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Community Service as a Catalyst for Digital Transformation in Early Childhood Education

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Abstract

This community service project aims to improve the digital literacy abilities of early childhood education (ECE) teachers at TK Aisyiyah Bustanul Athfal 5, with a focus on utilizing Canva to create engaging learning materials. The program was carried out in three phases: planning, execution, and assessment. The preparatory phase included a requirements assessment via focus group discussions (FGDs), which indicated that although teachers were acquainted with Canva, they need more training to proficiently employ its functionalities for educational content development. Based on the findings, a systematic training curriculum was created, and facilitators, including lecturers and university students, were chosen for facilitating the sessions. The implementation phase comprised a two-week training program that combined theoretical discourse with practical application. Teachers were acquainted with digital literacy principles and instructed in the development of interactive instructional materials with Canva. The training included solitary tasks, group activities, and peer evaluations to improve learning results. During the evaluation phase, the training's impact was analyzed via focus group discussions to identify the teachers' confidence and preparedness to include digital technologies into their instruction. The findings indicate that the curriculum considerably enhanced instructors' capacity to use Canva for instruction, emphasizing the significance of ongoing digital literacy training for educators. Through the use of technology, this program shows how focused professional development may equip educators with useful skills to improve early childhood teaching.

Keywords: digital literacy; early childhood education; community service; teacher training; professional development; instructional technology.

Introduction

The incorporation of information and communication technology in education necessitates the improvement of the efficacy and efficiency of teaching and learning processes. The integration of digital literacy in early childhood education is a considerable challenge, especially in institutions with restricted technological access and insufficient educator training. Many teachers lack the skills and self-assurance needed to incorporate digital tools into their lessons, which can result in a dependence on conventional teaching strategies that do not expose students to the digital world (Abdurrohman & Hidayati, 2024). Aisyiyah Bustanul Athfal 5 Dau Malang Kindergarten is situated in Margobasuki Street No. 25A RT.01 RW.04 Perum, Taman Embong Anyar II Jetis Mulyoagung Dau, Malang, East Java. This institution, located in a convenient vicinity adjacent to residential areas,

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offers vital amenities such classrooms, a teachers' lounge, a library, and a gazebo to facilitate the educational process. Notwithstanding these resources, the school encounters significant obstacles in executing digital literacy owing to infrastructural and human resource limitations. The digital literacy competencies of educators are frequently inadequate, adversely affecting their capacity to impart these abilities to students (Rahmawati et al., 2024).

A primary aspect contributing to this issue is the digital divide, which denotes inequalities in access to technology, digital resources, and the requisite skills for effective utilisation. This divide is evident in numerous early childhood education institutions, such as Aisyiyah Bustanul Athfal 5, through a variety of means, such as a lack of modern digital devices, inconsistent internet access, and teachers with inadequate ICT training. The digital gap impedes educators' capacity to incorporate digital technologies into their instruction and adversely impacts students' access to technology-enhanced learning opportunities. In remote regions, numerous educators had challenges in sustaining learning continuity due to inadequate internet connectivity and a deficiency in proficiency with online teaching instruments (Morales, 2022) This event underscored the considerable disparity in digital capabilities across various educational environments, hence intensifying the digital divide. The absence of access may impede their capacity to integrate technology into their pedagogical methods, thereby constraining the educational opportunities available to their pupils (Morales, 2022). Furthermore, the ramifications of the digital divide beyond mere access to technology; they also include the digital competencies required for effective instruction and education. Educators deficient in digital literacy may struggle to engage students effectively, as they may lack the necessary skills to utilise technology for enhancing learning (Val & López-Bueno, 2024) .This disparity can create a circle of disadvantage, causing students in under-resourced locations to forfeit the advantages of technology-enhanced education, which adversely affects their academic performance and future prospects (Ayson et al., 2024). Failure to address these gaps may result in schools maintaining disparities in digital literacy, leaving both educators and students ill-equipped for a progressively technology-oriented educational environment. Bridging this gap necessitates a holistic strategy that encompasses enhancing infrastructure, delivering specialised training, and cultivating a supportive digital learning environment within the institution.

Interviews with the principal, Mrs. Sumarmi, indicated that the institution faces challenges due to restricted technology access. Challenges such as unreliable internet connectivity and insufficient access to digital devices impede the effective incorporation of ICT in educational activities. Moreover, most educators at Aisyiyah Bustanul Athfal 5 Kindergarten are aged between 35 and 50 and hold formal certificates in early childhood education, although they lack specialised training in information and communication technology (ICT). Consequently, the majority of

educators experience discomfort or a lack of trust in employing digital resources, resulting in a primarily traditional teaching methodology. Classroom training predominantly depends on lectures and textbooks, with limited integration of digital learning resources or interactive apps. As a result, children predominantly participate in conventional, manual tasks, restricting their exposure to technology-driven education.

The lack of digital literacy among educators has numerous ramifications for the educational setting. Firstly, it leads to less interactive teaching approaches, rendering lessons boring and less engaging for young learners. In the absence of multimedia tools, such as educational movies or interactive programs, children forfeit dynamic learning experiences that could enhance their cognitive and creative capacities. This disconnection may lead to diminished student motivation and engagement, as learners might see the subject as less pertinent and interesting (Pizarro, 2024). Secondly, limited access to contemporary educational resources impedes teachers' capacity to enhance their teaching methods. The absence of access to digital teaching tools hinders instructors from enhancing their instructional materials, thereby impacting the overall quality of education. Studies demonstrate that educators with limited digital literacy frequently display unfavourable attitudes towards technology integration in the classroom, which can negatively impact their instructional approaches and, consequently, student learning outcomes (Feng, 2024). A study indicated that teachers lacking proficiency in digital technologies often refrain from utilising them, resulting in a dependence on conventional teaching approaches that may not engage digitally adept students (Wulandari et al., 2020).

Confronting these difficulties requires a strategic emphasis on augmenting digital literacy among educators and advancing technical infrastructure. Research indicates that digital literacy is crucial for educators to successfully use technology into their instructional methods. This includes the capacity to operate digital devices, retrieve and assess online material, and integrate digital tools into lesson planning. Moreover, when educators enhance their digital literacy, they can exemplify these skills for their students, fostering a culture of digital competence in the classroom (Rugaiyah et al., 2024). Furthermore, the cultivation of digital competence in educators has been recognised as a pivotal element in the effective execution of contemporary pedagogical methods. Research indicates that educational institutions with strong technical infrastructure generally have superior educational outcomes, since they equip students and educators with essential tools for digital learning (Susilo & Ahmaludin, 2023). Schools must prioritise training programs that provide educators with key digital competencies and guarantee sufficient access to ICT resources. Furthermore, the dedication of school leadership is essential; principals must actively endorse and advance digital literacy efforts to establish a learning-conducive atmosphere (Rugaiyah et al., 2024). In the absence of robust leadership

and a definitive vision for digital literacy, educational institutions may find it challenging to address these human resource constraints. Furthermore, an integrated strategy that encompasses both educator training and infrastructure enhancement is crucial for establishing a sustainable digital learning ecosystem. This encompasses not only supplying essential technical resources but also cultivating a supportive environment that promotes ongoing professional growth and collaboration among instructors (Kampylis & Sala, 2023).

By promoting digital literacy among educators, Aisyiyah Bustanul Athfal 5 Kindergarten can improve its educational environment, rendering learning more dynamic, engaging, and consistent with modern technology developments. This study examines the community service program aims to alleviate teachers' digital skills in the context of early childhood education. Initiatives that foster digital inclusion and equal access to technological resources are essential to close the digital divide encountered by some educators (Wang & Si, 2024). This research aims to enhance the conversation on digital change in early childhood education and offer practical ideas for addressing digital literacy challenges in comparable school contexts.

Method

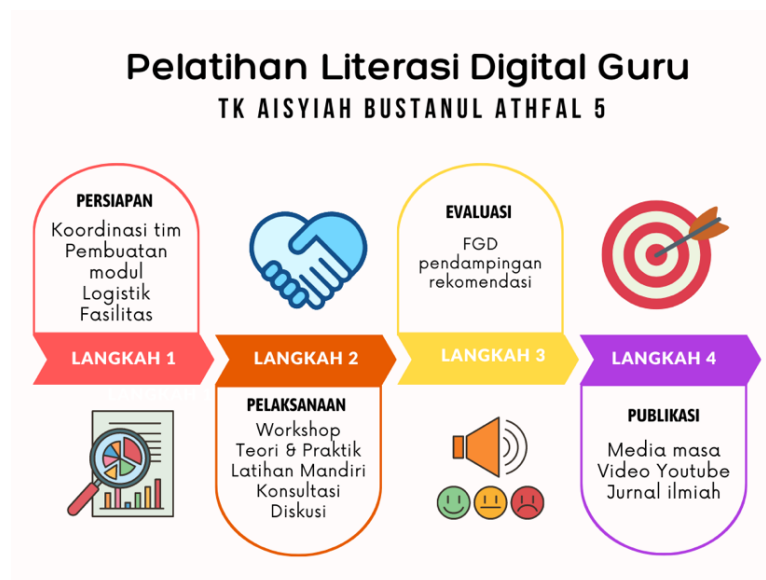
The community service program intended at improving digital literacy for early childhood education (ECE) teachers at TK Aisyiyah Bustanul Athfal 5 was divided into three stages: preparation, implementation, and assessment.

During the preparation stage, a need analysis conducted through focus group discussions (FGDs). Based on this feedback, a customized training curriculum was created that concentrated on the applications of Canva's tools in ECE. Additionally, in order to accommodate the various events that were taking place at the school, logistical plans were made, including the selection of the site and the timing of the event. In this stage, facilitators, consisting of university students and lecturers, were chosen provide the workshop. Participants were encouraged to bring their own teaching materials in order to directly implement their newfound knowledge.

The implementation phase lasted two weeks, including theoretical and practical workshops. The session commenced with an address by the school principal, succeeded by an overview of digital literacy and the use of tools such as Canva in early childhood education. Educators subsequently engaged in practical training, acquiring skills to utilize Canva's functionalities for developing captivating instructional materials. They collaborated both independently and in small groups to create interactive content, obtaining feedback from facilitators and peers. At the end of the workshop, there was a discussion on the difficulties and suggestions for incorporating Canva into regular

teaching practices. As a result, instructors left the session with a greater sense of confidence in their ability to use the platform.

In the evaluation stage, the effectiveness of the training was evaluated through a Focus Group Discussion (FGD), during which educators provided feedback on the training approaches and expressed their implementation strategies. At the end of the program, teachers were recognized for their dedication to professional development and certificates were distributed. The purpose of the ceremony was to emphasize the need of consistently incorporating digital literacy into teaching methods. At this last stage, the team focused on publishing the program in social media and youtube video. In addition, the program would also be disseminated through journal publication. The summary of the method can be examined from the following infographic:



Picture 1. Steps in Digital Literacy Training

Findings and Discussions

The community service program at TK Aisyiyah Bustanul Athfal 5 was implemented in a structured manner, with three primary stages: preparation, implementation, and evaluation. This organized framework intends to educate early childhood educators with the requisite abilities to incorporate digital tools into their instruction, thereby improving the learning experience for young children.

Preparation Phase

The preparation step comprises determining instructors' training requirements, generating customized learning materials, and planning logistics to guarantee a successful learning experience. A series of online and offline meetings was conducted during the initial phase of the community

service program at TK Aisyiyah Bustanul Athfal 5 to effectively plan and coordinate the implementation process. The team which was consisted of university lecturers and student volunteers gathered and discussed about the design of the community service. The preparation was then continued with a needs assessment using focus group discussions (FGDs) with teachers to ascertain their knowledge with digital literacy and their experiences with technology in early childhood education. The discussions yielded significant insights into the particular digital tools and platforms frequently utilized in their teaching context, enabling the team to customize the training material accordingly. This assessment can help to shape targeted training sessions that focus on important digital skills like using educational technology, creating digital material, and understanding online safety (Okoed & Bileti, 2024; Sumarno et al., 2023).

The focus group discussions with teachers at TK Aisyiyah Bustanul Athfal 5 revealed that the level of digital literacy varied. The majority of teachers were at ease with smartphones and social media, but they lacked experience with educational design tools such as Canva. Although some educators were familiar with Canva, few have employed it effectively to develop interesting educational resources. Despite these limitations, educators expressed a strong desire to improve their skills and preferred a realistic, progressive training approach with real-world applications. Following the training sessions, they emphasised the value of organised assistance, such as printed instructions, and peer collaboration, in helping students retain information. These findings highlight the necessity for a well-designed training program that begins with fundamental Canva skills and progresses to more complicated applications, allowing educators to confidently adopt digital tools into their early childhood education practices.

In light of the results, a thorough training program was prepared to fill in the gaps and improve teachers' proficiency using digital resources, especially Canva for educational purposes. Following the needs assessment, training materials were carefully designed to encompass core ideas of digital literacy, practical advice on hardware and software usage, and an introduction to appropriate educational apps. The modules were organized in a systematic manner to guarantee clarity and accessibility, allowing participants to easily follow the training and refer to the materials even after the program had ended. The use of interactive sessions and hands-on activities greatly improved the learning experience. They enabled teachers to directly apply what they learned to real-life classroom circumstances. According to Chenchen (2024), the transition to digital education mandates that educators change their curricula and engage in ongoing professional development to improve their digital literacy abilities.

In addition to material preparation, logistical arrangements were rigorously arranged to ensure a positive learning environment. As the training was conducted at the school hall, the team needed to make sure that the facilities are available. A fully equipped training facility was obtained, featuring key amenities including projectors, PCs, and reliable internet access to facilitate seamless training sessions. Additionally, the team also informed that the attendees needed to bring their laptop or gadget to actively participate in practical exercises. In addition, the logistical arrangements were essential for enabling an effective and immersive training experience. The goal of this community service initiative is to provide teachers at TK Aisyiyah Bustanul Athfal 5 with the digital literacy skills they need to improve their teaching methods through meticulous planning and a methodical approach. Teachers that use technology into their instructional approaches can provide more interesting and dynamic learning experiences for young students, producing a more effective and modern early childhood education environment. The following are the images:



Picture 2: Gallery of Preparation stages

Implementation

The implementation phase emphasizes providing practical training sessions in which educators actively utilize Canva to develop visually engaging and interactive instructional materials tailored for early childhood education. The implementation stage of the community service initiative

at TK Aisyiyah Bustanul Athfal 5 comprises organized training activities aimed at improving teachers' digital literacy through a blend of theoretical discourse, practical application, and cooperative learning. The principal of the school representative gives the opening remarks to start the session. This introduction highlights the rising significance of digital literacy for early childhood educators while outlining the training's background and goals. This introduction elucidates the importance of incorporating technology into instructional methodologies. The facilitator is introduced after the introduction, and a concise explanation of the training agenda is provided to provide participants with a clear roadmap of the activities they will participate in throughout the session.

An introduction to digital literacy is provided at the beginning of the theoretical session, which acts as the basis for the training. After discussing current technological trends and their effects on teaching and learning, participants examine the meaning of digital literacy and its applicability in early childhood education. PowerPoint and Canva are specifically emphasized as presentation applications that are instrumental in the development of interactive and compelling educational materials for young children. This session also addresses safe internet usage, providing educators with the necessary information to identify and employ high-quality, pertinent resources to enhance their instructional activities while maintaining responsible digital practices. Indeed, digital literacy provides individuals with the ability to acquire key skills linked to digital citizenship, internet safety, and media literacy. These abilities are essential for preventing cybercrime and establishing a secure online environment (Kurnia & Pristiwati, 2022). By promoting an engaging conversation, the facilitator enables participants to express their viewpoints and experiences with the use of technology in the classroom.

Afterwards, the training moved into a hands-on practical session where instructors put the software and hardware they learned about earlier into practice. Step-by-step instructions were provided so that the participants learnt how to navigate the interface of Canva, explore its features, and produced basic educational materials. Then, the participants replicated the process of developing visual teaching aids, including worksheets, and storytelling slides, which enables them to implement their newly acquired abilities in real-world classroom settings. The facilitator who are in this case the student volunteers provided direct supervision and guidance, ensuring that each participant was comfortable using the platform. The team also noticed that the participants had diverse digital skill levels. This aligns with the findings of Nikou et al., who assert that the effective incorporation of technology in educational settings depends on the acquisition of workplace literacy skills, including digital literacy (Nikou et al., 2022).



Picture 3: Discussion Forum

The participants discussed their learning experiences and the issues they may face while integrating digital literacy in their classrooms in small groups at the end of the session. This conversation provided a forum for group problem-solving, and the facilitator addressed any issues by providing criticism, direction, and workable answers. A supportive learning community that extended beyond the training session was also fostered by the encouragement of teachers to exchange ideas and best practices. They gained the opportunity to present their products, which they also shared difficulties that they faced. Interestingly, their peers who had better digital skills eagerly helped their friends in need. Moreover, the development of digital literacy was necessary in order to meet the issues that are brought by the digital divide. Ding et al. address how discrepancies in digital literacy can lead to considerable gaps in access to information and resources, particularly among marginalized populations (Ding et al., 2022). By augmenting their digital literacy competencies, educators at TK Aisyiyah Bustanul Athfal 5 can enrich the learning experience for their pupils, rendering education more interesting and dynamic. Below are photos of the activity:



Picture 4: The Implementation Phase

Evaluation

The evaluation phase measured the training's to examine the program's influence on teachers' digital literacy and classroom methodologies. After the primary training session, the activity was followed by a Focus Group Discussion (FGD). This focus group discussion (FGD) aimed to assess participants' understanding and satisfaction with the information and training methods given. During this discussion, participants provided feedback, shared their experiences, and provided suggestions for future training development. Assessing the program's effects is essential to figuring out how effective it is and making any necessary adjustments. Feedback from participants can help identify the program's areas of strength and improvement, allowing it to adapt to the evolving needs of early childhood educators (Hamid et al., 2022; Okoed & Bileti, 2024). The participants stated that they were delighted to join the program as it enabled them so improve their skills, which would also influence their professionalism. One of them mentioned that they could maximise the function in Canva not only to improve their teaching materials, but also for daily function such as creating announcement, or social media contents.

As a follow-up, participants were given access to online discussion groups or forums through the WhatsApp platform. This group served as a platform for information exchange, discourse, and enquiries around the use of digital literacy. This forum provided participants with ongoing post-training support and assistance. Teachers must get ongoing assistance and tools to ensure the enhancement of their digital literacy skills beyond their first training. This could include access to digital resources, peer mentorship programs, and regular workshops focused on creating technologies and instructional techniques (Annisa & Widyasari, 2023; Nuryanti et al., 2024).

The activities are depicted in the following pictures:



Picture 5: Evaluation stage

Closing

A closing session was conducted at the conclusion of the activity, facilitated by the school principal. In this closure, appreciation was shown to the enthusiastic participants in the training, as well as the facilitators, for their contributions to the activity's success. At the end of the event, participants, facilitators, and school officials all came together to think about the benefits of training and how it could help improve the level of education in schools. Butar et al. (2024) emphasised the significance of structured training programs in enhancing educators' digital literacy and providing them with the modern teaching abilities essential for the classroom of today. The description is supported by the following picture:



Picture 6: Closing

Conclusions

The community service conducted at Aisyiyah Bustanul Athfal 5 Kindergarten seeks to address multiple issues, specifically restricted access to technology, instructors' inadequate confidence in utilising technological gadgets, and their limited understanding of digital learning applications. The educational approach of this institution is predominantly traditional, characterised by lecture-based instruction and reliance on textbooks, with limited integration of digital tools or interactive applications. The digital literacy training program equips teachers with the abilities to effectively utilise technology, particularly the Canva application, in the educational process. The goal of this program is to improve educators' proficiency with technology so that they can design lessons that are more engaging and effective for their students. The effectiveness of this program is anticipated to enhance the learning process and improve the educational experience for students at Aisyiyah Bustanul Athfal 5 Kindergarten. Additionally, instructors' mastery of digital literacy is a crucial step in equipping pupils to confront a future that is progressively intertwined with technology.

Suggestions

For the purpose to continuously improve education, TK Aisyiyah Bustanul Athfal 5 Kindergarten should increase access to technological facilities, provide ongoing digital literacy training, establish a learning community, gradually integrate technology into learning activities, and conduct routine monitoring and evaluations. The goal of these suggestions is to make learning more interesting and relevant, increase students' self-assurance, and strengthen the use of technology in the classroom. The kindergarten seeks to enhance the educational experience for future generations through the use of these initiatives.

Acknowledgement

Our sincere appreciation goes out to TK Aisyiyah Bustanul Athfal 5 for their assistance and collaboration during the execution of this community service initiative. We extend our heartfelt gratitude to the school principle, teachers, and staffs, who actively engaged and gave vital thoughts, making this program relevant and beneficial.

Our deepest gratitude goes out to Universitas Muhammadiyah Malang and in supporting pur program in providing digital literacy training to teachers. Our sincere appreciation also goes out to contributors particularly UMM students who involve in the initiative. Their joint endeavors facilitated an engaging and efficacious learning experience.

Finally, we value the participating teachers' eagerness to learn and incorporate new techniques into their teaching routines. We believe that this program will serve as a springboard for ongoing professional development and innovation in early childhood teaching.

References

- Abdurrohman, M. A., & Hidayati, D. (2024). School principals managerial leadership strategies in increasing students' digital literacy. *Jurnal Fundadikdas (Fundamental Pendidikan Dasar)*, 7(1), Article 1. <https://doi.org/10.12928/fundadikdas.v7i1.9987>
- Annisa, F., & Widyasari, W. (2023). Development of Digital Literacy for Teachers. *Proceeding International Conference of Technology on Community and Environmental Development*, 1(2), Article 2. <https://doi.org/10.18196/ictced.v1i2.63>
- Ayson, K. L., Bernardez, J. P., Department of Education (Schools Division of Mountain Province-Otucan), Bila National High School, Mountain Province, Garcia, A. F., Ilocos Sur Polytechnic State College -

- Cervantes Campus, Cervantes, Ilocos Sur, Garlejo, V. G., Ilocos Sur Polytechnic State College - Cervantes Campus, Cervantes, Ilocos Sur, Laurentino, J. R., & Department of Education (Schools Division of Ilocos Sur), Dili National High School, Santa Cruz, Ilocos Sur. (2024). Digital Divide as a Dynamic Challenge and a Leveraging Opportunity: A Phenomenological Study on Seasoned TLE/TVL Teachers' Adaptive Pedagogy. *International Journal of Multidisciplinary Research and Analysis*, 7(07). <https://doi.org/10.47191/ijmra/v7-i07-11>
- Butar, S. B., Mulyadi, H., & Ramdhany, M. A. (2024). The Mediating Role of Work Motivation in the Impact of Training on Teachers' Digital Literacy. *Lectura: Jurnal Pendidikan*, 15(2), 509–520. <https://doi.org/10.31849/lectura.v15i2.20646>
- Chenchen, C. (2024). Digital literacy, practices, and transformative implications in teaching English as a second language. *International Journal of Research Studies in Language Learning*, 10(2). <https://doi.org/10.5861/ijrsl.2024.011>
- Ding, H., Zhang, C., & Xiong, W. (2022). Associations between Mobile Internet Use and Self-Rated and Mental Health of the Chinese Population: Evidence from China Family Panel Studies 2020. *Behavioral Sciences*, 12(7), 221. <https://doi.org/10.3390/bs12070221>
- Hamid, S., Aftab, M. J., & Rehman, N.-. (2022). Situation Analysis of Digital Literacy of Public-School Teachers in Punjab. *Global Digital & Print Media Review*, V(I), 50–62. [https://doi.org/10.31703/gdpmr.2022\(V-I\).06](https://doi.org/10.31703/gdpmr.2022(V-I).06)
- Kampylis, P., & Sala, A. (2023). Improving the digital capacity of schools by using the SELFIE tool for collective reflection. *European Journal of Education*, 58(2), 331–346. <https://doi.org/10.1111/ejed.12561>
- Kurnia, M. D., & Pristiwati, R. (2022). Kompetensi Literasi Digital Mahasiswa Dalam Menulis Artikel Opini. *PEMBELAJAR: Jurnal Ilmu Pendidikan, Keguruan, dan Pembelajaran*, 6(1), 29. <https://doi.org/10.26858/pembelajar.v6i1.21135>
- Li, L., & Cheong, L. K. (2024). Analysis of the Research Progress of Teachers' Digital Competence in China based on Bibliometrics. *International Journal of Academic Research in Progressive Education and Development*, 13(2), Pages 869-882. <https://doi.org/10.6007/IJARPED/v13-i2/21378>

- Morales, R. Q. (2022). Chile's Digital Learning Strategy During the COVID-19 Pandemic: Connecting Policy with Social Realities? *Current Issues in Comparative Education (CICE)*, 24(2), 136–150.
- Nikou, S., De Reuver, M., & Mahboob Kanafi, M. (2022). Workplace literacy skills—How information and digital literacy affect adoption of digital technology. *Journal of Documentation*, 78(7), 371–391. <https://doi.org/10.1108/JD-12-2021-0241>
- Nuryanti, R., Nurhayati, S., Musa, S., & Rukanda, N. (2024). EFFORTS AND OUTCOMES IN ENHANCING EARLY CHILDHOOD EDUCATORS' DIGITAL LITERACY AT PAUD INSTITUTIONS. *JUDIKA (JURNAL PENDIDIKAN UNSIKA)*, 12(1), 25–36. <https://doi.org/10.35706/judika.v12i1.10212>
- Okoed, M., & Bileti, E. A. (2024). Digital Literacy Training: Its Impact on Teachers in Busoga Region, Eastern Uganda. *IJORER: International Journal of Recent Educational Research*, 5(3), Article 3. <https://doi.org/10.46245/ijorer.v5i3.598>
- Rahmawati, S., Abdullah, A. G., & Widiaty, I. (2024). Teachers' digital literacy overview in secondary school. *International Journal of Evaluation and Research in Education (IJERE)*, 13(1), 597. <https://doi.org/10.11591/ijere.v13i1.25747>
- Rugaiyah, R., Robby, D. K., Hafidz, A. N., Nabilah, S., Rahmawati, D., & Novianti, R. (2024). Strategies To Improve Teachers' Digital Literacy. In D. K. Robby, F. C. Wibowo, & U. Hasanah (Eds.), *Proceedings of the International Conference on Environmental Learning Educational Technologies (ICELET 2023)* (Vol. 835, pp. 119–128). Atlantis Press SARL. https://doi.org/10.2991/978-2-38476-240-8_11
- Sumarno, W. K., Furqon, H., Shodikin, A., Solikha, N. I., Pratama, N. K., & Adha, D. R. (2023). Strengthening Teachers' Digital Literacy through Interactive Video Making Training using the Kinemaster Application. *Nusantara Science and Technology Proceedings*, 170–176. <https://doi.org/10.11594/nstp.2023.3328>
- Susilo, S., & Ahmaludin, A. (2023). The Influence of Educational Infrastructure and Motivation on the Performance of Junior High School Teachers in Bandar Negeri Suoh District. *Ensiklopedia: Jurnal Pendidikan Dan Inovasi Pembelajaran Saburai*, 3(02), Article 02. <https://doi.org/10.24967/esp.v3i02.2473>

- Val, S., & López-Bueno, H. (2024). Analysis of Digital Teacher Education: Key Aspects for Bridging the Digital Divide and Improving the Teaching–Learning Process. *Education Sciences*, *14*(3), 321. <https://doi.org/10.3390/educsci14030321>
- Wang, C., & Si, L. (2024). The Intersection of Public Policy and Public Access: Digital Inclusion, Digital Literacy Education, and Libraries. *Sustainability*, *16*(5), 1878. <https://doi.org/10.3390/su16051878>
- Wulandari, R., Widodo, A., & Rochintaniawati, D. (2020). PENGGUNAAN APLIKASI AUGMENTED REALITY UNTUK MEMFASILITASI PENGUASAAN KONSEP DAN KETERAMPILAN BERPIKIR KREATIF PESERTA DIDIK. *Jurnal Pendidikan Biologi*, *11*(2), Article 2. <https://doi.org/10.17977/um052v11i2p59-69>