



INTEGRATING TECHNOLOGY IN ISLAMIC RELIGIOUS EDUCATION: BRIDGING TRADITIONAL AND DIGITAL PEDAGOGIES

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Abstract

Islamic education plays a vital role in cultivating spiritually resilient and morally grounded individuals. However, traditional delivery methods through the Takmir Program in Negeri Sembilan face significant challenges, particularly in rural areas where access to educational resources and infrastructure is limited. This study presents a collaborative initiative between Universiti Poly-Tech Malaysia (UPTM) and Jabatan Hal Ehwal Agama Islam Negeri Sembilan (JHEAINS) to develop a smart learning platform that integrates traditional Islamic pedagogy with digital technology. Using a mixed-methods approach, data were collected through questionnaires, semi-structured interviews, focus group discussions, and pre- and post-assessments involving Takmir educators, mosque officials, and learners. Quantitative data were analysed using descriptive statistics, while qualitative data were analysed through thematic analysis. Findings revealed that 85% of learners expressed satisfaction with the platform, while more than 70% completed the learning modules and obtained e-certificates. Educators also demonstrated improved digital literacy and confidence in using educational technologies following the training sessions. Despite challenges related to internet connectivity and varying levels of digital readiness, the platform significantly enhanced accessibility, learner engagement, and understanding of Islamic concepts. The study concludes that technology-integrated Islamic education offers a sustainable and scalable model for improving religious learning, particularly among underserved rural communities..

Keywords: Islamic Education, Smart Learning Platform, Digital Pedagogy, Rural Education Access, Takmir Program

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INTRODUCTION

Islamic education is fundamental in fostering a morally conscious, spiritually resilient, and ethically grounded society, especially in Muslim-majority communities. It is widely acknowledged that Islamic education provides individuals with a strong moral compass while promoting values such as empathy, discipline, and spiritual growth (Al-Attas, 1999). In the context of Negeri Sembilan, the Takmir program serves as a central initiative aimed at promoting a comprehensive understanding of Islamic teachings, focusing on spiritual development and deepening religious knowledge across various segments of the population.

However, despite the success of Takmir program, significant challenges persist in reaching underserved communities, particularly in rural areas. These challenges stem from limited access to physical infrastructure, inadequate resources for religious education, and the absence of modern technological tools to deliver teaching effectively. According to Mansor and Mahmud (2017), rural populations often face barriers to accessing quality education due to geographical isolation and limited connectivity, which further exacerbates educational disparities.

In response to these challenges, Universiti Poly-Tech Malaysia (UPTM), as a progressive higher education institution, proposes a collaborative initiative with Jabatan Hal Ehwal Agama Islam Negeri Sembilan (JHEAINS) to introduce a smart learning platform. Utilizing a match-funding grant, this project aims to integrate traditional Islamic education with contemporary technological tools to modernize the delivery of learning. As highlighted by Abdul Wahab (2020), the integration of digital platforms into religious education can significantly improve access, particularly for rural and underserved populations, by overcoming logistical barriers and offering flexible, on-demand learning opportunities.

The smart learning platform proposed by UPTM is envisioned to deliver interactive, web-based modules focused on fundamental Islamic teachings such as tasawuf, akidah, and ibadah. These modules, designed to be user-friendly and accessible across digital devices, aim to provide an inclusive educational experience. According to Salim et al. (2019), digital learning tools enhance learner engagement and retention by incorporating multimedia elements such as videos, interactive quizzes, and self-paced study materials. This approach not only makes learning more accessible but also aligns with the technological preferences of younger generations, ensuring the sustainability of Islamic education in the digital era.

The collaboration between UPTM and JHEAINS is strategic in addressing the gap between traditional education systems and modern technological advancements. Unlike previous studies that focus primarily on the use of digital tools in isolation, this study proposes an integrated model that systematically combines traditional Islamic pedagogies with smart learning technologies to enhance accessibility, engagement, and sustainability. By leveraging a smart learning platform, the initiative aims to empower rural communities and underserved populations, ensuring equitable access to Islamic knowledge. Al-Mutairi (2020) highlights that digital tool can play a transformative role in fostering educational inclusivity, particularly in communities with limited access to physical learning spaces. This project aligns with broader educational objectives by:

- I. Providing Accessible Learning: The platform enables learners to access Islamic education modules at any time and from anywhere, catering to the needs of rural populations and working individuals.
- II. Enhancing Educator Competence: Training Takmir educators and mosque officials in digital pedagogy ensures effective delivery and utilization of the smart learning platform (Zainal et al., 2021).
- III. Promoting Sustainability: The digital platform ensures the resilience and continuity of Islamic education, even in challenging circumstances such as the COVID-19 pandemic, where digital solutions have become critical to sustaining learning efforts (Hashim et al., 2020).

Through this collaboration, UPTM and JHEAINS aim to establish an integrative educational approach that merges traditional Islamic teachings with contemporary digital tools. This initiative represents a paradigm shift in Islamic education delivery, reflecting the growing need for technological integration in religious learning. By combining interactive digital modules with robust educator training, the program addresses educational gaps while enhancing the reach, quality, and effectiveness of Islamic education.

As a final point, Islamic education is critical for fostering a resilient, morally grounded, and spiritually enriched society. Through the proposed smart learning platform, UPTM and JHEAINS aspire to modernize the delivery of Islamic teachings, ensuring greater accessibility and inclusivity for all segments of society, particularly underserved and rural communities. This initiative is a significant step forward in aligning religious education with modern technological advancements, contributing to the broader goal of building a knowledgeable and spiritually conscious society in Negeri Sembilan. This study adopts a mixed-methods approach to systematically develop, implement, and evaluate a technology-integrated model for Islamic education, focusing on both pedagogical effectiveness and user experience.

PROBLEM STATEMENT

Despite significant effort to provide Islamic education in Negeri Sembilan, several challenges persist that hinder its accessibility, effectiveness, and reach.

- I. Limited Access in Rural Areas: Geographical and infrastructural constraints often prevent rural and remote communities from accessing comprehensive Islamic education resources, leaving underserved populations without adequate learning opportunities.
- II. Ineffectiveness of Traditional Teaching Methods: Conventional teaching approaches may not fully engage modern learners, particularly the younger generation, who are more receptive to digital and interactive learning methods. This disconnect reduces the effectiveness and retention of learning.
- III. Low Technological Proficiency Among Educators: The lack of digital skills among educators and Takmir officials creates barriers to the successful integration of technology into Islamic education. Without training, the adoption of smart learning solutions remains limited.

These issues underscore the urgent need for an innovative and inclusive educational model that incorporates technology to bridge the gaps in access, engagement, and quality of Islamic education. These challenges highlight the need for a structured and scalable model that integrates pedagogical, technological, and community-based elements to ensure effective and inclusive Islamic education delivery.

OBJECTIVES

The program aims to address critical challenges in the delivery of Islamic education in Negeri Sembilan by leveraging technology to ensure inclusivity, engagement, and sustainability. By creating interactive digital modules, empowering educators with modern skills, and offering accessible platforms, the initiative bridges the gap between traditional teaching methods and modern learners. This approach not only supports Takmir program mission but also provides underserved communities, particularly in rural areas, with the tools to effectively enhance their spiritual and moral development. The objectives of this research are as follows:

- I. To Enhance Access to Islamic Education: Develop a user-friendly smart learning platform with interactive digital modules on fundamental Islamic teachings (tasawuf, akidah, and ibadah) to ensure inclusive and widespread access, particularly in underserved rural areas (Rahman et al., 2021).
- II. To Empower Educators: Provide comprehensive training for Takmir educators, mosque officials, and community members to strengthen digital skills and improve the delivery of Islamic education using modern technology (Hashim & Isa, 2020).
- III. To Foster Engagement and Motivation: Encourage continuous learning by integrating interactive and gamification features as recognition upon successful completion of the learning modules (Yusof et al., 2019).

LITERATURE REVIEW

The integration of technology in education has fundamentally transformed traditional learning approaches, particularly in bridging gaps caused by geographical and infrastructural limitations. Smart learning platforms have emerged as powerful tools to enhance knowledge retention and engagement by utilizing interactive, user-friendly features. According to Salim et al. (2019), such platforms significantly enhance the learning process by providing flexible and accessible solutions, particularly in rural areas where physical access to educational institutions is limited. These technologies ensure equitable educational opportunities, reducing the disparities faced by underserved communities (Kabil, 2018).

In the context of Islamic education, the use of mobile and web-based applications has proven to be an effective means of teaching core religious concepts. Abdul Wahab (2020) highlights how these digital tools successfully blend traditional Islamic teachings with modern delivery methods, creating a more dynamic and inclusive learning environment. Learners can access content at their convenience, promoting continuous and self-paced education, which is particularly beneficial for remote communities (Al-Mutairi, 2020).

However, the successful implementation of smart learning platforms depends heavily on the readiness of educators to utilize these technologies effectively. Zainal et al. (2021) emphasize the importance of professional training programs to equip teachers with the necessary digital skills and pedagogical techniques. Educators play a critical role in ensuring that modern tools are applied to deliver meaningful and impactful learning experiences, balancing innovation with the integrity of Islamic teachings. Additionally, Mansor and Mahmud (2017) stress that digital platforms not only bridge geographical gaps but also foster an inclusive educational experience by engaging learners from diverse backgrounds.

By integrating multimedia content, interactivity, and modern pedagogical methods, smart learning platforms offer a robust solution for delivering Islamic education. This approach addresses accessibility challenges while ensuring that traditional knowledge remains relevant and adaptable to the needs of contemporary society. Despite the growing use of digital tools in Islamic education, there remains a lack of integrative models that systematically combine traditional pedagogical approaches with digital learning environments, particularly in rural and underserved contexts.

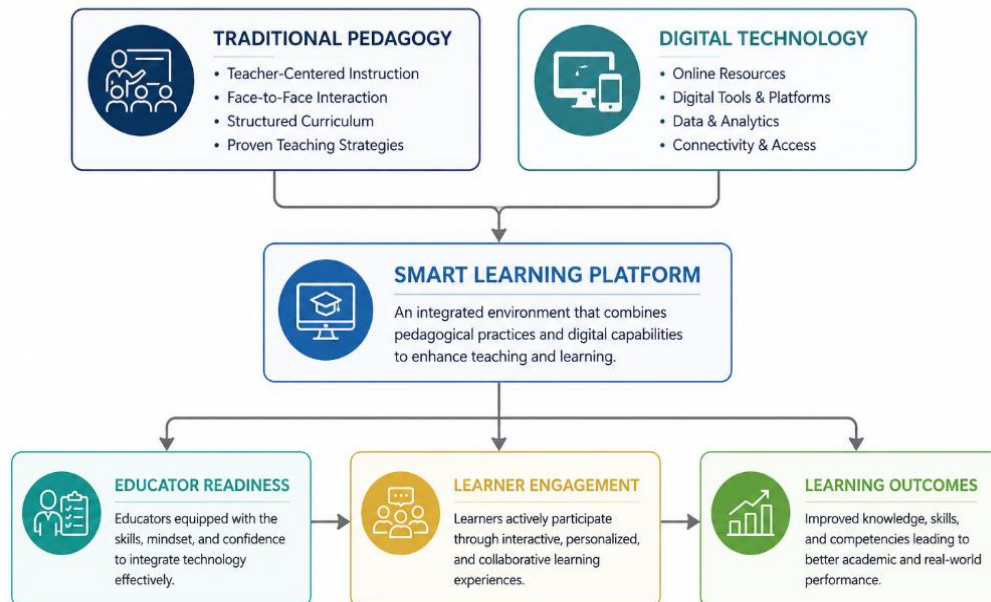


Figure 1: The Integration of Traditional Pedagogy and Digital Technology Contributes to The Development of a Smart Learning Platform

Figure 1 shows the proposed conceptual framework, which serves as the foundation for examining the relationships among the variables in this research. The platform subsequently influences educator readiness, which plays a key role in enhancing learner engagement and ultimately improving learning outcomes.

METHODOLOGY

The mixed-methods design integrates quantitative measures of learning outcomes with qualitative insights from user experiences to provide a comprehensive evaluation of the platform's effectiveness. This research adopts a mixed-methods approach to develop, implement, and evaluate the effectiveness of a smart learning platform for Islamic education in Negeri Sembilan. The methodology is structured into three distinct phases to ensure comprehensive development, training, and evaluation of the platform.

Phase 1: Development of the Smart Learning Platform

The first phase focuses on designing and developing interactive e-learning modules for core Islamic subjects, including tasawuf, akidah, and ibadah. The content will be created in collaboration with subject matter experts to ensure accuracy and alignment with Islamic principles (Abdul Wahab, 2020). These modules will be designed to be engaging and user-friendly for both web and mobile applications, addressing the diverse needs of learners, particularly in rural areas (Mansor & Mahmud, 2017). Testing will be conducted with a small focus group from the target community to assess initial usability and functionality.

Phase 2: Training and Implementation

The second phase involves capacity-building through structured training sessions for Takmir teachers, mosque officials, and volunteers. Training will focus on equipping educators with the necessary digital skills to use the platform effectively, as emphasized by Zainal et al. (2021), who highlight the importance of technological proficiency among teachers. Once training is completed, the platform will be piloted in selected locations, with particular emphasis on rural and underserved communities. This phase will assess the platform's usability, accessibility, and initial engagement among learners.

Phase 3: Evaluation and Feedback

The final phase focuses on evaluating the impact of the smart learning platform through both qualitative and quantitative methods. Surveys, semi-structured interviews, and focus group discussions will be conducted with platform users, including students, teachers, and mosque officials, to gather feedback on their experiences and the platform's effectiveness (Salim et al., 2019). Quantitative data will be collected through pre- and post-assessments to measure improvements in learners' understanding of Islamic concepts. By integrating a structured development, training, and evaluation process, this methodology ensures a robust and systematic approach to enhancing Islamic education through technology. The inclusion of both qualitative and quantitative data ensures a comprehensive understanding of the platform's effectiveness in improving access, engagement, and knowledge retention among learners. Data triangulation was applied by comparing survey results, interview responses, and assessment outcomes to enhance the validity and reliability of the findings. Quantitative data were analysed using descriptive statistics, while qualitative data were coded thematically to identify key patterns and insights.

Research Instruments

Several research instruments were employed to collect data throughout the study. A structured questionnaire was administered to learners and educators to evaluate user satisfaction, perceived usefulness, ease of use, and learning experiences. Semi-structured interviews were conducted with selected Takmir educators and mosque officials to gain deeper insights into the implementation process and challenges encountered. Focus group discussions were also carried out to obtain collective feedback regarding platform usability and content effectiveness.

To measure learning outcomes, pre- and post-assessment tests consisting of multiple-choice and short-answer questions on tasawuf, akidah, and ibadah were administered before and after module completion. In addition, system usage records such as module completion rates and participation statistics were collected from the platform analytics dashboard.

Program Aspirations and Benefits

- I. Resilient Islamic Learning: The platform will offer flexible, on-demand access to digital Islamic education modules, enabling learners to study at their own pace and convenience.
- II. Educator Skills Development: Training programs will enhance the teaching skills of Takmir educators, empowering them to integrate modern teaching methods with digital tools.
- III. Recognition and Motivation: Students who complete the learning modules will receive e-certificates, which will foster motivation and encourage continuous engagement with Islamic education.

Data Analysis

The collected quantitative data from questionnaires, pre-tests, and post-tests were analysed using descriptive statistical techniques, including frequencies, percentages, means, and standard deviations. These analyses were used to determine learners' satisfaction levels, module completion rates, and improvements in understanding Islamic concepts.

Qualitative data obtained from interviews and focus group discussions were transcribed and analysed using thematic analysis. The analysis involved coding participants' responses, categorising emerging themes, and identifying recurring patterns related to platform usability, educator readiness, learner engagement, and implementation challenges. To enhance validity and reliability, data triangulation was performed by comparing findings from questionnaires, interviews, focus group discussions, and assessment results.

RESULTS AND DISCUSSION

The findings are presented according to the three key objectives of the study: platform development, educator empowerment, and learner engagement.

Development of the Smart Learning Platform

The development phase successfully produced a fully functional smart learning platform that included interactive modules on *tasawuf*, *akidah*, and *ibadah*. The content, co-created with Islamic education experts, adhered to doctrinal correctness and was designed to be accessible via web and mobile interfaces. Multimedia features, including audio-visual lectures, self-paced quizzes, and downloadable content, were integrated to enhance learner interaction and comprehension.

AdDeen is an Islamic learning app that provides a user interface to support the learners of minority and underserved communities, as stated above. Each portion of the AdDeen app has been developed specifically based on the study's problem statement, objectives, and findings so that all portions of the learning platform work together effectively in providing solutions to the problems identified by the study.

In addition, the user interface contains a variety of Islamic learning modules that include structured learning around Islamic values and theology, as well as multimedia aspects such as interactive video lessons, interactive quizzes, and certificate options that enhance the user's engagement and learning throughout each of the different modules. The user interface also has an easy-to-use navigational dashboard with a limited number of navigation options for less digitally literate users, along with offline capabilities that support users in areas where there is minimal infrastructure or Internet access, particularly rural or remote areas.



Figure 2. AdDeen App interface

Figure 2 presents the interface of the Smart Learning Platform developed for this study. The platform provides web-based access to learning modules on Akidah, Ibadah and Tasawuf, incorporating multimedia content, interactive quizzes, and learner progress tracking features. The responsive design enables access through smartphones, tablets, and desktop devices, ensuring accessibility for users in both urban and rural settings.

Educator Capacity Building and Technological Proficiency

The training sessions for *Takmir* educators and mosque officials demonstrated marked improvements in digital literacy. Pre and post-training assessments revealed a significant increase in the participants’ confidence in using educational technologies, designing digital content, and navigating the platform. The training workshops were well-received, with participants expressing a strong willingness to integrate the platform into their daily teaching practices.

These outcomes are consistent with the findings of Zainal, Ismail, and Jamil (2021), who underscore the importance of equipping educators with digital competencies to ensure effective implementation of smart learning environments. However, challenges were also noted, particularly among older educators who required additional support due to lower levels of technological familiarity. This suggests that continuous professional development and technical assistance are necessary for long-term success.

Learner Engagement and Educational Impact

Learner feedback was overwhelmingly positive. Table 1 shows that approximately 85% of users reported satisfaction with the platform’s content and usability. Moreover, more than 70% of participants completed the modules in their entirety and received e-certificates, which served both as motivation and recognition of their achievement. A quantitative assessment of learning outcomes revealed a noticeable improvement in learners’ understanding of key Islamic concepts following module completion.

Table 1. Summary of Learner and Educator Evaluation Results

Item	Findings
Learner Satisfaction	85%
Module Completion Rate	70%
Educators Reporting Improved Digital Literacy	80%
Willingness to Continue Using Platform	88%

These results align with prior studies (Yusof, Latif, & Zulkifli, 2019; Abdul Wahab, 2020), which suggest that interactive learning tools and digital certifications enhance learner motivation and encourage sustained engagement. Flexibility in learning time and location was particularly appreciated by working adults and youth in rural settings.

Infrastructure and Implementation Challenges

Despite overall success, several implementation challenges were identified. Some learners reported unstable internet connectivity, which occasionally hindered access to the platform, particularly in remote locations. Additionally, the program's success appeared to correlate strongly with the level of involvement by mosque officials. Communities where mosque leaders actively promoted the platform showed higher participation and module completion rates.

These observations are consistent with Mansor and Mahmud (2017), who emphasize that successful educational interventions in rural settings often depend on the synergy between technological tools and local community engagement. It is evident that digital infrastructure alone is insufficient; strong leadership and local advocacy are essential to maximize educational reach and impact.

Broader Educational Implications

The pilot implementation of the smart learning platform demonstrates that digital technology can serve as a powerful enabler of inclusive Islamic education. By effectively combining traditional religious instruction with modern delivery mechanisms, the project not only improves accessibility but also ensures relevance in a rapidly evolving digital landscape.

The project's outcomes highlight its potential scalability to other regions facing similar challenges. Furthermore, it provides a replicable model for policymakers and religious institutions seeking to modernize religious education without compromising core spiritual values. As noted by Al-Mutairi (2020), the integration of digital learning tools can transform religious pedagogy into a more inclusive and sustainable system. This study contributes to the field by demonstrating how the integration of digital technology with traditional Islamic pedagogy can serve as a sustainable model for inclusive religious education.

CONCLUSIONS

This study is limited by its focus on a specific geographical context, which may affect the generalizability of the findings to other regions. The collaboration between Universiti Poly-Tech Malaysia (UPTM) and Jabatan Hal Ehwal Agama Islam Negeri Sembilan (JHEAINS) under the *Takmir* program holds significant potential to modernize and enhance Islamic education through the integration of smart learning technologies. This initiative aims to create interactive, user-friendly, and accessible digital platforms that deliver fundamental Islamic teachings, including *tasawuf*, *akidah*, and *ibadah*, to a broader audience. By leveraging modern web-based and mobile technologies, the program targets explicitly underserved communities, including those in rural and remote areas, addressing challenges related to geographical and infrastructural limitations.

A key component of the initiative is empowering educators. Through specialized training programs, *Takmir* teachers, mosque officials, and volunteers will develop essential digital skills to deliver educational content effectively using the smart learning platform. This approach not only enhances the quality of teaching but also ensures the long-term sustainability of the program by

fostering a digitally capable pool of educators. Additionally, learners are further encouraged through recognition initiatives, such as e-certificates, which serve to motivate participation and inspire continuous engagement with Islamic education.

This program represents a crucial step towards bridging the educational divide by promoting equitable access to knowledge and spiritual growth. The integration of modern learning tools ensures that Islamic education remains relevant in today's digital age while upholding its traditional values. By providing flexible, interactive, and high-quality educational resources, the program empowers individuals to deepen their understanding of Islam, fostering a more knowledgeable, resilient, and spiritually conscious society.

In the long term, this initiative lays the foundation for sustainable educational development in Negeri Sembilan. It aligns with the broader vision of advancing inclusive learning opportunities and adapting to the evolving technological landscape. With the full support of relevant stakeholders, the successful implementation of this program will not only benefit the Islamic community in Negeri Sembilan but also serve as a model for modernizing Islamic education across other regions. This collaboration embodies a harmonious blend of tradition and innovation, making a significant contribution to the development of lifelong learning pathways and the overall enrichment of Islamic education in the digital era. Overall, this study highlights that the successful integration of technology in Islamic education requires not only digital tools but also pedagogical alignment, educator readiness, and strong community support.

CONFLICT OF INTEREST

The authors declare no conflicts of interest.

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AUTHOR CONTRIBUTIONS STATEMENT

N.S.Ahmad (Methodology; Data curation; Formal analysis; Visualisation; Writing-original draft.

M.N.Azman (Methodology; Data curation; Formal analysis; Visualisation; Writing-original draft.

A.M.I Bin Mamat (Conceptualisation, Validation; Formal analysis; Writing-review & editing; Supervision).

AVAILABILITY OF DATA AND MATERIALS

The data supporting this study's findings are available on request from the corresponding author.

ETHICS STATEMENT

Not applicable.

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