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Digitalization Training for Early Childhood Education Teachers' Learning Media through the Smart Media Program in North Lampung (Video, Animation, Educational Games)

Dahlawi Fath[1], Sri Hasanah[2], Ahmad Sholihin [3], Dhea Putri Sakilla[4], Supriyanti[5]

[1,2,3,4,5] Sekolah Tinggi Agama Islam Ibnurusyd Kotabumi Lampung, Indonesia
* Correspondence e-mail; abiydahlawi@gmail.com

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Abstract

The Smart Media Program in North Lampung was implemented to address low digital literacy and limited use of technology-based learning media among early childhood education (PAUD) teachers. This program aims to improve teachers' digital competence in developing educational videos, simple animations, and child-friendly educational games that align with the characteristics of early childhood learning. The program involved 25 PAUD teachers from institutions under the Harapan Umi Foundation and was implemented over six days through stages of socialization, training, workshops, mentoring, and evaluation. Using a Participatory Action Research (PAR) approach, data were collected through observation, interviews, and documentation. The service results showed that teachers produced 42 digital learning products, including 18 educational videos, 14 simple animations, and 10 interactive educational games, which were directly implemented in classroom learning. The program improved teachers' technical skills, creativity, and confidence while fostering a more engaging, interactive learning environment. Improved focus, participation, and enthusiasm were observed in children, along with strengthened collaboration between teachers. These findings indicate that the Smart Media Program effectively improves the digital literacy and professional competence of PAUD teachers and offers a sustainable model for early childhood teacher development.

Keywords Digital Media; Digitalization of Learning; Educational Games; Smart Media

1. INTRODUCTION

The digitalization of early childhood education (ECE/PAUD) has become a global trend in response to rapid technological development and changes in children's learning environments. Internationally, early childhood learners are increasingly exposed to digital devices, audiovisual content, and interactive media, which significantly influence their cognitive, social-emotional, and language development (Mayer, 2009; Zhan et al., 2020). Consequently, early childhood teachers are required to adapt learning approaches by integrating developmentally appropriate, interactive, and engaging digital media. At the national level, Indonesia has also emphasized the importance of digital transformation in education, including early childhood education, as part of efforts to improve learning quality and prepare future generations to face 21st-century challenges (Budiman et al., 2025; Marliani & Isnaningrum, 2024).

This policy direction is reinforced through the implementation of the Independent Curriculum (Kurikulum Merdeka), which encourages creative, student-centered, and experiential learning supported by diverse learning resources (Ashfarina & W, 2023; Junaidi et al., 2023). In the context of PAUD, this curriculum aligns with national standards that emphasize holistic child development and the strengthening of the Pancasila Student Profile, which includes creativity, independence, and critical thinking. These demands require PAUD teachers to be competent in designing innovative learning media, including educational videos, animations, and interactive games that support play-based learning principles. However, the successful implementation of these policies depends heavily on teachers' digital literacy and professional competence.

In reality, field observations in North Lampung indicate that most PAUD teachers still rely on conventional learning media such as flashcards, manual drawings, whiteboards, and repetitive teaching aids that have been used for years. Digital learning media, such as short instructional videos, simple animations, and interactive educational games, are rarely utilized due to teachers' limited knowledge and technical skills (Pratiwi, 2021; Putu et al., 2024). Many teachers are unfamiliar with user-friendly digital applications such as Canva, CapCut, interactive PowerPoint, Scratch Jr., or Animaker, even though these tools can be easily used without advanced technological expertise. As a result, classroom learning tends to be monotonous and less appealing to children who are already accustomed to dynamic digital visuals in their daily lives (Raoza, 2024; Ulina & Pinem, 2025).

Moreover, interviews revealed that teachers' low confidence further exacerbates this condition. Some teachers expressed fear of making mistakes, confusion about where to start, and feelings of incompetence when using digital tools (Interview, SP, 2025). Although several teachers have previously attended digital training programs, these activities were mostly seminar-based and theoretical, with minimal hands-on practice, resulting in limited impact on actual classroom implementation (Ricka & MS, 2021). This situation not only affects the quality of learning but also hinders teachers' administrative performance and professional development.

From an institutional perspective, PAUD institutions in North Lampung also face increasing pressure to meet accreditation standards that assess the use of innovative and technology-based learning media. One important indicator of accreditation is teachers' ability to develop and utilize modern learning media. However, the lack of digital competence among teachers has become a significant barrier to meeting these standards, widening the competency gap between digitally literate teachers and those who are not (Putu et al., 2024). Thus, there is a clear gap between the increasing demands of digitalized early childhood education policies and the actual competencies of PAUD teachers in the field.

To address this gap, the Smart Media Program was designed as a community service–based digitalization training program that emphasizes hands-on practice, product-based learning, and continuous mentoring. Unlike conventional digital training programs that focus primarily on theoretical understanding, the Smart Media Program prioritizes direct practice in producing tangible learning media, including educational videos, simple animations, and child-friendly educational games, using free, accessible applications. The program also integrates mentoring and collaborative learning, enabling teachers to revise, implement, and reflect on the use of digital media in real classroom settings. This practice-oriented and community-based approach constitutes the novelty of the Smart Media Program compared to other digital training initiatives that lack sustained assistance and product-oriented outcomes (Hajar et al., 2025; Munawwaroh, 2021).

This article specifically reports on a community service activity, not a pure research study, conducted through the Smart Media Program involving 25 PAUD teachers from kindergarten (TK), RA, and playgroup (KB) institutions under the Harapan Umi Foundation in Kotabumi Sub-district, North Lampung Regency. The program was implemented as a strategic effort to strengthen teachers' digital literacy, professional competence, and readiness to support innovative learning in early childhood education.

Based on these considerations, the objectives of this community service activity are threefold: (1) to improve PAUD teachers' skills in developing digital learning media in the form of videos, animations, and educational games; (2) to strengthen teachers' confidence and creativity in integrating digital technology into early childhood learning; and (3) to produce ready-to-use digital learning products that directly support classroom learning and institutional quality improvement.

2. METHODS

2.1. Research Location

This community service activity was conducted at the Harapan Umi Foundation, located in Kotabumi Sub-district, North Lampung Regency, Indonesia. The foundation manages several early childhood education units, including Kindergarten (TK), Raudhatul Athfal (RA), and Playgroup (KB), and serves as one of the region's central PAUD institutions. This location was selected based on preliminary observations indicating that PAUD teachers at the foundation experienced limited digital literacy and minimal utilization of technology-based learning media in classroom instruction. In addition, institutional support and an open learning culture made the foundation an appropriate setting for implementing a structured digital learning media training program.

The method used in this activity was Participatory Action Research (PAR)-based community service, which emphasizes active participation, collaborative problem-solving, and reflective learning between the service team and participants. The PAR approach was chosen to ensure that teachers were not merely training recipients but active agents involved in identifying problems, implementing solutions, reflecting on outcomes, and improving practices in a continuous cycle. This approach aligns with the objectives of community service activities that prioritize empowerment, sustainability, and contextual relevance. The participants were 25 early childhood education (PAUD) teachers from TK, RA, and KB units at the Harapan Umi Foundation. The teachers had diverse educational backgrounds, ranging from senior high school graduates to bachelor's degree holders in Early Childhood Education and related fields. Most participants had limited prior experience in developing digital learning media, particularly in creating educational videos, simple animations, and interactive educational games. These characteristics made the participants representative of PAUD teachers in North Lampung who require systematic support to improve digital competence and professional capacity.

2.2. Activity Stages

The digitalization training activities were systematically designed to ensure gradual and measurable competency development. The stages included socialization, training, workshops, mentoring, and evaluation, implemented over six days. The socialization stage introduced the objectives, benefits, and program flow. The training stage focused on conceptual understanding of digital learning media and the introduction of simple applications. Workshops emphasized hands-on practice in producing learning media, while mentoring provided continuous guidance during product revision and classroom implementation. The evaluation stage assessed both the learning media products and improvements in teacher competency. Data collection in this community service activity employed several techniques to ensure the validity and comprehensiveness of the findings: observation during training, workshops, mentoring, and classroom implementation to document changes in teachers' digital skills, participation, and confidence. Interviews, carried out informally with selected teachers to explore their experiences, challenges, and perceptions before and after the training. Documentation, including photos, videos, attendance lists, training materials, and screenshots of digital learning media products produced by participants. Product assessment, used to evaluate the quality and usability of the educational videos, animations, and educational games created by teachers.

Table 1. Stages of Learning Media Digitalization Training Activities

No	Activity Stage	Activity Description	Execution time	Implementation Team
1	Socialization	• Dissemination of program information to foundation administrators and early childhood education teachers. • Explanation of objectives, benefits, materials, and implementation techniques.	Day 1	Chief executive, field coordinator

2	Training	• Basic introduction to digitalizing learning media. • Materials for creating educational videos, basic animations, and child-friendly educational games.	Day 2	Digital media expert instructors (2 people), chief executive
3	Workshop	• Hands-on practice in digital media creation by teachers. • Media production according to the needs of each class.	Day 3	Digital media instructor, field coordinator
4	Mentoring	• Guidance on product revision and media implementation in the classroom. • Resolving technical issues during media use.	Day 4-5	Instructor, field coordinator
5	Evaluation	• Assessing the quality of the media produced. • Analyzing the impact of training on teacher competency. • Monitoring media use in learning.	Day 6	Chief executive, documentation and administration team

Evaluation was conducted using structured instruments, including observation sheets, assessment rubrics, and checklists. The media assessment rubric covered criteria such as content relevance, clarity of visuals and audio, suitability for early childhood learners, creativity, and technical functionality. Indicators of teacher competency improvement included the ability to operate digital applications independently, produce digital learning media, integrate media into classroom instruction, and demonstrate increased creativity and confidence in using technology.

These indicators were measured before and after the activity to capture observable changes.

The data analysis employed a descriptive qualitative approach supported by reflective analysis. Observation and interview data were analyzed by identifying patterns of change in teacher behavior, skills, and attitudes toward digital media use. Product assessment results were summarized descriptively to show improvements in the quantity and quality of learning media produced. Comparative reflections between initial conditions and post-training outcomes were used to evaluate the effectiveness of the Smart Media Program in improving teachers' digital competence and learning quality. This analysis approach is consistent with the goals of PAR-based community service, which emphasizes reflection and continuous improvement.

3. FINDINGS AND DISCUSSION

3.1. Findings

The findings of the Smart Media digitalization training indicate a measurable improvement in the digital competence of early childhood education (PAUD) teachers in utilizing technology-based learning media. Data were collected through pre- and post-training observations, interviews, documentation, and product assessment rubrics, conducted during the six-day implementation period.

3.1.1. Improvement in Teachers' Digital Competence

Before the training, only 6 of 25 teachers (24%) could operate basic digital applications independently, and none had experience producing educational videos, animations, or digital games. After the training, 21 teachers (84%) demonstrated the ability to operate digital applications such as Canva, CapCut, interactive PowerPoint, and simple game-based platforms independently. In addition, 23 teachers (92%) successfully produced at least one digital learning media product, while 15 teachers (60%) produced two or more products.

This improvement is reflected in teachers' confidence and engagement during training activities. One teacher stated: "*Previously, I was afraid to use digital applications because I thought they were complicated. After practicing step by step, I realized that making learning videos is actually easy and fun." (Teacher A, interview, 2025).*

3.1.2. Production and Implementation of Digital Learning Media

As a tangible output of the program, participants produced 42 digital learning media products: 18 educational videos, 14 simple animations, and 10 interactive educational games. These products focused on early childhood learning themes, including letter and number recognition, moral values, daily routines, and simple science concepts.

Post-training observations showed that 20 teachers (80%) had implemented digital media in their classrooms within 1 week of the training. Classroom observations indicated increased student attention, participation, and enthusiasm when digital media were used. A teacher reported: *"When I used the animation about good behavior, the children were more focused and asked questions. They even asked to watch it again." (Teacher B, interview, 2025).*

3.1.3. Teacher Response, Obstacles, and Learning Impact

Teacher responses toward the program were overwhelmingly positive. Based on observation sheets and interview data, 22 teachers (88%) showed high enthusiasm, actively asked questions, and explored additional features beyond the initial instructions. Although 9 teachers (36%) experienced technical difficulties—such as audio synchronization, video merging, or file exporting—these challenges were gradually resolved through mentoring and peer collaboration.

In terms of learning impact, 85% of teachers reported that learning activities became more interactive and aligned with the visual-kinesthetic characteristics of early childhood learners. Teachers also expressed increased confidence in integrating technology into daily instruction: *"Now I feel more confident using videos and games in class. The children are happier, and I am more motivated to prepare learning media." (Teacher C, interview, 2025).*

Table 2. Summary of Training Results and Teacher Competency Improvement

No	Rated aspect	Field Results
1	Ability to Use Digital Devices and Applications	Increased from 24% (pre-training) to 84% (post-training) of teachers able to operate digital applications independently
2	Learning Media Products	92% of teachers produced at least one digital product; total output: 42 products (videos, animations, games).
3	Implementation of Digital Media in the Classroom	80% of teachers implemented digital media in classroom learning
4	Teacher Response and Enthusiasm	88% of teachers showed high engagement and initiative
5	Obstacles Faced	36% experienced technical issues, resolved through mentoring
6	Impact on Learning	Increased student focus, participation, and interactive learning reported by 85% of teachers

Data in Table 2 were obtained through structured observation sheets, interview summaries, and product assessment rubrics, collected during training sessions, mentoring activities, and post-training classroom implementation.

3.2. Discussions

3.2.1. Introduction of the Smart Media Program as an Innovation in the Digitalization of Early Childhood Education Learning

The improvement in PIAUD teachers' digital competence resulting from the Smart Media Program can be explained by its practice-oriented and participatory design. Unlike conventional digital training that emphasizes theoretical exposure, this program positioned teachers as active producers of learning media. Through hands-on activities and continuous mentoring, teachers directly engaged in creating videos, animations, and educational games, enabling meaningful learning through experience. This approach aligns with constructivist principles, which emphasize active participation as a key driver of competence development (Nurhuda et al., 2023).

The use of simple, accessible digital applications played a crucial role in reducing teachers' anxiety about technology. By introducing user-friendly tools in a step-by-step manner, the program strengthened teachers' self-efficacy and encouraged independent experimentation. This finding supports previous studies showing that digital literacy training is more effective when it prioritizes usability and immediate classroom applicability (Marliani & Isnaningrum, 2024; Ricka & MS, 2021).

The positive changes in classroom engagement can be understood in terms of the suitability of audiovisual and interactive media for early childhood learners. Digital media transformed abstract concepts into concrete, engaging learning experiences, increasing children's focus and participation. This outcome is consistent with multimedia learning theory, which emphasizes the effectiveness of combining visual and auditory elements in early learning contexts (Mayer, 2009), as well as prior research on the motivational impact of interactive media in PAUD settings (Nurhanisa et al., 2024).

Another important aspect of the program is the emergence of a collaborative learning culture among teachers. Mentoring and peer discussions enabled participants to collectively address technical challenges, preventing obstacles from limiting learning outcomes. This collaborative process reflects the core principles of Participatory Action Research (PAR), which emphasize reflection, cooperation, and continuous improvement (Giorgi, 2009). Such collaboration enhances the sustainability of innovation beyond the training period.

Overall, the Smart Media Program addresses the gap between digital learning policy demands and teachers' actual competencies by offering a community service–based, product-driven training model. Its novelty lies in integrating hands-on practice, mentoring, and direct classroom implementation, making it a viable and replicable approach for strengthening the digital literacy and professional competence of PIAUD teachers in similar contexts.

3.2.2. Implementation of the Smart Media Program in Early Childhood Education Teachers' Digitalization of Learning Media Training

The Smart Media Program at the Harapan Umi Foundation in Kotabumi, North Lampung, was implemented through systematically designed training, workshops, and mentoring to improve the digital skills of early childhood education (ECE) teachers. The program not only focused on knowledge transfer but also emphasized hands-on practice, enabling teachers to understand and apply digital learning media tailored to their classes' needs. Field conditions indicated that most teachers had no prior experience in producing digital media, making the practical training approach highly relevant and necessary. The program's implementation phase was based on adult learning theory (andragogy), which emphasizes that teachers as trainees learn more effectively through direct experience, relevant material, and real-world problem-solving (Galloway, 2021; Knowles, 1984).

The implementation began with the provision of basic theoretical material on the digitalization of learning, the concept of learning media, and Mayer's multimedia learning principles, which emphasize that information is easier for children to understand when visualized through a combination of text, sound, and animation (Mayer, 2009). At this stage, the instructor introduced a variety of simple applications that teachers can use, including Kinemaster for video editing, Canva for graphic design, PowerPoint animation, and ScratchJr for creating educational games. The theoretical explanations were delivered in easy-to-understand language and accompanied by real-life examples of digital media products appropriate to the characteristics of early childhood. The teachers appeared enthusiastic because the material presented was highly relevant to their classes' learning needs.

The next stage is a demonstration of creating educational videos, interactive animations, and educational games based on free apps. Teachers are shown step-by-step, from capturing images and recording sound to inserting animated characters and rendering. This demonstration is conducted slowly so that teachers can follow each step without difficulty. This demonstrative approach aligns with the direct instruction model, which emphasizes clear steps and concrete examples in teaching technical skills

(Anta et al., 2025; Ratnasih & Garnasih, 2020). Following the demonstration, teachers were immediately directed to participate in a hands-on workshop. At this stage, they were asked to create digital products tailored to their respective classes' needs. Group A teachers created a video introducing colors and shapes, while Group B teachers produced a simple animation about morals and good behavior. The hands-on activities were conducted in pairs to encourage collaboration, in line with Vygotsky's theory of the Zone of Proximal Development, which states that learning is more effective when participants work collaboratively to complete tasks (Firoza et al., 2025; Vygotsky, 1978). Conditions in the field show that teachers who previously lacked confidence began to dare to try when accompanied by colleagues and instructors.

The mentoring phase is a crucial part of program implementation. During this phase, teachers may revise their digital products based on instructor feedback. Many teachers encountered technical challenges such as audio synchronization, selecting appropriate music for children, or adjusting animation duration. However, through intensive mentoring, these issues were resolved. Mentoring was provided not only during face-to-face meetings but also through a WhatsApp group, allowing teachers to consult at any time. This mentoring approach draws on Bruner's scaffolding theory, which provides temporary support until participants can work independently (Bruner, 1983). After the media were produced, the teacher integrated digital media into classroom learning activities. Field observations showed that children appeared more focused, enthusiastic, and interactive when teachers used digital media such as videos and animations. This aligns with the concept of early childhood education, which emphasizes visual and concrete experience-based learning (Munawwaroh, 2021; Zhan et al., 2020). Teachers reported that using digital media helped clarify concepts, increase participation, and foster a fun learning atmosphere.

Overall, the implementation of the Smart Media Program demonstrates that the training objectives were successfully achieved. First, the objective of improving PAUD teachers' digital skills in developing learning media was fulfilled, as teachers were able to operate digital devices and applications and independently produce educational videos, animations, and educational games. Second, the objective of strengthening teachers' confidence and creativity in utilizing digital technology was also achieved, as evidenced by increased teacher initiative, experimentation with media features, and willingness to integrate digital media into classroom instruction. Third, the objective of producing tangible, ready-to-use digital learning media was achieved through the development and implementation of a range of digital products tailored to children's developmental characteristics. These outcomes confirm that the Smart Media Program

is effective as a practice-based training and continuous mentoring model for early childhood education teachers, particularly in regions with limited access to intensive digital training.

3.2.3. Implications of the Smart Media Program for Improving the Quality of Early Childhood Education Learning in North Lampung

The implementation of the Smart Media Program at the Harapan Umi Foundation in North Lampung has generated concrete and operational implications for early childhood education practice. At the teacher level, the program strengthens digital literacy as a practical teaching competence rather than merely technical knowledge. Teachers are not only able to operate digital devices and applications but also to integrate videos, animations, and educational games into daily lesson planning (RPPH). This integration enables teachers to transform abstract learning content into concrete, visual, and interactive experiences that are aligned with the cognitive characteristics of early childhood learners, thereby increasing student engagement and learning effectiveness (Anderson & Krathwohl, 2001; Mayer, 2009). Furthermore, improved confidence and creativity among teachers encourage continuous innovation in classroom instruction, supporting the objectives of the Merdeka Belajar policy, which emphasizes teacher autonomy and innovation (Mishra & Koehler, 2006).

At the institutional level, the Smart Media Program contributes to improving the quality of learning management and institutional readiness in responding to curriculum demands and accreditation standards. The availability of teacher-produced digital learning media serves as concrete evidence of innovation and technology integration in PAUD institutions. This not only supports accreditation requirements related to learning quality but also enhances the institution's learning culture by promoting collaboration among teachers in media development. Such collaborative practices facilitate knowledge sharing and reduce competency gaps among teachers, making institutional improvement more sustainable and community-based (Romdhoni & Anam, 2025; Susanto & Kiftiyah, 2025).

From a program development perspective, the Smart Media Program demonstrates a replicable training model characterized by hands-on workshops, product-based outputs, and continuous mentoring. For replication in other PAUD institutions, several key requirements should be met, including: (1) access to basic digital devices such as smartphones or laptops; (2) the use of free and user-friendly applications; (3) institutional support to allocate time for training and mentoring; and (4) facilitators with both technical and pedagogical expertise. By maintaining these core components, the Smart Media Program can be scaled and adapted to different

regional contexts without requiring high financial investment, making it suitable for widespread implementation in other PAUD settings.

Despite its positive impact, the Smart Media Program also faced several limitations. Some teachers experienced technical difficulties related to audio editing, file exporting, and device limitations, particularly those using older smartphones or laptops. In addition, variations in teachers' initial digital literacy levels affected the speed of skill acquisition, requiring more intensive mentoring for certain participants. Time constraints during classroom instruction also limited teachers' opportunities to explore advanced media features fully. These limitations highlight the need for extended mentoring periods, differentiated training strategies, and follow-up programs to ensure long-term sustainability and deeper skill mastery.

Overall, the Smart Media Program makes practical contributions to improving the quality of early childhood learning by enhancing teacher competence, strengthening institutional capacity, and offering a scalable model for digital literacy development in PAUD. With appropriate adjustments and sustained support, this program has strong potential to be expanded and institutionalized as part of continuous professional development for early childhood education teachers in various regions.

4. CONCLUSION

The Smart Media Program confirms that a practice-based and participatory training approach is effective in improving the digital competence of early childhood education (ECD) teachers. The program successfully achieved its main objectives by enhancing teachers' understanding of learning digitalization, strengthening their technical skills in producing videos, animations, and educational games, and enabling the direct application of these media in classroom learning. These outcomes demonstrate that hands-on training combined with mentoring is a relevant strategy for responding to the digital transformation of early childhood education. Beyond technical improvement, the program contributed to higher learning quality and teacher professionalism. Digital media use created more engaging, interactive, and child-centered learning environments, while teachers became more confident and creative in designing developmentally appropriate learning activities. The emergence of collaborative practices among teachers indicates that the program fostered sustainable professional learning rather than short-term skill acquisition.

Nevertheless, the program faced limitations, including differences in teachers' initial digital literacy and technical constraints related to devices and time. Therefore, future implementation should be supported by ongoing mentoring, institutional

policies that integrate digital media development into teacher professional development, and structured peer collaboration. With basic infrastructure in place and institutional commitment, the Smart Media Program is feasible to replicate in other ECD institutions. It offers both practical and academic contributions to digital literacy–based community service models in early childhood education.

REFERENCES

Anderson, L. W., & Krathwohl, D. R. (Eds.). (2001). *A Taxonomy for Learning, Teaching, and Assessing: A Revision of Bloom's Taxonomy of Educational Objectives*. Longman.

Anta, P., Sampurna, C., & Susanto, R. (2025). Implementation of STEAM in Pesantren Experimental Study Based on Local Wisdom Curriculum. *JISEI: Journal of Islamic Studies and Educational Innovation*, *01*(02), 256–272.

Ashfarina, I. N., & W, D. T. W. (2023). Implementasi Kurikulum Merdeka Belajar di Pendidikan Anak Usia Dini (PAUD). *EDUKASIA: Jurnal Pendidikan Dan Pembelajaran*, *4*, 1355–1364.

Bruner, J. (1983). *Child's Talk: Learning to Use Language*. Oxford University Press.

Budiman, T. H. W., T., F., Y., & Asmawan, A. (2025). Penguatan Pendidikan Karakter Anak di Era Digital bagi Guru PAUD / RA / TPQ di Desa Ngampungan Bareng. *Jurnal Pengabdian Masyarakat (JAPAMAS)*, 133–146.

Firoza, R. N. W., Barlinty, S. A., & Mokhamad, K. Y. (2025). The Implementation of Akhlaq-Based Curriculum in Islamic Schools. *JISEI: Journal of Islamic Studies and Educational Innovation*, *01*(01).

Galloway, S. (2021). Unseen roots and unfolding flowers? Prison learning, equality, and the education of socially excluded groups. *British Educational Research Journal*, *47*(5), 1416–1433. https://doi.org/10.1002/berj.3734

Giorgi, A. (2009). *The Descriptive Phenomenological Method in Psychology: A Modified Husserlian Approach*. PA: Duquesne University Press.

Hajar, D., Antika, W., & Setiawan, D. (2025). Pengembangan Media Pembelajaran Smart Train PAUD Berdasarkan Prinsip Reuse. *PAUDIA : Jurnal Penelitian Dalam Bidang Pendidikan Anak Usia Dini*, *14*(2), 280–295. https://doi.org/10.26877/paudia.v14i2.1490

Junaidi, S. M., & Faisal. (2023). Integration of the Independent Curriculum in Islamic Religious Education (PAI) Learning. *Indonesian Journal of Teaching and Teacher Education*, *21*(12), 40–47.

Knowles, M. (1984). *The Adult Learner*. Gulf Publishing.

Marliani, N., & Isnaningrum, I. (2024). Penerapan Teknologi Digital Pada Pendidikan

Matematika Pasca Pandemi. *PIJAR: Jurnal Pendidikan Dan Pengajaran*, *2*(April), 168–174. https://doi.org/10.58540/pijar.v2i2.555

Mayer, R. (2009). *Multimedia Learning*. Cambridge University Press.

Mishra, P., & Koehler, M. (2006). *Technological Pedagogical Content Knowledge: A Framework for Teacher Knowledge*. Teachers College Record.

Munawwaroh, E. I. (2021). Media "audio Visual" Untuk Pembelajaran Kemahiran Menulis (Imla'). *Insyirah: Jurnal Ilmu Bahasa Arab Dan Studi Islam*, *4*(1), 1–10. https://doi.org/10.26555/insyirah.v4i1.4182

Nurhanisa, N., Arafah, S. B., Pawitra, B. A., Kamila, I. R., & Fasya, M. (2024). *Identification of Challenges and Problems of Education Institutions in Providing Learning Media for Blind Children* (Issue Icollite 2023). Atlantis Press International BV. https://doi.org/10.2991/978-94-6463-376-4

Nurhuda, A., Fiqhussunnah, M., Khoiron, A., Syafi, Y., & Jaroyatun, S. (2023). Constructivism Learning Theory In Education: Characteristics, Steps, And Learning Models. *Research in Education and Rehabilitation*, *6*(2), 234–242. https://doi.org/10.51558/2744-1555.2023.6.2.234 CONSTRUCTIVISM

Pratiwi, H. (2021). The Problems Of Learning From Home For Teachers Of Early Childhood Education Institutions In Remote Areas. *Jurnal Pendidikan Dan Kebudayaan*, *6*(2), 130–144. https://doi.org/nti Pratiwi & Aghnaita, Permasalahan Belajar

Putu, N., Camarini, I., Riastini, P. N., & Suarjana, I. M. (2024). Permasalahan Penggunaan Aplikasi Digital : Studi Masalah Guru Sekolah Dasar. *Jurnal Media Dan Teknologi Pendidikan*, *4*(2), 158–165. https://doi.org/https://doi.org/10.23887/jmt.v4i2.62701 Permasalahan

Raoza, V. (2024). Implementasi Media Visual Gambar untuk Perkembangan Kognitif Anak Usia Dini di Tadikal Al Fikh Orchard Pendamar Indah 2 Selangor Malaysia. *Akademik: Jurnal Mahasiswa Humanis*, *4*(3), 1252–1266.

Ratnasih, T., & Garnasih, T. R. (2020). Conceptual Model of Early Childhood Islamic Learning in Islamic Kindergarten. *International Journal of Psychosocial Rehabilitation*, *24*(09), 1158–1167.

Ricka, T. M., & MS, Z. (2021). Realita Transformasi Digital Pendidikan di Sekolah Daras Selama Pandemi COVID-19. *Jurnal Pendidikan Dasar Nusantara*, *6*, 155–165. https://doi.org/https://doi.org/10.29407/jpdn.v6i2.15298

Romdhoni, W. Z., & Anam, C. (2025). Innovative Strategies in Improving the Quality of Learning in Digital-Based Elementary Schools. *JISEI: Journal of Islamic Studies and Educational Innovation*, *01*(01), 69–81.

Susanto, R., & Kiftiyah, M. (2025). Integration of Artificial Intelligence into the Islamic Religious Education Curriculum at Ibnurusyd Islamic College, Lampung. *JISEI: Journal of Islamic Studies and Educational Innovation*, *01*(03).

Ulina, R., & Pinem, B. (2025). Transformation in Early Childhood Education : Analysis of Teacher Acceptance and Children's Responses to Interactive Learning Media. *Edu Society: Jurnal Pendidikan, Ilmu Sosial, Dan Pengabdian Kepada Masyarakat*, *5*(1), 1004–1012.

Vygotsky, L. S. (1978). *Mind in Society*. Harvard University Press.

Zhan, T., Yin, K., Xiong, J., He, Z., & Wu, S. T. (2020). Augmented Reality and Virtual Reality Displays: Perspectives and Challenges. *IScience*, *23*(8), 101397. https://doi.org/10.1016/j.isci.2020.101397