

# IMPROVING THE QUALITY OF PAI LEARNING THROUGH DIGITAL-BASED INTERACTIVE LEARNING MEDIA AT MIS MADINATUSSALAM

Risky Ayu Permata, Erni Suyani, Siti Alawiah Biastri Pelawi,  
Annisa Khaira, Ameylia Rizkyka Pane

Universitas Dharmawangsa Medan  
Jl. KL. Yos Sudarso No.224, Glugur Kota, Sumatera Utara 20115, Indonesia  
e-mail: riskyayupermata@dharmawangsa.ac.id, ernisuyani@dharmawangsa.ac.id,  
sitalawiahbiastripelawi@dharmawangsa.ac.id, annisaulkhaira75@gmail.com,  
ameyliiaapane@gmail.com

**Abstract:** This community service program aims to enhance the quality of Islamic Religious Education (PAI) learning through the integration of digital-based interactive learning media at MIS Madinatussalam Tembung. The primary issue identified was the low level of teachers' digital competence, with 78% of the 16 teachers having no prior experience using applications such as Canva, Educaplay, Wordwall, and Quizizz. A participatory approach was employed, incorporating phased training, intensive mentoring, and digital media development over a six-month period with eight field visits. Data were collected through pre- and post-tests, observations, questionnaires, and focus group discussions, and analyzed using both quantitative and descriptive qualitative methods. The findings indicate a significant improvement in teachers' digital competencies, with all participants successfully mastering at least three digital applications. The program also produced ten interactive digital learning media and increased student engagement by 75%, as reflected in higher participation and learning enthusiasm. Additionally, an internal media team was established to ensure program sustainability. Despite challenges such as limited internet access and varying initial competencies among teachers, the program demonstrates a substantial contribution to improving the quality of PAI learning through digital technology integration at the elementary madrasah level.

**Keywords:** Digital Learning Media, Islamic Religious Education, Interactive Learning, Teacher Competence, Educational Technology

|                                                                                                    |                                |                             |                             |                             |
|----------------------------------------------------------------------------------------------------|--------------------------------|-----------------------------|-----------------------------|-----------------------------|
| Corresponding Author: Risky Ayu Permata                                                            |                                |                             |                             |                             |
| Article History                                                                                    | Submitted:<br>January 24, 2026 | Revision:<br>April 04, 2026 | Accepted:<br>April 09, 2026 | Published:<br>June 30, 2026 |
| DOI: <a href="https://doi.org/10.56832/pema.v6i1.2633">https://doi.org/10.56832/pema.v6i1.2633</a> |                                |                             |                             |                             |

## INTRODUCTION

The transformation of education in the 21st century has shifted the learning paradigm from teacher-centered learning to student-centered learning supported by digital technology. This change requires educational institutions and educators to possess adequate digital literacy competencies to create innovative, interactive, and adaptive learning that adapts to developments in information technology (Umar & Sukartono, 2025; UNESCO, 2023). Digital literacy is no longer viewed as an optional competency but has become a core competency that teachers must possess to face the challenges of the Industrial Revolution 4.0 and Society 5.0 (Wijaya et al., 2021; OECD, 2023).

In the context of Islamic Religious Education (PAI), the use of digital technology plays a strategic role in improving the quality of the learning process. PAI learning not only aims to transfer religious knowledge but also instills spiritual, moral, and character values in students. Therefore, the use of digital-based interactive learning media can be an alternative to provide a more engaging, contextual, and meaningful learning experience, thereby increasing student motivation, participation, and learning outcomes (Purnama & Asto, 2022; Azzahra & Prasetyo, 2024).

Various studies have shown that digital learning media can increase student engagement, strengthen conceptual understanding, and enhance the effectiveness of the learning process through the integration of text, images, audio, video, animation, and interactive activities (Smaldino et al., 2022; Purnama & Asto, 2022). Furthermore, hands-on training has been shown to be effective in improving teachers' digital competencies in developing creative and innovative learning media (Rusman, 2023). However, the success of implementing learning technology is greatly influenced by teacher competency readiness, the availability of supporting resources, and ongoing mentoring (OECD, 2023).

Despite this, previous studies have focused more on the effectiveness of digital media on student learning outcomes or the development of learning media products in general (Purnama & Asto, 2022; Azzahra & Prasetyo, 2024). Research and community service programs specifically integrating training on the use of various digital platforms, classroom implementation support, and the development of a sustainability system through an internal media team in Islamic Religious Education (IS) learning at the Madrasah Ibtidaiyah (Islamic Elementary School) level are still relatively limited. In other words, most studies have not examined teacher empowerment models that not only improve digital competency but also ensure the sustainability of digital media

use after the program concludes. This research gap is the crucial basis for implementing this community service program.

This situation was also found at the Madinatussalam Tembung Private Islamic Elementary School (MIS), Percut Sei Tuan District, Deli Serdang Regency, North Sumatra. Based on initial observations on October 8, 2025, the Islamic Religious Education (IS) learning process was still dominated by conventional methods. A total of 30% of teachers use lecture methods, 20% use simple PowerPoint presentations, 20% use print media, while only 10% utilize interactive digital learning media. The digital competency analysis showed that 30% of teachers had never received learning technology training, 20% only mastered basic office applications, and only 10% possessed strong digital competency. Furthermore, 78% of the 16 teachers stated they had never used applications such as Canva, Educaplay, Wordwall, or Quizizz in their learning process. This situation results in low learning variation and suboptimal student engagement.

On the other hand, MIS Madinatussalam has significant potential to develop digital-based learning. The school already has 10 laptops, one LCD projector, and a 20 Mbps internet connection. Furthermore, observations indicate that 68% of students' parents own smartphones and 45% own computers or laptops, providing a supportive environment for the sustainable implementation of digital learning. The madrasah principal also demonstrated a strong commitment to improving the quality of learning by strengthening teacher competencies and technology-based learning innovations.

Based on these conditions, this community service program offers a novel model of teacher empowerment through phased training, intensive mentoring, the development of interactive learning media based on Canva, Educaplay, Wordwall, Booklet, and Quizizz, as well as the formation of a Digital Learning Media Team as a strategy. Sustainable implementation of learning technology in madrasas. This approach is expected to not only improve teachers' digital competency but also produce innovative learning media and foster a culture of sustainable digital learning within the madrasa environment.

This program aligns with the Sustainable Development Goals (SDGs), particularly Goal 4 on Quality Education, supports the Higher Education Key Performance Indicators (KPI), particularly KPI-3 and KPI-5, and aligns with the direction of national education transformation policy through strengthening teacher competency and digitizing learning.

## METHOD

This community service program was implemented at MIS Madinatussalam Tembung, Percut Sei Tuan District, Deli Serdang Regency, North Sumatra. The program targeted 16 Islamic Religious Education (PAI) teachers teaching in grades I-VI. The implementation method used a participatory approach that actively involved teachers in every stage of the activity to ensure the transfer of digital knowledge and skills was effective and sustainable (Rusman, 2023). This method aims to comprehensively build teachers' digital competencies, create a structured digital learning ecosystem, and produce innovative and engaging PAI learning media that can significantly improve student motivation and learning outcomes (Uno, 2021).

### A. Stages of Program Implementation

The program is implemented through 5 main stages as follows:

#### **Stage 1: Socialization and Coordination (7th Month)**

Socialization activities were conducted through formal meetings with the madrasah principal, the madrasah committee, and all Islamic Religious Education (PAI) teachers to explain the program's objectives, benefits, and implementation mechanisms. The proposing team provided a comprehensive overview of the technology and innovations to be implemented, the activity schedule, and the roles and responsibilities of each party. The output of this phase was a program implementation agreement document and an identification of specific partner needs.

#### **Phase 2: Digital Media Development Training (Months 8-10)**

The training was implemented in stages using a workshop approach and hands-on practice, divided into three packages:

Package 1 (Month 8): Canva training for visual design of Islamic Religious Education learning materials, including poster, flashcard, and infographic creation.

Package 2 (Month 9): Educaplay and Wordwall training for creating interactive quizzes and educational games.

Package 3 (Month 10): Booklet and Quizizz training for creating learning e-books and digital evaluations.

Each training session uses demonstration, guided practice, and independent practice methods. Participants are given practical assignments to create learning media, which are evaluated and improved together.

### **Phase 3: Implementation of Technology and Innovation (Month 11)**

This phase includes the development and implementation of a digital Islamic Religious Education (PAI) learning media package consisting of: 5 PAI learning templates based on the independent curriculum, 5 interactive educational games, 10 PAI learning e-booklets with audio integration, and a digital question bank with 30 questions in various interactive formats..

### **Stage 4: Mentoring and Evaluation (Month 11)**

Mentoring was conducted through eight field visits, with visits occurring once per week. Activities included observing learning using digital media, coaching and mentoring to improve learning practices, and regular evaluations of the effectiveness of the developed media. The evaluations were comprehensive, encompassing the media product, the training process, and the impact of implementation.

### **Phase 5: Program Sustainability (Months 11 to 12)**

This stage focuses on the formation of an internal Digital Learning Media Team at MIS Madinatussalam, the preparation of operational guidelines for the use and development of digital media, and a seminar on disseminating program results for replication to other institutions.

## **B. Data Collection Methods**

Data was collected through various instruments, namely:

1. Pre-test and post-test of teachers' digital competency using a demonstration assessment rubric with 10 interactive digital media creation practice items.
2. Learning observations using standardized instruments to measure the implementation of digital media in the classroom.
3. Questionnaires on teacher and parent satisfaction with the training program and media implementation.
4. Assessment of students' Islamic Religious Education (PAI) understanding through learning evaluations.
5. Focus group discussions with teachers and principals to obtain qualitative input.

## **C. Data Analysis**

Quantitative data from the pre-test and post-test were analyzed using paired t-tests or the Wilcoxon Signed-Rank Test for small samples with a significance level of  $\alpha=0.05$ . Qualitative data from observations, questionnaires, and FGDs were analyzed descriptively to describe changes in teacher competency, the quality of learning media, and increased student engagement.

## RESULTS AND DISCUSSION

This community service program was implemented according to plan and resulted in significant improvements in the quality of Islamic Religious Education (PAI) learning at MIS Madinatussalam. The following are the results achieved in each aspect of the program:

### Improving Teacher Digital Competence

The training results demonstrated a significant increase in teachers' digital competency. Sixteen PAI teachers participated in a series of training sessions on the use of digital learning applications, including Canva, Educaplay, Wordwall, Booklet, and Quizizz. Pre- and post-test results indicated that 100% of teachers successfully mastered at least three digital learning applications, with an average competency score increase of 35%.

In the initial pre-test phase, most teachers demonstrated very limited ability to operate digital applications, with an average score of 2.1 on a scale of 4.0. After undergoing gradual training and intensive mentoring, the competency score increased to 3.5 on a scale of 4.0. This demonstrates that teachers are not only able to operate applications independently but are also beginning to develop creativity in designing learning media tailored to the characteristics of MI students.

This competency improvement aligns with multimedia learning theory, which states that hands-on training is more effective in building digital skills than purely theoretical training (Susilana & Riyana, 2021). This training method, which uses a learning-by-doing approach, allows teachers to directly practice creating media and receive immediate feedback from the facilitator.



Figure 1. All Training Participants

### 1. Development of Digital Learning Media

This program has successfully produced 10 interactive digital learning media ready for use in Islamic Religious Education (PAI) learning, including:

- a. 5 PAI Learning Templates: Visual templates for core PAI materials such as the Pillars of Islam, the Pillars of Faith, ablution procedures, prayer, and noble morals.
- b. 5 Interactive Educational Games: Interactive quizzes, matching games, puzzles, sorting games, and word searches, packaged in an engaging digital format.
- c. 10 Learning E-Booklets: Interactive digital books with audio integration for Quran recitations and daily prayers.
- d. 30 Digital Quiz Question Items: A bank of evaluation questions in various formats such as multiple choice, true/false, and fill-in-the-blanks.

The developed media underwent a validation process by the proposing team and classroom trials. The trial results demonstrated that this digital learning media was effective in capturing students' attention and facilitating the understanding of abstract Islamic Religious Education (PAI) concepts. The use of visualizations, animations, and interactive elements made the PAI material more concrete and easier to understand for elementary school students.



Figure 2 Teachers Trying to Use Interactive Learning Media

### 2. Increasing Student Engagement

One of the important achievements of this program is increased student engagement in Islamic Religious Education (PAI) learning. Based on learning observations and questionnaires given to teachers, there was a 75% increase in student engagement. Indicators of this improvement are:

- a. Active Participation: 80% of students were able to maintain focus for 30 minutes of learning using digital media, up from only 45% previously.

- b. **Enthusiasm for Learning:** Teachers reported greater student enthusiasm in participating in Islamic Religious Education (PAI) learning, with increased attendance and participation rates.
- c. **Positive Response:** Students responded very positively to the use of digital media, with 85% stating that learning became more enjoyable and easier to understand.

This increase in engagement aligns with the theory of student engagement through interactive media, which states that the use of digital media not only facilitates understanding of the material but also increases student involvement in the learning process (Azzahra & Prasetyo, 2024). The interactive and participatory learning format empowers students not only to passively receive information but also to actively participate in the knowledge construction process.

### 3. Establishment of a Sustainable System

To ensure the program's sustainability, an internal Digital Learning Media Team has been formed at MIS Madinatussalam, consisting of five teachers who have demonstrated strong digital competencies during training. This team is tasked with:

- a. Coordinating the development of sustainable digital learning media
- b. Providing technical support to other teachers who need assistance
- c. Managing and curating digital Islamic Education (PAI) learning content
- d. Conducting regular evaluations of the effectiveness of the learning media

In addition, a Standard Operating Procedure (SOP) for digital learning has been developed to guide teachers in integrating technology into Islamic Religious Education (PAI) instruction. This SOP covers the preparation, implementation, evaluation, and follow-up stages of learning using digital media.



Figure 3. Interactive Learning Media Activities Used by Teachers



Figure 4. Group Photo of Training Participants

### **The Effectiveness of a Participatory Approach in Training**

The success of this program is inseparable from the participatory approach used in the training. This approach allows teachers not only to passively receive knowledge but also to actively engage in the learning process through hands-on practice, discussion, and collaboration with fellow participants (Pelawi et al., 2025). The participatory approach has proven effective in building teacher competency because it provides contextual learning experiences that are relevant to their classroom needs (Sardiman et al., 2020).

The gradual training method, which begins with simple applications (Canva) and progresses to more complex applications (Educaplay, Wordwall, Quizizz), also helps teachers build confidence gradually. Each stage of the training is designed with teachers' zones of proximal development in mind, ensuring that the challenges presented are neither too easy nor too difficult to cause frustration.

### **Integrating Technology with Islamic Values**

One of the unique features of this program is its effort to integrate learning technology with Islamic values. The learning media developed is not only visually appealing and interactive, but also maintains the essence of Islamic values in all its content (Sutopo, 2021). For example, the e-booklet developed is equipped with audio recitations of the Quran by native speakers, so students not only learn Islamic Religious Education material conceptually but also practice reciting the Quran with correct tajweed.

This integration is crucial to ensure that technology serves not only as a learning tool but also as a medium to strengthen the understanding and practice of Islamic values in students' daily lives (Hamalik, 2022). This approach aligns with the philosophy of Islamic education, which emphasizes a balance between cognitive, affective, and psychomotor aspects.

## **Impact on Islamic Religious Education Learning**

The implementation of digital learning media has had a significant positive impact on the quality of Islamic Religious Education learning at MIS Madinatussalam. Learning, which previously tended to be monotonous and uninteresting for students, has now become more dynamic and interactive. The use of gamification in learning, such as digital quizzes with point systems and leaderboards, makes the evaluation process more enjoyable and less intimidating for students (Miarso, 2020).

Teachers also report that the use of digital media makes it easier for them to explain abstract concepts in Islamic Religious Education (PAI). For example, material about angels, which was previously difficult to visualize, can now be explained with the help of engaging infographics and animations. This aligns with multimedia learning theory, which states that the combination of text, images, and other multimedia elements can enhance students' understanding of complex material (Smaldino et al., 2022).

## **The Partners' Role in Program Success**

The success of this program is inseparable from the full support provided by MIS Madinatussalam, the partner. The madrasah principal demonstrated strong commitment by facilitating all training needs, including providing space, equipment, and coordinating teacher participation. The partners' active participation in every stage of the program, from outreach and training, implementation, and evaluation, was key to the program's success.

The partners have also committed to continuing the digital learning media development program after the community service program concludes. This is evident in the formation of an Internal Media Team and the allocation of a budget for digital learning media development in the madrasah's RKAS for the coming year. This commitment is crucial to ensuring the sustainability and long-term impact of the community service program (Sanjaya, 2022).

## **Obstacles and Solutions**

Although the program generally ran well, several challenges were encountered during implementation:

- a. Limited Internet Access: Limited internet access in some classrooms hindered the optimal implementation of digital-based learning. The solution was to optimize the use of computer laboratories with stable internet connections and develop learning media that could be used offline.
- b. Differences in Teacher Initial Competencies: Variations in teachers' initial digital competencies led to differences in the speed of application mastery. The solution was to implement a peer-teaching system, where teachers who mastered the program more quickly could assist other teachers who were still struggling.
- c. Limited Devices: Some devices, such as laptops and projectors, were not always available or had inadequate technical specifications. The solution was to optimize the use of teachers' and students' smartphones as alternative learning tools.

These challenges provided important lessons for the project team in designing similar community service programs in the future, particularly regarding the importance of a comprehensive needs analysis before program implementation.

## CONCLUSION

The community service program, "Improving the Quality of Islamic Religious Education (PAI) Learning through Digital-Based Interactive Learning Media at MIS Madinatussalam," has successfully achieved its stated objectives with satisfactory results. The program's implementation demonstrated a significant increase in the digital competency of Islamic Religious Education (PAI) teachers. All 16 teachers were able to master at least three digital learning applications, such as Canva, Educaplay, Wordwall, Booklet, and Quizizz, with an average increase of 35%. Furthermore, the program successfully produced 10 ready-to-use interactive digital learning media, including learning templates, educational games, e-booklets, and a digital question bank tailored to the characteristics of elementary school students.

The implementation of digital learning media has proven effective in increasing student engagement by 75%, as reflected in increased active participation, enthusiasm for learning, and positive student responses during the Islamic Religious Education (PAI) learning process. Furthermore, the program has successfully established a sustainable system through the formation of an internal Digital Learning Media Team and the development of digital learning SOPs to guide teachers in integrating technology into their learning. The participatory approach implemented has proven effective in improving teacher competency while ensuring sustainable knowledge

transfer. Overall, this program has made a significant contribution to improving the quality of digital technology-based Islamic Religious Education (PAI) learning at the elementary madrasah level and has the potential to become a model that can be replicated by other Islamic educational institutions.

## REFERENCES

- Azzahra, S., & Prasetyo, T. (2024). Penggunaan media pembelajaran digital dalam meningkatkan motivasi belajar siswa berdasarkan perspektif guru. *JIPSD: Jurnal Inovasi Pendidikan Sekolah Dasar*, 1(1), 40-55. <https://journal.innoscientia.org/index.php/jipsd/article/view/118/161>
- Daryanto. (2020). *Media pembelajaran: Peranannya sangat penting dalam mencapai tujuan pembelajaran*. Gava Media.
- Hamalik, O. (2022). *Kurikulum dan pembelajaran*. Bumi Aksara.
- Miarso, Y. (2020). *Menyemai benih teknologi pendidikan*. Kencana.
- Pelawi, S. A. B., Rosmidar, & Siregar, A. P. (2025). Pembuatan media pembelajaran *flashcard* hijaiyah dalam pemberian materi pengajaran Al-Qur'an untuk meningkatkan nilai agama dan moral anak di PAUD Al-Ghofari. *Meuseuraya: Jurnal Pengabdian Masyarakat*, 4(1), 155-165. <https://doi.org/10.47498/meuseuraya.v4i1.5597>
- Purnama, S., & Asto, I. (2022). Pengembangan *e-modul* berbasis *3D PageFlip* pada mata pelajaran Pendidikan Agama Islam. *Jurnal Pendidikan Agama Islam*, 9(1).
- Organisation for Economic Co-operation and Development. (2023). *Education at a glance 2023: OECD indicators*. OECD Publishing.
- Rusman. (2023). *Model-model pembelajaran: Mengembangkan profesionalisme guru*. Rajawali Pers.
- Sanjaya, W. (2022). *Strategi pembelajaran berorientasi standar proses pendidikan*. Kencana.
- Sardiman, A. M., Rahardjo, R., & Haryono, A. (2020). *Media pendidikan: Pengertian, pengembangan, dan pemanfaatannya*. Rajawali Pers.
- Smaldino, S. E., Lowther, D. L., & Russell, J. D. (2022). *Instructional technology and media for learning* (12th ed.). Pearson.
- Susilana, R., & Riyana, C. (2021). *Media pembelajaran: Hakikat, pengembangan, pemanfaatan, dan penilaian*. CV Wacana Prima.
- Sutopo, A. (2021). *Multimedia interaktif dengan Flash*. Graha Ilmu.
- Umar, N. F., & Sukartono. (2025). Teacher strategies in implementing interactive learning media in Indonesian language subjects for grade

IV under the Merdeka curriculum in elementary schools. *Jurnal Pendidikan*, 10(1), 45-51. <https://doi.org/10.26740/jp.v10n1.p43-51>

Uno, H. B. (2021). *Model pembelajaran: Menciptakan proses belajar mengajar yang kreatif dan efektif*. Bumi Aksara.

UNESCO. (2023). *Global education monitoring report 2023: Technology in education—A tool on whose terms?* UNESCO.

Wijaya, E., Sudjimat, D. A., & Nyoto, A. (2021). Transformasi pendidikan abad 21 sebagai tuntutan pengembangan sumber daya manusia di era global. *Jurnal Pendidikan*, 6(1), 12–23.