenaga Pendidik pada Pendidikan Anak Usia Dini. *Jurnal Obsesi: Jurnal Pendidikan Anak Usia Dini*, 6(4), 3570–3577. <https://doi.org/10.31004/obsesi.v6i4.2333>

- Noya, A., Pattikawa, W. N. Z., & Risakotta, F. (2022). EDUKASI SMART PARENTING BAGI ORANG TUA DALAM PEMBENTUKAN KARAKTER ANAK DI ERA MILENIAL. *Jurnal Abdi Insani*, 9(1), 123–133. <https://doi.org/10.29303/abdiinsani.v9i1.478>
- Nurjanah, S., & Nur, I. (2022). Gender Fiqh: Mobilization of Gender-Responsive Movement on Social Media. *Ijtihad : Jurnal Wacana Hukum Islam Dan Kemanusiaan*, 22(1), 1–18. <https://doi.org/10.18326/ijtihad.v22i1.1-18>
- Pratiwi, M. C., & Riyana, C. (2023). Educator as the Key for Digital Transformation in Curriculum and Learning. *DWIJA CENDEKIA: Jurnal Riset Pedagogik*, 7(1), 117. <https://doi.org/10.20961/jdc.v7i1.69364>
- Ramadhani, R., Syahputra, E., & Simamora, E. (2023). Ethnomathematics approach integrated flipped classroom model: Culturally contextualized meaningful learning and flexibility. *Jurnal Elemen*, 9(2), 371–387. <https://doi.org/10.29408/jel.v9i2.7871>
- Rantauwati, H. S. (2020). KOLABORASI ORANG TUA DAN GURU MELALUI KUBUNGORTU DALAM PEMBENTUKAN KARAKTER SISWA SD. *Jurnal Ilmiah WUNY*, 2(1). <https://doi.org/10.21831/jwuny.v2i1.30951>
- Rasmitadila, R., Aliyyah, R. R., Rachmadtullah, R., Samsudin, A., Syaodih, E., Nurtanto, M., & Tambunan, A. R. S. (2020). The Perceptions of Primary School Teachers of Online Learning during the COVID-19 Pandemic Period: A Case Study in Indonesia. *Journal of Ethnic and Cultural Studies*, 90–109. <https://doi.org/10.29333/ejecs/388>
- Rohman, A. (2022). Literasi dalam Meningkatkan Kemampuan Berpikir Kritis di Era Disrupsi. *EUNOIA (Jurnal Pendidikan Bahasa Indonesia)*, 2(1), 40. <https://doi.org/10.30821/eunoia.v2i1.1318>
- Sapdi, R. M. (2023). Peran Guru dalam Membangun Pendidikan Karakter di Era Society 5.0. *Jurnal Basicedu*, 7(1), 993–1001. <https://doi.org/10.31004/basicedu.v7i1.4730>
- Saragih, E. I. R., Simanjourang, E. F. S., & Zebua, Y. (2023). The Influence of Interpersonal Skills, Salesmanship Skills, and Work Environment on Medical Representative Performance. *Almana : Jurnal Manajemen Dan Bisnis*, 7(3), 431–439. <https://doi.org/10.36555/almana.v7i3.2168>
- Sutrisna, N., & Anhar, A. (2020). An Analysis of Student's Scientific Literacy Skills of Senior High School in Sungai Penuh City Based on Scientific Competence and Level of Science Literacy Questions. *Proceedings of the International Conference on Biology, Sciences and Education (ICoBioSE 2019)*. International Conference on Biology, Sciences and Education (ICoBioSE 2019), Padang, Indonesia. <https://doi.org/10.2991/absr.k.200807.032>
- Tyas, E. H., & Naibaho, L. (2020). BUILDING A CULTURE OF TOLERANCE SINCE EARLY CHILDHOOD. *International Journal of Research -GRANTHAALAYAH*, 8(8), 244–249. <https://doi.org/10.29121/granthaalayah.v8.i8.2020.999>
- Umam, M. S. K., Nasyor, H. S., Arifin, M. Z., & Syafi'i, I. (2023). Inovasi Pembelajaran PAI dalam Menanamkan Pendidikan Karakter pada Generasi Digital Native. *Tarbawy : Jurnal Pendidikan Islam*, 10(1), 59–67. <https://doi.org/10.32923/tarbawy.v10i1.3517>

- University of Strasbourg, France, Liu, C., & Audran, J. (2017). Analysis of Young Children's Technology Difficulties and Challenges in Operating and Using Educational Application in Tablet. *International Journal of Information and Education Technology*, 7(12), 893–899. <https://doi.org/10.18178/ijiet.2017.7.12.991>
- Valentina, T., Selegi, S. F., & Junaidi, I. A. (n.d.). STRATEGI MENINGKATKAN LITERASI BACA SISWA SEKOLAH.
- Winarti, W., Nurhayati, S., Rukanda, N., Musa, S., Jabar, R., & Rohaeti, E. E. (2022). Analisis Kompetensi Digital Guru PAUD dalam Mengelola Pembelajaran Daring Anak Usia Dini. *Jurnal Obsesi: Jurnal Pendidikan Anak Usia Dini*, 6(6), 5621–5629. <https://doi.org/10.31004/obsesi.v6i6.3111>
- Woodhouse, H., Passey, D., & Anderson, J. (2024). Using Digital Technologies to Build Connections between Families and Schools as Children Transition to School. *Education Sciences*, 14(5), 520. <https://doi.org/10.3390/educsci14050520>
- Youpika, F., Sumiyadi, S., Permadi, T., Sunendar, D., & Yandryati, J. (2024). The Endangered Central Malay Folklore: A Medium for Internalizing Character Values in Indonesian Language and Literature. *International Journal of Language Education*, 8(1). <https://doi.org/10.26858/ijole.v8i1.60908>