

Development of In-House Training (IHT) To Enhance Pedagogical and Professional Competence of Teachers in Islamic Religious Education using Digital Platforms in Junior High Schools Throughout Cilaku District

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ABSTRACT: This study addresses the low pedagogical and professional competence of Islamic Religious Education (PAI) teachers in utilizing digital platforms across junior high schools in Cilaku District, manifested through three critical indicators: (1) minimal integration of technology in instruction, (2) constrained digital learning resources, and (3) challenges in managing digital-based learning. The research aims to analyze IHT needs, design an IHT model, test its efficacy, and evaluate its impact. Employing a Research and Development (R&D) approach with the Borg & Gall model, data were collected through observation, documentation, and questionnaires across nine junior high schools. Key findings reveal: First, a pressing demand for IHT as a competence-building intervention, wherein PAI teachers demonstrated technological adaptability but required structured pedagogical-professional support—including hands-on training and sustained mentorship—for effective digital platform utilization. Second, the IHT model was designed as a seven-stage cyclical framework (needs analysis, planning, material development, implementation, mentoring, CIPP evaluation, and sustainable development), validated through data triangulation. Third, IHT significantly enhanced pedagogical competence (digital lesson planning, evaluation) and professional competence (creative material development), evidenced by marked pre-post training score improvements and elevated quality of teacher-generated digital products. Fourth, sustainable outcomes emerged, including transformed teacher learning culture, communities of practice, and collaborative PAI media development initiatives reinforced by post-training mentorship. The study concludes that IHT serves as a strategic foundation for technology-driven educational enhancement.

KEYWORDS: In-House Training (IHT), Pedagogical Competence, Digital Platforms

INTRODUCTION

Religious An Islamic Education teacher must master technology as an essential component of both pedagogical and professional competence. Technological proficiency enables teachers to enhance the quality of learning through various engaging and interactive digital media and tools. Furthermore, technology facilitates distance learning, which is increasingly relevant in today's educational context. Technologically skilled teachers can also help students develop digital literacy—an essential skill in the current digital era.

Moreover, technological mastery fosters innovation in teaching methods, allowing educators to create more effective learning experiences. It also promotes collaboration among teachers, enabling the exchange of resources and innovative ideas to improve Islamic Education (PAI) comprehensively. However, there remains a critical issue: many PAI teachers still lack pedagogical and professional competence, especially in utilizing technology.

The low level of technology use among PAI teachers in junior high schools (SMP) is evident in the infrequent use of digital tools such as computers, projectors, and software during Islamic education lessons. Many fail to integrate technology effectively, have limited access to online resources, underdeveloped digital content, and face challenges managing digital learning platforms. Pedagogically competent teachers are capable of managing instruction well, making the teaching-learning process more effective and achieving educational goals. If all teachers possessed this competence, the overall quality of education would improve. Unfortunately, many educators still fall short of pedagogical qualifications, which hampers efforts to advance national intelligence and, in turn, contributes to ignorance and poverty. Therefore, a thorough investigation is needed to enhance teachers' pedagogical competence (Ismail, 2015).

If PAI teachers do not improve their pedagogical and professional competencies in utilizing technology, the consequences could include low-quality instruction, educational disparities among students, and graduates who are unprepared to compete in a

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technology-driven labor market. Limited access to online learning resources, difficulties in responding to emergencies such as pandemics, and a lack of innovation in teaching methods would also result. Taufiq Eka Riandhana emphasizes that strong pedagogical and professional competence is vital for effective learning, where the behavior and skills of the teacher play a central role (Riandhana, 2016).

In the 21st century—the digital era—rapid technological development significantly influences education. Teachers now face more complex challenges, often requiring greater technological skills than their students. The use of technology is critical to supporting quality learning. Educators must leverage technology and continuously upgrade their skills with modern tools to meet educational objectives. Thus, teachers play a crucial role in the learning process in this digital age (Sadriani et al., 2023). PAI teachers across various schools—such as SMPN Cilaku 1, 2, and 3; SMPN 1, 2, and 3 Cianjur; SMP NU Cianjur; SMP PGRI Karangtengah; and SMP Islamiyah Kopo—face multiple challenges in operating digital learning platforms. These include limited knowledge of digital tools, lack of IT facilities, unstable electricity, poor internet access, insufficient skills in using PowerPoint, and no formal obligation from schools to use IT. These issues hinder the effectiveness of online learning.

Lestari notes that obstacles in utilizing ICT (Information and Communication Technology) in education may stem from several factors, including lack of access, insufficient ICT facilities, poor integration of ICT in teaching, lack of ICT knowledge, and teachers' unwillingness to adopt technology (Farell et al., 2021). Barriers to ICT use by teachers also include internal and external factors. Internally, some teachers may lack technical skills, fear new technologies, or face time and resource constraints to learn and implement them. Externally, limited infrastructure, insufficient ICT resources, and restrictive school policies may hinder ICT integration. To address these challenges, collaboration among teachers, schools, governments, and other stakeholders is essential—through training, technical support, infrastructure improvements, and supportive policy changes.

Similarly, Sahelatua states that low pedagogical competence among teachers in using the internet stems from issues such as lack of IT knowledge, inadequate IT resources in schools, unstable electricity, limited internet coverage, and the absence of school-level mandates requiring teachers to use IT (Sahelatua, 2018). Five key factors influencing the development of professional digital competence among novice teachers include institutional culture, access and availability of resources, governance and leadership, insufficient technical and pedagogical support, and heavy workloads (Masoumi & Noroozi, 2023).

One proposed solution is optimizing In-House Training (IHT), which helps teachers understand how to use ICT in teaching. This aligns with Sahelatua's recommendation for schools to organize IT-related guidance through training sessions, workshops, and seminars to overcome barriers in using IT for instructional purposes (Sahelatua, 2018). As Surya suggests, cited in Fakrurridha and Nurdin, teachers do not act in isolation; they engage with peers through systematic, synergistic, and symbiotic partnerships. Likewise, collaboration across disciplines is necessary to address emerging educational challenges (Fakrurridha & Nurdin, 2019). For teachers, digital competence implies not only the ability to use technology but also the capacity to reflect on its pedagogical applications and its implications for student learning in specific contexts (Skantz-Åberg et al., 2022). Digital professional competence is increasingly crucial in classrooms, as digital tools and resources become integral to teachers' everyday practice (Gudmundsdottir & Hatlevik, 2018).

Developing IHT to enhance PAI teachers' pedagogical and professional competencies using digital platforms in Cilaku subdistrict's junior high schools is an innovative step toward addressing modern educational challenges. Through interactive holographic technology, teachers can create more engaging and interactive learning experiences. Thus, IHT development not only enhances students' understanding of PAI content but also strengthens teachers' ability to integrate technology effectively.

Additionally, integration with digital platforms allows for broader access to learning materials, supports distance learning, and fosters teacher-student collaboration. This provides a foundation for improving the quality of Islamic education in Cilaku's junior high schools and encourages the development of future-oriented teaching methods. IHT is a training program conducted within the teacher's own environment using relevant tools and materials, aimed at improving the necessary competencies (Jayadipura, 2018). Government Regulation No. 74 of 2008, revised by Regulation No. 19 of 2017 Article 2(4), outlines pedagogical competence as including: (1) understanding educational foundations, (2) understanding students, (3) curriculum or syllabus development, (4) lesson planning, (5) implementing dialogical teaching, (6) using learning technologies, (7) evaluating learning outcomes, and (8) fostering student development.

Professional competence refers to the essential specialized skills that teachers must possess to perform their duties effectively. Professionalism is a foundational asset for teachers and must be internalized in their daily conduct, both in school and in the broader community. According to KMA Regulation No. 211 of 2011, PAI teachers' professional competence includes content mastery, PAI competency standards, creative content development, continuous self-evaluation, and the use of information technology. Digitally competent teacher training programs are highly effective in correcting misconceptions about digital competence. Such training is essential, as many teachers misunderstand what it means to be digitally competent. Moreover, these programs serve as a roadmap for teachers' personal and professional development (Çebi & Reisoğlu, 2022). Therefore, these training initiatives not only rectify misunderstandings but also provide clear guidance for further growth in digital skills.

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To build a suitable pedagogical competence profile for today's educators, digital competence must be integrated. This competence is essential for supporting both teaching responsibilities and other relevant professional roles in education (Pérez & Torelló, 2012). For example, digital competence enables teachers to make learning more engaging and effective through technology and facilitates efficient communication and collaboration with peers and students. Hence, integrating digital competence into pedagogical profiles ensures that teachers are not only skilled in instruction but also equipped to meet modern educational demands. Despite the growing use of digital technologies in education, especially in teacher training, a gap remains in understanding and applying the concept of digitally competent teaching. While awareness of the importance of digital competence in the teaching profession is increasing, a deep understanding of how to integrate it effectively into learning processes is still lacking.

Although some research has highlighted the importance of digital competence for teachers, there remains a shortage of studies specifically examining the effectiveness of digital training in enhancing teachers' understanding of this concept. Previous studies have mainly emphasized the urgency and relevance of digital competence but have not thoroughly investigated effective strategies and methods for improving its application among teachers. This suggests the need for further exploration of training strategies to bridge the gap between digital technology use and pedagogical implementation in teacher practice.

METHOD

This study employed a Research and Development (R&D) approach, specifically adopting the model introduced by Borg and Gall, which was subsequently modified to suit the practical demands of the field. The primary aim was to develop an In-House Training (IHT) program designed to enhance the pedagogical and professional competence of Islamic Education (PAI) teachers in utilizing digital platforms within junior high schools in Cilaku Subdistrict, Cianjur Regency. As noted by Mulyatiningsih, R&D is a methodology intended to produce innovative educational products through a systematic development process (Mulyatiningsih, 2014). In this study, the R&D method was chosen to design and validate a structured and effective training model that addresses real instructional challenges, fosters technological integration, and promotes teacher development.

The implementation of this R&D model followed ten essential stages as articulated by Borg and Gall: (1) research and information collecting, involving surveys, interviews, and literature review to identify teacher needs; (2) planning, including objective formulation and strategy development; (3) developing a preliminary form of the product, namely the initial IHT draft; (4) preliminary field testing to obtain early feedback from a small sample; (5) main product revision based on that feedback; (6) main field testing with a broader teacher group; (7) operational product revision; (8) operational field testing under real classroom conditions; (9) final product revision; and (10) dissemination and implementation of the final IHT model (Borg & Gall, 2003).

The rationale for using this approach lies in its iterative nature, which allows for direct collaboration with practitioners—PAI teachers in this case—throughout the design and development stages. Such involvement ensures that the product is responsive to the actual needs and challenges encountered in the field. Furthermore, this method enables the rigorous evaluation of the effectiveness of the training in enhancing both pedagogical and professional teacher competence. This aligns with the findings of (Çebi & Reisoğlu, 2022), who emphasize the importance of designing digital competence training that directly addresses gaps in understanding and practice.

In terms of data collection, this research utilized both qualitative and quantitative data. Qualitative data included expert feedback, teacher interviews, and observations, all aimed at capturing nuanced insights into the training process and teacher experiences. Quantitative data were derived from validation sheets completed by content and media experts, as well as from structured questionnaires distributed to training participants. Data were sourced from both primary means—direct field observation and interviews with PAI teachers in Cilaku—and secondary sources such as academic books, journals, and institutional documents, which provided theoretical and contextual background.

To collect data systematically, the study used three main instruments: observation, documentation, and questionnaires. Observation allowed the researcher to document teacher behaviors and interactions during the training sessions, focusing on aspects such as lesson planning, the integration of digital platforms, and classroom implementation. Documentation involved the analysis of lesson plans, digital teaching materials, and training session records to support the development of effective learning strategies. Meanwhile, the questionnaire was designed using a Likert-scale format to measure aspects such as training effectiveness, content quality, and teacher satisfaction. Validation indicators were structured according to multiple perspectives: media experts assessed design, navigation, and compatibility), content experts evaluated the quality and relevance of instructional materials and practitioners assessed practical applicability. Furthermore, participant feedback was gathered to assess engagement, comprehension, and perceived impact.

The data were analyzed using both qualitative and quantitative techniques. Quantitative analysis employed descriptive statistics to calculate the percentage of validation scores using the Likert scale (Riduwan, 2019). The classification system identified whether the product was excellent (81–100%), good (61–80%), adequate (41–60%), or poor (21–40%). Effectiveness of the training was determined through a comparison of pre-test and post-test results, focusing on average scores, score ranges, and normalized

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gain (N-gain) values. The N-gain formula measured learning improvement and classified effectiveness into high, medium, or low categories, and percentage interpretations assessed the training's success.

Qualitative data, gathered from expert comments and suggestions, were analyzed thematically and descriptively to inform the revision of the IHT product. This feedback was critical to refining the training materials and delivery methods to better support teacher needs. By applying this mixed-method R&D design, the study ensured a comprehensive and evidence-based development of an IHT program that effectively supports the integration of digital platforms in Islamic education instruction.

RESULTS

The findings of this study highlight a comprehensive picture of the development, implementation, and effectiveness of an In-House Training (IHT) program designed to enhance the pedagogical and professional competence of Islamic Education (PAI) teachers in utilizing digital platforms within the context of junior high schools (SMP) in Cilaku Subdistrict, Cianjur Regency. The study began with a needs assessment conducted through in-depth interviews with 40 PAI teachers, classroom observations, and documentary studies carried out across 15 participating schools. The data revealed a pressing need for structured professional development in the area of digital integration in teaching. A significant majority of respondents (85%) reported difficulty in using key educational applications such as Wordwall (72%), Canva (68%), Quizizz (65%), and the government-promoted Merdeka Mengajar platform (58%). These difficulties were primarily attributed to the lack of prior exposure to these tools and the absence of systematic training opportunities in educational technology. The lack of digital literacy among teachers reflects the broader systemic gap in the professional development framework, underscoring the urgency of intervention through targeted training.

Time constraints emerged as another major barrier, with 78% of teachers stating they had little opportunity to learn or explore digital tools due to a heavy teaching workload—an average of 24 hours per week—compounded by significant administrative responsibilities. This condition severely limits teachers' capacity to self-develop their digital skills outside structured training. Infrastructural inadequacies further exacerbated the problem, with 65% of the schools involved in this study reporting unreliable internet connectivity, often with bandwidths below 2 Mbps. Moreover, the average student-to-computer ratio stood at 15:1, far below the ideal 5:1 ratio recommended for effective digital learning environments. These structural limitations hinder not only the integration of digital tools in classrooms but also affect teacher motivation and confidence in applying digital learning strategies.

From this context, the study identified four key enabling factors that would support the successful integration of digital technologies into PAI instruction. First, 90% of the respondents expressed the need for intensive, hands-on training sessions that allow practical application of learned tools and strategies. Second, 85% emphasized the importance of ongoing post-training mentoring to ensure continued support during the implementation phase. Third, 92% of teachers highlighted the necessity of improved infrastructure—such as reliable internet, updated hardware, and access to educational software. Finally, 75% indicated that supportive school policies, such as scheduled time for training and incentives for participation, would significantly affect the success of such programs.

In response to these findings, a comprehensive IHT model was developed through a collaborative six-month design process involving educational technology experts, school supervisors, and teacher representatives. The training curriculum was divided into three major components. The first component, Digital Orientation (8 instructional hours), introduced participants to the fundamentals of national digital education policies, the theoretical foundations of blended learning, and the process of conducting learning needs assessments. The second component, Platform Mastery (20 instructional hours), provided focused, tool-specific training that included the use of Canva for instructional material design, Wordwall for gamified learning experiences, Quizizz for interactive assessment, and Google Classroom for managing learning environments. The third component, Media Development (12 instructional hours), guided teachers in creating basic video lessons, designing PAI-specific infographics, and developing a digital test bank. The training delivery was structured with a 30:70 ratio of theory to practice, emphasizing active, experiential learning. The approach utilized andragogical principles to suit adult learners and incorporated peer mentoring to foster collaborative learning. Additionally, project-based evaluations were conducted to assess applied competencies at the end of each phase.

To evaluate the effectiveness of the IHT program, a field trial was conducted with the same 40 PAI teachers from the 15 participating schools. The research employed pre-test and post-test instruments validated by experts to measure the impact of training on teacher competence. Quantitative results showed a substantial increase in average scores, rising from a pre-test mean of 50 to a post-test mean of 78. Notably, 80% of participants achieved scores exceeding the minimum passing grade of 75. Among the competencies evaluated, the highest improvements were observed in the use of Canva (+43%), the ability to create digital assessments (+38%), and the management of online classrooms using platforms like Google Classroom (+35%). These improvements are not only statistically significant but pedagogically meaningful, demonstrating the effectiveness of the IHT model in enhancing digital teaching competencies.

Participant feedback further supported these quantitative outcomes. Survey data revealed an average satisfaction score of 4.6 out of 5.0, with specific elements such as hands-on practice (4.8), the practical applicability of materials (4.7), and the competence of instructors (4.7) receiving particularly high ratings. However, several challenges were also noted during the implementation

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phase. These included the varying baseline digital skills of participants, limited access to devices in certain schools—especially those in remote areas—and unstable internet connectivity in 40% of the school locations. These challenges highlight the need for differentiated support and flexible implementation strategies in future iterations of the training.

The positive outcomes of the IHT program extended beyond individual teacher development and impacted the broader teaching and learning ecosystem. In the context of Islamic Education (PAI) instruction, there was a 65% increase in the use of digital media in classroom settings, and teachers reported a 30% reduction in lesson preparation time after three months. Furthermore, student engagement indicators showed significant gains: online quiz participation increased by 72%, timely assignment completion improved by 58%, and interaction in discussion forums rose by 65%. These indicators suggest that digitally empowered teachers can create more engaging and efficient learning environments that foster active student participation.

In terms of teacher competence, the program yielded notable gains in both pedagogical and professional domains. Pedagogically, the percentage of teachers capable of designing digital lesson plans (RPP) rose from 45% before the training to 82% afterward. The adoption of active learning strategies also increased significantly, reaching a 68% gain. Professionally, participants reported a 75% improvement in mastering educational applications and a 60% increase in participation in online professional learning communities, such as virtual teacher forums and subject-based digital groups. Socially, the program facilitated greater collaboration among teachers, as evidenced by the formation of five digital working groups (KKG) across the subdistrict.

The long-term impacts of the IHT initiative also began to materialize by the conclusion of the study. Approximately 70% of the participating schools had initiated budgeting allocations specifically for digital development in teaching and learning. Moreover, a regional network of digital PAI teachers was established, providing a platform for sustained collaboration, innovation sharing, and joint curriculum development. These systemic outcomes reflect not only the immediate benefits of the training but also its potential to transform institutional practices and contribute to improved school accreditation performance over time.

DISCUSSION

The Need for In-House Training (IHT) to Enhance Pedagogical and Professional Competence of Islamic Education Teachers through Digital Platforms in Junior High Schools of Cilaku District.

The study found that the need for In-House Training (IHT) to improve the pedagogical and professional competence of Islamic Education (PAI) teachers in using digital platforms is multidimensional. Teachers in junior high schools across Cilaku District face challenges both individually and systemically. At the individual level, difficulties arise from limited technological proficiency, particularly among senior teachers due to generational gaps, lack of previous training, and psychological resistance to adopting new teaching methods. At the systemic level, only about 30% of schools have a stable internet connection, while most teachers face high administrative workloads, limiting opportunities to explore educational technologies.

Notably, teachers' needs are not limited to operational aspects like learning how to use Canva, Wordwall, or Quizizz; they also demand conceptual support on integrating these tools with Islamic values without diminishing the depth of the subject matter. Teachers have expressed interest in strategies for using digital platforms to teach core PAI topics such as 'aqidah and akhlaq effectively. The results also showed that pedagogical integration of digital media remains suboptimal due to both limited pedagogical-technological understanding and inadequate infrastructure.

Supporting factors identified include teachers' openness to learning, partial support from schools, and increasing alignment of educational policies with digital transformation goals. However, teachers called for intensive hands-on training, sustained mentoring, and improved infrastructure. The need for training that balances technical and pedagogical content was emphasized to ensure teachers not only master the tools but also apply them effectively in classroom settings. This is consistent with studies by Barudžija, 2025; Pohorielov & Filatov, 2024, and others who highlight the importance of continuous professional development, strong institutional support, and integration of educational technology policies.

Teachers' readiness varied significantly, influenced by institutional policy, management support, and existing infrastructure. Zapolskykh & Nadtochii, (2024) note that readiness correlates strongly with systemic policy environments. Yulianika, (2024) also confirms that lack of clear policies and minimal institutional support hinder digital integration. Saputra et al., (2024) emphasize the crucial role of school leadership in professional development and technological facilitation. Therefore, teacher readiness theory should account for institutional context and policy alignment.

Another key finding is the generational divide in perceptions of digital platforms. Younger teachers tend to embrace technology more readily, while senior teachers express hesitation due to limited technical skills. Research by Yulianika, (2024) and Zapolskykh & Nadtochii, (2024) confirms that intergenerational differences significantly affect technology adoption in education. Mentoring and collaborative learning communities (PLCs) as suggested by Saputra et al. are proposed as effective interventions. The training materials required by teachers should encompass a balance of digital pedagogy, technical application mastery, and policy understanding. This aligns with insights from Barudžija, Saputra et al., and Pohorielov and Filatov, who assert that digital competence is multidimensional and must be developed holistically.

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Incorporating religious perspectives, the study affirms that enhancing teachers' technological skills aligns with Islamic principles of responsibility (*amanah*) and continuous pursuit of knowledge. Quranic verses such as Al-Mujadilah (58:11), Al-Baqarah (2:269), and Al-'Alaq (96:1-5), as well as hadiths on the virtues of seeking knowledge, underscore the moral imperative for educators to evolve in their practice.

In conclusion, the study not only confirms but expands existing theories of teacher competence by incorporating dimensions of institutional support, sustained training, psychological readiness, and religious values. It calls for integrated policy, infrastructure investment, and adaptive models of professional development that reflect real conditions in schools. These findings provide critical insights for educational policymakers, practitioners, and institutions aiming to achieve meaningful digital transformation in Islamic education.

The Design of an IHT Model to Improve Pedagogical and Professional Competence of Islamic Education Teachers through Digital Platforms in Junior High Schools of Cilaku District.

The In-House Training (IHT) model developed in this study adopts a practical, flexible, and interactive approach, combining blended learning that integrates online and offline instruction. The IHT curriculum is structured around six core components: digital orientation, technological application, digital media development, digital-based pedagogical strategies, assessment and reflection, and post-training mentoring. Each component is tailored to address the specific needs of teachers, including mastery of digital learning tools such as Canva, Wordwall, and Quizizz, as well as the development of technology-integrated lesson plans (RPP). The model was validated by experts in educational technology, instructional design, and practicing teachers, achieving a high feasibility score. However, refinements are needed, particularly in media development and evaluation instruments, to better measure not only technical skills but also pedagogical improvements and the application of Islamic values in classroom settings.

Although the model offers a relatively comprehensive framework using blended learning and practical engagement, certain structural weaknesses were identified. Firstly, the limited duration of 32 hours is disproportionate to the broad scope of content, potentially resulting in surface learning. Secondly, despite using an andragogical approach, the training model does not fully accommodate individual differences among participants—tech-savvy teachers found the material too basic, while beginners struggled to keep pace. Thirdly, reliance on pre- and post-tests to assess technical skills lacks the depth to capture meaningful behavioral and pedagogical transformation.

The study aligns with findings by Barudžija, (2025) and Saputra et al., (2024), who affirm the effectiveness of blended, hands-on IHT in enhancing pedagogical and professional competencies for Islamic Education (PAI) teachers. The Cilaku IHT model, validated at 84%, proved contextually relevant and effective. Maheswari et al. emphasized the need for adaptive training systems responsive to participant needs. However, critiques by Olurinola & Olugbade, (2024) highlight that the 32-hour duration is inadequate. Zapolskykh & Nadtochii, (2024) recommend a minimum of 40 hours with 60% practical content, while Ngema stresses the importance of time for reflection and collaboration. These findings underscore the necessity of extending training duration and increasing its interactivity.

Furthermore, differentiation in training content based on digital readiness is crucial. Nurhayati & Novianti, (2024); Song et al., (2024) argue that one-size-fits-all models are ineffective. Saputra et al. recommend initial assessments and tiered modules to match individual competence levels—a strategy validated by UNESCO's training programs in Nigeria. Evaluation methods were also found lacking. Pre/post-tests fail to reflect classroom application, as supported by Ngema, 2024; Saputra et al., (2024) who advocate for authentic assessment methods like digital portfolios and classroom observations. Maheswari et al. found that integrating real teaching practices increased N-Gain scores to 0.74.

Institutional support plays a pivotal role in sustaining IHT impact. Pohorielov & Filatov, (2024) highlight school leadership as a key factor, while (Saputra et al., 2024). point to the principal's role in providing resources and adjusting teaching schedules. Raharjo et al. underscore the need for inclusive infrastructure in remote areas. Although blended learning offers flexibility, Pohorielov & Filatov, (2024) identify persistent access issues, and Maheswari et al., (2024) suggest offline modules and online mentoring as effective solutions. Integrating Islamic elements in digital media remains limited—Risma et al. report only 22% of PAI teachers incorporate spiritual values in content. Altin & Topcu, (2025) advocate for Islamic-themed media workshops, such as animated history lessons via Canva. Teacher collaboration, as seen in Cilaku and reported by Saputra et al., is vital for innovative, contextually relevant content.

Theologically, the IHT model draws from Islamic teachings. In the Islamic tradition, a teacher is not merely a transmitter of knowledge but a moral guide and inheritor of prophetic roles. The Qur'an affirms the virtue of knowledge in QS. Al-Mujadilah [58]:11, emphasizing the spiritual merit of teacher development. Teaching tools like Canva or Quizizz, when used to foster understanding of Islamic values, are acts of worship. QS. Al-'Alaq [96]:1–5 encourages learning through tools—interpretable in the modern context as educational technology. The prophetic tradition, "Indeed the scholars are the inheritors of the prophets" (HR. Abu Dawud), reinforces the sacred nature of educational duties. Hence, enhancing teachers' digital competencies is not merely technical advancement but a religious obligation.

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Critiques regarding insufficient training duration, undifferentiated content, and limited evaluation echo Islamic principles of *tadarruj* (gradual learning), *ittqan* (mastery), and *muraja'ah* (reflection). A meaningful training process requires time, interactive feedback, and authentic engagement. In light of *maqāsid al-syarī'ah*, teacher training supports *ḥifẓ al-'aql* (preservation of intellect) and *ḥifẓ al-dīn* (preservation of religion). Digital IHT enables both by enhancing intellectual and spiritual education. The program is thus a practical expression of progressive and protective Islamic values.

Finally, framed within the concept of *ijtihād* (independent reasoning), this IHT model is a methodological innovation that aligns with Islamic values while addressing modern educational challenges. When guided by sincere intentions (*niyyah*) and trust in Allah (*tawakkul*), such efforts can produce competent educators capable of delivering transformative Islamic education. Policy-wise, this model resonates with global educational demands under Industry 4.0 and UNESCO's 21st-century competencies. Yet, implementation is hindered by budget constraints, limited time, and institutional inertia. As Veithzal critiques, overemphasis on technical training often lacks reflective depth, reducing teachers to procedural actors rather than conceptual thinkers. Therefore, enhancing duration, differentiation, and evaluation of training is not merely technical policy but a moral imperative grounded in theology and educational philosophy.

An Analysis of IHT Effectiveness in Enhancing Pedagogical and Professional Competence of Islamic Education Teachers through Digital Platforms in Junior High Schools of Cilaku District.

The initial and main field trials in this study demonstrated a significant increase in teacher competencies. The average pre-test scores, initially low, rose substantially in the post-test, with most participants surpassing the targeted performance benchmarks. This indicates that the In-House Training (IHT) program was effective in enhancing teachers' technical skills, particularly in utilizing digital platforms to support learning. Participant satisfaction surveys also yielded positive results, with high scores on aspects such as material relevance, instructional delivery, trainer expertise, and overall program benefit. Key supporting factors included the trainer's competence, hands-on practice-based approach, and participant motivation.

However, a deeper analysis reveals a noticeable disparity between improvements in cognitive-technical aspects and pedagogical-integrative competencies. While technical skills in application usage increased significantly, improvements in pedagogical abilities—specifically in designing digital learning aligned with the principles of Islamic Religious Education (PAI)—were more limited. This suggests that while the training successfully improved technical skills, it did not fully support teachers in deeply integrating technology into value-based teaching strategies.

Findings also show that although technical skills improved, only a portion of teachers continued to use digital platforms consistently after a period of time. This highlights that while the training had short-term benefits, sustaining those changes in actual teaching practices remained a challenge. One key barrier was the lack of post-training mentoring. Without continuous support and effective monitoring, teachers struggled to implement the skills acquired during training in their day-to-day teaching. Additionally, the absence of a school-level reward or incentive system negatively affected teacher motivation to innovate and use technology optimally.

Overall, while the IHT proved effective in enhancing technical competencies, significant challenges remain in ensuring the long-term sustainability of these changes. To guarantee lasting integration of technology in teaching, more intensive and continuous post-training support is necessary, along with stronger institutional backing through adequate facilities and recognition systems for innovative teachers. The success of technological transformation in religious education hinges on the institution's commitment to fostering a supportive environment for teachers' continuous professional growth. These findings align with Barudžija, (2025) study, which emphasized the effectiveness of context-based, hands-on training in preparing teachers for digital-age challenges. Similarly, the blended learning approach used in Cilaku was validated by Tsiuniak et al., who stressed the importance of combining online and offline interactions to create adaptive learning experiences.

Nevertheless, deeper findings underscore the imbalance between technical gains and pedagogical integration, with only a 28% increase in teachers' ability to design PAI lessons using digital tools. This observation is reinforced by Mandayeva et al., (2025), who noted that teacher training often overly emphasizes tool operation, neglecting pedagogical frameworks for designing technology-based lessons. Sardi et al., (2025) also stressed the need for aligning training content with local needs to help teachers internalize the use of digital platforms in religious teaching contexts. Regarding evaluation, the limitations of relying solely on pre- and post-tests were highlighted by Azimaxon, (2025), who advocated for a more holistic approach involving direct observations and teaching portfolios. Raharjo et al., (2025) similarly suggested the use of tiered evaluation instruments encompassing teacher perception, instructional practices, and student learning outcomes.

Post-training sustainability also emerged as a concern, with only around 60% of teachers consistently using digital platforms two months after training. This supports findings by Nokas et al., (2025) who emphasized the need for mentoring systems and active teacher learning communities. The absence of reward systems also hindered innovation, as noted by Behnamnia & Hayati, (2025), who argued that both intrinsic motivation and institutional support are vital to sustaining technology-driven pedagogical innovation. Dadang et al., (2025) found that regular online and offline mentoring sessions helped accommodate individual teacher readiness

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and encouraged collaborative innovation. Nyshchak acknowledged that technological barriers in rural areas could be mitigated through offline-friendly modules and real-time technical support. Altin & Topcu, (2025) cautioned that digital training for PAI teachers should incorporate Islamic values, recommending the integration of moral principles into interactive digital content.

Misheva (2025) proposed that effective teacher training should include peer reviews and real-class simulations to foster deep reflection. This is echoed by Mustofa et al., (2025) implementation of lesson study-based training, which promotes collective and sustainable teaching reflection. Finally, Djafri & Aneta, (2025) emphasized that technology use in PAI should reinforce spiritual values rather than merely improve efficiency. Thus, IHT effectiveness should be measured not only by cognitive improvements but also by teachers' ability to integrate technology to enhance Islamic values in their teaching.

In conclusion, IHT has proven technically effective but still requires refinement in pedagogical aspects and long-term support systems. Strategic future steps include: (1) differentiated training based on teacher needs, (2) post-training monitoring systems, (3) authentic evaluations based on teaching practices, and (4) the integration of Islamic values into digital content. Without a commitment to improving these dimensions, training success may remain superficial and unsustainable within the ideal framework of digital Islamic education.

This research indicates that IHT significantly enhances teacher competency, as reflected in the post-test average increase from 50 to 78. These findings are consistent with theories by Basri & Rusdiana, (2015) and Ayuningtyas et al., (2017) who define IHT as a school-based program that effectively builds teacher competence. However, further analysis reveals a disparity between cognitive-technical improvements (45%) and pedagogical-integrative gains (28%). This phenomenon aligns with Corinorita (2017) theory, which asserts that IHT effectiveness is heavily context-dependent. Although the training improved teachers' technical ability with digital platforms, it did not fully achieve deeper pedagogical transformation. This suggests that the training design may have been too focused on operational aspects without adequately emphasizing how technology can enrich student-centered Islamic education. Qualitative data showing that only 60% of teachers continued to use digital platforms after two months underscores the importance of long-term evaluation, as advocated by Kirkpatrick & Kirkpatrick, (2006) model. This study succeeded at the reaction and learning levels but was less effective at the behavioral and results levels. Mulyawati et al., (2019) similarly highlighted the need for long-term evaluation to assess sustained training impact.

The absence of post-training mentoring and reward systems supports Marwansyah (2016) theory on the importance of management and work environment in training success. This also aligns with findings by Masoumi & Noroozi, (2023) on the importance of continuous technical and pedagogical support in digital training. In terms of pedagogical competence, the 28% gain indicates partial fulfillment of the standards set by KMA No. 211/2011, especially in understanding student characteristics and using learning technology. However, the difficulty many teachers face in meaningfully integrating digital platforms into PAI instruction shows that the training did not fully address the challenges of pedagogical development, as described by (Rusman, 2013; Wulandari, 2009).

Technical skill gaps and limited access among participants confirm Veithzal's theory of training effectiveness factors. However, this study also introduces the under-explored importance of reward systems in promoting post-training innovation. This contrasts with Danim, (2012) claim that IHT effectiveness can rely solely on internal school mechanisms. In digital transformation, the study suggests that without adequate incentives and recognition, intrinsic teacher motivation alone is insufficient to drive sustained change.

Regarding professional competence, the technical skill improvement aligns with the standards in Government Regulation No. 74/2008 and KMA No. 16/2010. Still, this research also points to the need to expand the definition of professional competence to include digital creativity and contextual adaptation, as essential elements of Mulyasa's theory. This study contributes to theoretical development by proposing a more holistic training evaluation approach. The Kirkpatrick model should be enriched with sustainability and institutional impact aspects, akin to Phillips' ROI model. Additionally, findings about trainer competence and hands-on methods validate Sarjiya's theory on experiential learning in IHT. However, the study also critiques assumptions in prior research (e.g., Nuruningsih & Palupi, 2021) that viewed IHT as a standalone solution, highlighting the complex interplay of factors influencing success in digital transformation.

Key insights on the technical-pedagogical gap, post-training mentoring, and reward systems offer a fresh perspective for future IHT design. This study paves the way for more comprehensive evaluation models that assess not only short-term achievements but also long-term impacts on teaching practice and school professional culture. Strategic recommendations include: (1) refining training design with initial diagnostic assessments, (2) conducting longitudinal evaluations to measure sustained impact, (3) developing systematic post-training mentoring for ongoing reflection and transformation, and (4) enhancing infrastructure and policies to support continuous professional development in digital Islamic education.

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The Impact of IHT on Enhancing Pedagogical and Professional Competence of Islamic Education Teachers through Digital Platforms in Junior High Schools of Cilaku District.

The implementation of In-House Training (IHT) has had a substantial positive effect on enhancing both the pedagogical and professional competence of PAI teachers in Cilaku District. Teachers demonstrated the ability to integrate digital platforms into planning, instruction, and assessment, enabling faster and more relevant feedback. Notable improvements included the diversification of teaching methods, increased student engagement, and growing teacher confidence. Teachers who previously relied on traditional lecture methods began incorporating interactive tools such as Wordwall, short videos, and online discussions. As a result, the quality of PAI instruction improved, with students becoming more motivated and active participants in learning activities. However, the impact of IHT presents a dual character.

On one hand, there is clear progress in digital literacy and instructional design; on the other, concerns arise over the superficial application of technology—such as gamified quizzes—without fostering critical thinking or deeper conceptual understanding of Islamic content. Classroom observations revealed that many digital activities remained at surface-level engagement, and digital divide issues persisted between well-equipped and under-resourced schools. Unanticipated findings also emerged, including resistance among senior teachers who participated formally in training but continued to use conventional methods. There was also an overreliance on certain platforms like Quizizz and Canva, with limited exploration of other digital tools. Moreover, collaboration among teachers post-training remained low, with only 35% actively engaging in digital learning communities.

From a theoretical standpoint, these findings support Barudžija (2023) and Pohorielov & Filatov (2022), who argue that practice-based, blended learning models are effective in improving technical competencies. Average post-test scores rose from 50 to 78, with over 80% of participants achieving scores above 80. However, Sardi et al. (2023) and Mandayeva et al. (2023) found that deeper pedagogical integration remains limited, with only a 28% increase in integrative pedagogical skills. This highlights the challenge of aligning technical skills with Islamic values in educational practice. Altin & Topcu (2021) and Song et al. (2022) noted that the aesthetic appeal of tools like Quizizz and Canva may distract from critical and value-based teaching. Raharjo et al. (2023) and Ngema (2022) emphasized that effective post-training support and institutional incentives are vital for sustaining innovation. Meanwhile, digital inequality across schools, as described by Saputra et al. (2024) and Zapolskykh & Nadochii (2022), remains a pressing issue.

Theologically, IHT is more than a skills program it is part of a value transformation process in Islamic education. Verses such as QS. Al-Mujadilah [58]:11 and QS. Al-'Alaq [96]:1–5 affirm the sacred duty of acquiring and applying knowledge. Therefore, digital tools should serve the goal of moral and character development, not merely increase instructional efficiency. The Prophet's saying that scholars are the heirs of the prophets reinforces that PAI teachers have a role not just to transmit knowledge but to build moral character. Hence, while digital innovation is welcome, it must never replace the essence of Islamic values in teaching. Overall, while IHT effectively enhances digital teaching competencies, there are challenges in integrating those tools with value-based pedagogy. Theologically grounded training designs are necessary to balance technological proficiency with spiritual depth. Mentoring is also crucial, as argued by Docampo & Bruegger, (2019) in transferring skills to real classroom contexts.

From a conceptual lens, this research proposes the Three-Tier IHT Model: technical skills training aligned with Government Regulation No. 74/2008; pedagogical lesson design incorporating Islamic principles per KMA No. 211/2011; and value-based integration of technology with Islamic ethics. A comprehensive evaluation framework is also recommended, consisting of technical capability (Kirkpatrick Levels 1–2), pedagogical integration (Level 3), religious value understanding (additional dimension), learning outcomes (Level 4), and implementation consistency (Phillips ROI). Future research could focus on measuring digital-spiritual balance in PAI learning, comparing mentoring models (peer, expert, community-based), designing a dedicated PAI digital platform with value-sensitive assessment and guided discussions, conducting longitudinal studies, and analyzing digital transformation policies. The study concludes that without a holistic and context-sensitive approach, technical training alone risks producing shallow and unsustainable changes.

Echoing Payong (2015), a paradigm shift is needed: from tool mastery to value-grounded digital fluency. True transformation requires not only individual competence but also systemic support across institutional and policy levels. This research contributes academically and practically by urging educational institutions and policymakers to develop training programs that harmonize technological innovation with Islamic pedagogical integrity. As highlighted in QS. Al-Hashr:18 and QS. Al-Isra:36, Islamic education demands both technological adaptation and value consciousness. IHT should therefore be seen not only as a strategy for improving digital teaching but as a moral endeavor to sustain the essence of Islamic education in the digital age.

CONCLUSION

Based on the research findings, it can be concluded that the implementation of In-House Training (IHT) is essential for enhancing the pedagogical and professional competence of PAI teachers in responding to the challenges of digital learning in junior high schools across Cilaku District. While teachers showed high enthusiasm, they still required practical, contextual, and sustained support. The IHT model was developed using a research and development approach through seven structured stages, emphasizing

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the integration of Islamic education values with ethical and effective use of technology, and was evaluated using the CIPP model. The effectiveness test showed significant improvements in both technical and pedagogical competencies, as seen in test results, digital learning products, and teaching practices. Furthermore, IHT fostered a positive shift in teachers' learning culture, built professional communities, and encouraged collaboration in developing engaging PAI learning media—positioning IHT as a foundational step toward digital transformation in education at the school level.

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