Child-Friendly Digital Literacy at TK/RA Tadika Adnani: A Collaborative PIAUD Initiative

Sovia Ikhwani Putri[1]*

[1]STAIN Mandailing Natal, Panyabungan 22915, Indonesia

Abstract. The integration of digital literacy into early childhood education is increasingly vital in today's technology-driven world. This study explores the collaborative efforts of PIAUD students from STAIN Mandailing Natal in developing a child-friendly digital literacy platform at TK/RA Tadika Adnani, aimed at enhancing educational outcomes and community engagement. This community service project utilized a structured, multi-phase approach. It began with a needs assessment and planning phase, followed by the formation of specialized teams focusing on data collection, content development, website design, and programming. The project also integrated teaching activities at the school, where students applied interactive methods alongside the website development. The final phase involved implementing the website and gathering feedback from the community to evaluate its effectiveness. The project culminated in the creation of a user-friendly and informative website for TK/RA Tadika Adnani, featuring comprehensive school information, an online registration form, and multimedia galleries. The teaching activities conducted by the students led to observable improvements in the children's cognitive, social, and emotional development. The initiative successfully addressed the need for a digital platform in early childhood education, demonstrating how collaboration and technology can enhance educational delivery and outreach. The project also provided PIAUD students with practical experience in applying their knowledge in real-world settings. This collaborative effort not only improved the school's digital presence but also enriched the learning experiences of both the children and the students involved. The project serves as a model for integrating digital literacy into early childhood education through community-based initiatives.

Keywords: Digital Literacy; Early Childhood Education; Community Service; Website Development; Collaborative Learning

1. Introduction

The swift progress of technology has fundamentally changed numerous facets of human life, particularly within the realm of education (Sarea & Syam, 2023). In today's digital era, where information is readily accessible, integrating technology into education is no longer an option but a necessity (Piller et al., 2023). This integration is particularly

*Corresponding author's email: sovia.piaud@gmail.com, Telp.: +6285809135607

important in early childhood education, where the foundation of a child's cognitive, social, and emotional development is laid (Adiva Vanka Tamika & Rinawati, 2023). Digital literacy, which refers to the ability to use digital tools and platforms effectively, is an essential skill that children must develop early in their educational journey (Sitorus et al., 2023). However, the integration of digital literacy in early childhood education must be approached carefully, ensuring that it is both age-appropriate and aligned with developmental goals (Prasetya et al., 2023). Digital literacy in early childhood education is more than just familiarizing children with computers or tablets; it involves teaching them how to interact with technology in ways that are safe, creative, and educational. At this stage, children are developing critical thinking skills, problem-solving abilities, and communication skills, all of which can be enhanced through the appropriate use of digital tools (Jørgensen et al., 2023). Introducing digital literacy at an early age prepares children for the increasingly digital world they will navigate as they grow older (Mudztaba, 2022).

However, there are challenges associated with integrating digital literacy into early childhood education (Par et al., 2022). One of the main challenges is ensuring that the digital content is age-appropriate and supports the developmental needs of young children (Purnama et al., 2022). Another challenge is the digital divide, where access to technology varies significantly among different communities, potentially widening the educational gap (Puspita et al., 2021). Thus, any initiative aimed at promoting digital literacy in early childhood education must consider these challenges and work towards creating inclusive, equitable, and developmentally appropriate digital learning experiences.

Schools play a pivotal role in promoting digital literacy among young children. They are not only responsible for providing access to digital tools but also for creating a safe and supportive environment where children can explore and learn through technology (Kahan & McKenzie, 2020). This involves integrating digital literacy into the curriculum, training educators on how to use technology effectively in the classroom, and engaging parents to reinforce digital literacy at home (Yanto, 2020). For early childhood education institutions, such as kindergartens and preschools, the challenge is even greater (Habiburrahman & Fatmawati, 2020). These institutions must balance traditional play-based learning approaches with the integration of digital tools in a way that complements rather than disrupts the natural learning processes of young children (Campbell-Price, 2018). Therefore, it is essential for these institutions to have a clear strategy for digital literacy, which includes not only the selection of appropriate digital tools but also the development of digital content that is engaging and educational.

TK/RA Tadika Adnani, a well-established early childhood education institution, recognized the need to embrace digital literacy as part of its educational offerings. Located in a community where access to technology is steadily increasing, the school understood the importance of equipping its students with the skills necessary to thrive in a digital world. However, the school also faced challenges typical of many early childhood education institutions, such as limited resources and the need to ensure that any digital initiatives were developmentally appropriate. To address these challenges, TK/RA Tadika Adnani partnered with students from the Early Childhood Islamic Education Program (PIAUD) at STAIN Mandailing Natal to develop a child-friendly digital literacy initiative. This initiative was designed not only to enhance the school's educational offerings but also

to serve as a model for integrating digital literacy into early childhood education in a way that is collaborative, inclusive, and impactful.

The collaboration between TK/RA Tadika Adnani and the PIAUD students was part of a broader community service initiative aimed at improving educational outcomes through the integration of digital technology. Community service is a key component of the PIAUD program, providing students with practical experience in applying their theoretical knowledge in real-world settings. For this project, the PIAUD students were tasked with developing a digital literacy platform for TK/RA Tadika Adnani that would serve multiple purposes: enhancing the learning experience for children, providing valuable resources for teachers, and engaging the broader community.

The project began with a comprehensive needs assessment, where the students met with school leadership, teachers, and parents to understand the specific needs and goals of the school. This assessment revealed a clear need for a digital platform that could serve as an educational tool for the students and a communication tool for the school. The platform needed to be user-friendly, visually appealing, and tailored to the developmental needs of young children. Based on the needs assessment, the PIAUD students developed a detailed project plan. This plan included the creation of a website for TK/RA Tadika Adnani that would feature educational content, interactive elements, and resources for both teachers and parents. The website was designed to be accessible on multiple devices, ensuring that it could be used both at school and at home.

The planning phase of the project was critical to its success. The PIAUD students were divided into teams based on their skills and interests. These teams included content development, graphic design, website programming, and project management. Each team was responsible for a specific aspect of the project, ensuring that all elements were addressed comprehensively. The content development team focused on creating educational materials that were age-appropriate, engaging, and aligned with the school's curriculum. This included interactive games, videos, and activities designed to reinforce key learning concepts. The graphic design team worked on creating a visually appealing website layout that would be both attractive and easy to navigate for young children. The website programming team was responsible for the technical aspects of the project, ensuring that the website was functional, responsive, and accessible on various devices.

Throughout the planning and implementation phases, the PIAUD students maintained close communication with the school's leadership and teachers. This collaboration ensured that the project remained aligned with the school's goals and that any challenges were addressed promptly. The students also sought feedback from the school community, including parents, to ensure that the website met their needs and expectations. As with any project, the development of the digital literacy platform for TK/RA Tadika Adnani faced several challenges. One of the main challenges was ensuring that the content was both engaging and educational. Given the young age of the target audience, it was essential that the digital content supported the children's cognitive, social, and emotional development. The PIAUD students addressed this challenge by consulting with early childhood education experts and conducting a thorough review of existing digital content for young children. They also tested the content with the students at TK/RA Tadika Adnani to gather feedback and make necessary adjustments.

Another challenge was the technical aspect of website development. While some of the PIAUD students had experience in programming, others did not, which required additional training and support. To overcome this challenge, the students organized workshops and study sessions where those with more experience could share their knowledge with their peers. They also sought assistance from external experts when needed, ensuring that the website met all technical requirements. Time management was another significant challenge, particularly because the PIAUD students were also involved in teaching activities at the school. Balancing these responsibilities required careful planning and coordination. The students created a detailed timeline that outlined all project milestones and deadlines, allowing them to manage their time effectively. They also held regular team meetings to discuss progress and address any issues that arose.

The completed website for TK/RA Tadika Adnani exceeded expectations, providing a valuable resource for the school and its community. The website includes comprehensive information about the school, its programs, and its facilities, making it easier for parents to engage with the school and stay informed about their children's education. The educational content on the website has been well-received by both teachers and students, with many reporting that it has enhanced the learning experience.

In addition to the website, the PIAUD students' involvement in the school's teaching activities also had a positive impact. By incorporating digital literacy into their lessons, the students were able to provide a more engaging and interactive learning experience for the children. This, in turn, has led to improvements in the children's cognitive, social, and emotional development, as observed by their teachers and parents. The project also provided valuable learning experiences for the PIAUD students. They gained practical skills in project management, teamwork, and digital content development, all of which will be useful in their future careers. Moreover, the project reinforced the importance of community service and collaboration, highlighting how education can be enhanced through collective efforts.

2. Methods

This community service project, structured as a service-learning initiative, was designed to integrate academic learning with real-world community engagement. The project was carried out in collaboration between PIAUD (Early Childhood Islamic Education) students from STAIN Mandailing Natal and TK/RA Tadika Adnani, with the goal of developing a child-friendly digital literacy platform. The following outlines the methodological approach taken, emphasizing the service-learning framework. Service-learning combines meaningful community service with structured opportunities for learning and reflection. In this project, the PIAUD students were not only contributors but also learners, applying their academic knowledge in early childhood education to address real-world challenges. The project was designed to meet both educational and community needs, enhancing the digital literacy of young children at TK/RA Tadika Adnani while providing the students with hands-on experience in educational technology and project management.

The project began with a comprehensive needs assessment conducted by the PIAUD students in collaboration with the school's leadership and educators. This phase involved a series of discussions, interviews, and surveys to identify the specific needs of the school regarding digital literacy. Key areas of focus included understanding the school's

educational goals, the technological resources available, and the needs of the students and teachers. The needs assessment was crucial in shaping the project's objectives and ensuring that the digital platform would be relevant and beneficial to the school community. The PIAUD students were organized into specialized teams based on their skills and interests, ensuring a multidisciplinary approach to the project. The teams included: Content Development Team, which focused on creating educational materials that were age-appropriate, engaging, and aligned with the school's curriculum. This included developing interactive games, videos, and activities. The Graphic Design Team was responsible for the visual aspects of the website, ensuring that the platform was both aesthetically pleasing and user-friendly for young children. The Website Development Team handled the technical side of the project, including coding, website structure, and ensuring compatibility across various devices. The Project Management Team oversaw the entire project, coordinating between teams, managing timelines, and ensuring that the project met its objectives.

The implementation phase involved the creation of the digital platform and its integration into the school's daily activities. The content and graphic design teams worked closely to develop materials that were not only educational but also engaging for young children. The website development team then brought these materials to life, creating a platform that was easy to navigate and visually appealing. Simultaneously, the PIAUD students incorporated the digital platform into their teaching practices at TK/RA Tadika Adnani. This integration was essential for testing the effectiveness of the content in a real classroom setting, allowing students to make adjustments based on feedback from both teachers and children. Reflection is a key component of service-learning. Throughout the project, the PIAUD students engaged in regular reflection sessions, discussing their experiences, challenges, and the skills they were developing. This reflective process was guided by both their academic mentors and the school's educators, ensuring that the students could connect their academic learning with their community service experiences. The project concluded with an evaluation phase, where feedback was gathered from the school's leadership, teachers, parents, and the PIAUD students themselves. This feedback was used to assess the impact of the project on the children's learning and to identify areas for future improvement.

The project successfully resulted in a fully functional digital literacy platform for TK/RA Tadika Adnani, which is now an integral part of the school's educational resources. Additionally, the experience provided the PIAUD students with valuable skills and insights that will benefit them in their future careers. The project's sustainability was ensured by training the school's teachers to maintain and update the website, ensuring its continued relevance and effectiveness in promoting digital literacy. This service-learning project demonstrated the effectiveness of integrating academic learning with community service, resulting in tangible benefits for both the students and the community they served.

3. Results and Discussion

The collaborative community service project between PIAUD students of STAIN Mandailing Natal and TK/RA Tadika Adnani culminated in the development of a comprehensive and child-friendly digital literacy platform, accessible through the website www.adnani.sch.id. This section provides an in-depth analysis of the project outcomes, the effectiveness of the digital platform, and its broader implications for early childhood

education. The website not only serves as an educational tool but also as a means to enhance communication between the school and the broader community.

3.1. Website Development and Features
The primary outcome of this project was the creation of the website www.adnani.sch.id, which was designed to be an engaging, informative, and user-friendly platform. The website is structured with several key sections, each serving a specific purpose in fulfilling the educational and communicative goals of the school. Below is a detailed overview of the main features of the website, illustrated with descriptive imagery.

3.1.1. Home Page (Beranda)
The home page of the website greets visitors with a bright, welcoming interface. The design incorporates vibrant colors, playful fonts, and images of children engaged in various activities at the school. This visual approach immediately signals that the website is child-centered and focused on early childhood education. The top navigation bar includes links to essential sections such as About Us, Programs, Admissions, News, and Contact.

The central feature of the home page is a slideshow banner that rotates through images of the school's facilities, classroom activities, and events. Each image is accompanied by a brief caption that highlights the school's core values, such as "Creativity," "Inclusivity," and "Community." Below the banner, there are quick links to the latest news, upcoming events, and a message from the principal, which provides a personal touch and makes the school's leadership more accessible to parents and visitors.

Figure 1 Screenshot of the website homepage

3.1.2. About Us (Tentang Kami)
The About Us section offers a comprehensive overview of TK/RA Tadika Adnani, detailing its history, mission, vision, and educational philosophy. This page is designed to

give visitors a deep understanding of the school's foundation and goals. The section is visually enriched with images of the school's founders, historical milestones, and notable achievements over the years.

The mission and vision statements are prominently displayed, emphasizing the school's commitment to providing a holistic, inclusive, and child-centered education. The narrative is accompanied by photographs of children and teachers engaged in learning activities, which help to contextualize the school's educational approach. This section also includes a brief introduction to the teaching staff, with profiles highlighting their qualifications, experience, and educational philosophy.

3.1.3. Programs (Program Sekolah)

The Programs section outlines the various educational programs offered at TK/RA Tadika Adnani. This section is divided into sub-pages that detail specific aspects of the curriculum, including early literacy, numeracy, arts and crafts, physical education, and character education. Each program is described with clarity, explaining its objectives, methodologies, and the developmental goals it aims to achieve.

Each program page features visual elements such as photographs of classroom activities, examples of children's work, and video clips of interactive lessons. For instance, the early literacy program page might include a video demonstration of a teacher conducting a phonics lesson, accompanied by images of children engaging with storybooks. This use of multimedia not only enriches the content but also provides parents with a glimpse into the daily learning experiences of their children.

3.1.4. Admissions (Pendaftaran)

The Admissions section is a critical feature of the website, designed to streamline the process of enrolling new students. This section provides all necessary information about the admission process, including requirements, deadlines, and the steps involved. A notable feature of this section is the online registration form, which allows parents to submit their child's application directly through the website.

The registration form is user-friendly, with clear instructions and a simple interface. It includes fields for basic information such as the child's name, date of birth, and contact details, as well as sections for uploading required documents. The form is integrated with the school's database, enabling the administration to efficiently process applications and communicate with parents about the status of their application.

3.1.5. News and Events (Berita dan Acara)

The News and Events section serves as the school's communication hub, keeping the community informed about the latest developments, announcements, and upcoming activities. This section is regularly updated with news articles, event calendars, and photo galleries from recent school events.

The news articles cover a wide range of topics, from educational tips for parents to summaries of school events such as sports days, cultural festivals, and parent-teacher meetings. Each article is accompanied by relevant images, enhancing the readability and engagement of the content. The events calendar is interactive, allowing users to click on specific dates to view detailed information about upcoming events. This feature ensures that parents are always aware of important dates and can plan accordingly.

3.1.6. Contact (Hubungi Kami)

The Contact section provides multiple ways for visitors to get in touch with the school. It includes the school's address, phone number, email address, and a map showing the location of the school. There is also a contact form that visitors can fill out to send a direct message to the school's administration.

This section is designed to be accessible and straightforward, ensuring that parents and potential visitors can easily reach the school for inquiries or support. The map feature is particularly useful for new parents who may not be familiar with the school's location, providing them with clear directions.
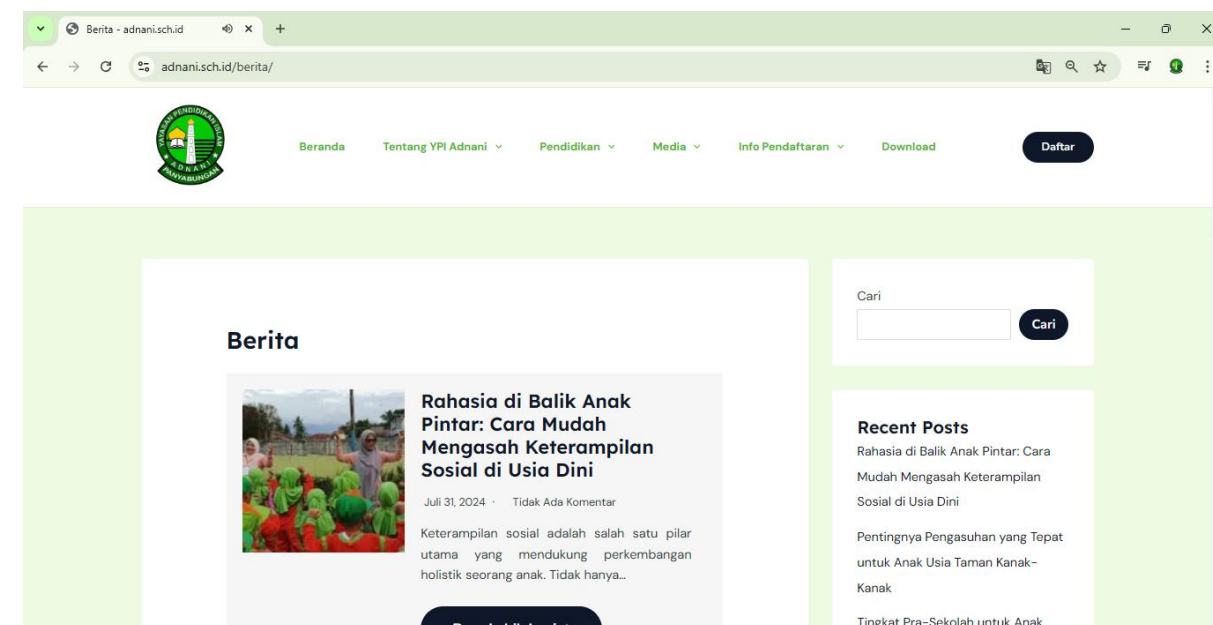

Figure 2 Screenshot of website news

3.2. Impact on the School Community

The development of the website www.adnani.sch.id has had a significant impact on the school community. One of the most notable outcomes is the increased visibility and accessibility of the school. The website serves as a digital gateway, allowing the school to reach a broader audience beyond the immediate community. Prospective parents can easily learn about the school, explore its programs, and initiate the admission process from the comfort of their homes.

Moreover, the website has enhanced the school's communication with current parents. The News and Events section, in particular, has proven to be an effective tool for keeping parents informed and engaged. The regular updates and the ability to access event information online have made it easier for parents to stay connected with their child's education and participate in school activities.

The educational content on the website, especially the interactive elements within the Programs section, has also contributed to the learning experiences of the students. Parents have reported that the online resources have helped reinforce the lessons taught in the classroom, providing additional opportunities for children to practice and explore new concepts at home.

3.3. Challenges Encountered and Solutions

While the project was largely successful, it was not without its challenges. One of the primary challenges was ensuring that the website content was developmentally appropriate for young children. The PIAUD students had to carefully balance educational content with engaging, child-friendly design elements. This required extensive consultation with early childhood education experts and iterative testing with the children to ensure that the content was both educational and enjoyable.

Another challenge was the technical aspect of developing a responsive website that would work well across different devices and internet speeds. Given the diverse technological capabilities of the families within the school community, it was crucial that the website be accessible on both high-end and low-end devices. The website development team addressed this by optimizing the site's performance, ensuring fast load times and a mobile-friendly design.

Time management was also a significant challenge, as the PIAUD students had to balance their academic responsibilities with the demands of the project. The solution to this challenge was meticulous planning and teamwork. The students created a detailed timeline with clear milestones, which helped them stay on track and meet deadlines. Regular team meetings and open communication were essential in managing the workload and ensuring that all aspects of the project were progressing smoothly.

3.4. Educational Outcomes and Student Development

The service-learning nature of this project provided the PIAUD students with a unique opportunity to apply their academic knowledge in a practical setting. By working on a real-world project, the students gained valuable experience in project management, teamwork, and digital content creation. This hands-on experience is expected to be highly beneficial in their future careers as early childhood educators, equipping them with the skills needed to integrate technology into their teaching practices effectively.

Furthermore, the project reinforced the importance of community engagement and service in education. The students learned the value of collaboration, not only within their teams but also with the broader school community. Through this project, they were able to make a meaningful contribution to the school and its students, while also enhancing their own professional development.

One of the key considerations in the design of the website was its sustainability. To ensure that the website remains a valuable resource for the school, the PIAUD students provided training to the school's teachers on how to update and maintain the website. This training included instructions on how to post news articles, update the events calendar, and manage the online registration system. By empowering the school's staff with these skills, the website is expected to remain a dynamic and up-to-date platform. Looking forward, there are several potential directions for future development. One possibility is the integration of more advanced interactive features, such as virtual classrooms or online learning modules, which could further enhance the educational offerings of the school. Additionally, there is an opportunity to expand the website's content to include more resources for parents, such as parenting tips, educational videos, and community forums.

4. Conclusions

The initiative at TK/RA Tadika Adnani, led by PIAUD students from STAIN Mandailing Natal, highlights the critical role of digital literacy in early childhood education. This project, involving a multi-phase approach, underscores the importance of collaboration between educational institutions and communities. By integrating a structured needs assessment, specialized team formation, and interactive teaching methods, the project aimed to create a child-friendly digital platform that enhances both educational outcomes and community engagement. The development of a user-friendly website with features such as comprehensive school information, an online registration form, and multimedia galleries significantly improved the school's digital presence. This digital platform not only facilitated better communication with the community but also supported the children's cognitive, social, and emotional development. The involvement of PIAUD students in creating and implementing this platform provided them with practical experience and demonstrated the potential of technology to enrich early childhood education. This collaborative project serves as a successful model for integrating digital literacy into early education settings. It shows how targeted technological interventions can enhance learning experiences, improve educational outreach, and provide valuable real-world experience for students, ultimately benefiting both the educational institution and the community.

References
Adiva Vanka Tamika, & Rinawati, R. (2023). Literasi Digital Lansia. *Bandung Conference Series: Public Relations*, *3*(2). https://doi.org/10.29313/bcspr.v3i2.9425

Campbell-Price, M. (2018). It depends on the priorities: the presence and profile of outdoor education on school websites. *Journal of Adventure Education and Outdoor Learning*, *18*(3). https://doi.org/10.1080/14729679.2017.1409642

Habiburrahman, & Fatmawati, R. (2020). Peningkatan Minat Baca dan Literasi Digital Melalui Pojok Baca Interaktif Ramah Anak. *Abdi Humaniora*, *1*(2).

Jørgensen, B. B., Gregersen, M., Pallesen, S. H., & Damsgaard, E. M. S. (2023). Computer habits and digital literacy in geriatric patients: A survey. *Digital Health*, *9*. https://doi.org/10.1177/20552076231191004

Kahan, D., & McKenzie, T. L. (2020). School Websites: A Physical Education and Physical Activity Content Analysis. *Journal of School Health*, *90*(1). https://doi.org/10.1111/josh.12851

Mudztaba, Z. K. (2022). (Ppdb) Di Ra Nurul Hijrah Berbasis Website. *IKRA-ITH INFORMATIKA: Jurnal Komputer Dan Informatika*, *6*(1).

Par, L., Fatmawati, F., Kurnianto, Y. T., Jiul, M., Agung, M. E., Nurmahir, I., & Namul, Y. S. (2022). Development of a wordpress CMS-based school website as a medium of information and promotion for SMAN 1 Poco Ranaka, NTT. *Community Empowerment*, *7*(1). https://doi.org/10.31603/ce.5917

Piller, I., Bruzon, A. S., & Torsh, H. (2023). Monolingual school websites as barriers to parent engagement. *Language and Education*, *37*(3). https://doi.org/10.1080/09500782.2021.2010744

Prasetya, R. E., Niazi, H. A., Meidiyustiani, R., Oktaviani, R. F., & Anwar, S. (2023). Sosialisasi Literasi Digital Melalui Pengenalan Teknologi Baru Untuk Menghindari Penyebaran Hoaks di Ruang Publik Terpadu Ramah Anak Mangga Ulir Jakarta Selatan. *Lumbung Inovasi: Jurnal Pengabdian Kepada Masyarakat*, *8*(3). https://doi.org/10.36312/linov.v8i3.1305

Purnama, S., Ulfah, M., Ramadani, L., Rahmatullah, B., & Ahmad, I. F. (2022). Digital Storytelling Trends in Early Childhood Education in Indonesia: A Systematic Literature Review. *JPUD - Jurnal Pendidikan Usia Dini*, *16*(1). https://doi.org/10.21009/jpud.161.02

Puspita, K., Alkhalifi, Y., & Basri, H. (2021). Rancang Bangun Sistem Informasi Penerimaan Peserta Didik Baru Berbasis Website Dengan Metode Spiral. *Paradigma - Jurnal Komputer Dan Informatika*, *23*(1). https://doi.org/10.31294/p.v23i1.10434

Sarea, M. S., & Syam, A. S. M. (2023). Pengembangan Aplikasi Bahan Ajar Berbasis Web Sebagai Suplemen Pembelajaran Prodi PIAUD. *JURNAL BUNGA RAMPAI USIA EMAS*, *9*(2). https://doi.org/10.24114/jbrue.v9i2.52449

Sitorus, O. F., Handayani, T., & Astuti, S. (2023). Implementation of Digital-Based Approaches in Early Childhood Education Supervision Amidst the COVID-19 Pandemic. *Jurnal Obsesi : Jurnal Pendidikan Anak Usia Dini*, *7*(5). https://doi.org/10.31004/obsesi.v7i5.5398

Yanto, M. (2020). Manajemen kepala Madrasah Ibtidaiyah dalam menumbuhkan pendidikan karakter religius pada era digital. *Jurnal Konseling Dan Pendidikan*, *8*(3). https://doi.org/10.29210/146300