



Transcendental Pedagogical Awareness in Digital Learning Transformation: A Phenomenological Study of Islamic Education Teachers in Frontier Areas of East Kalimantan

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Abstract

Digital transformation in education has reshaped teaching and learning practices, encouraging Islamic Education teachers to reconsider the ways in which technology can support educational goals and moral development. While previous studies have predominantly focused on digital competence and technology integration, the spiritual and reflective dimensions underlying teachers' responses to educational change remain insufficiently explored. This study investigates the transcendental pedagogical awareness of Islamic Education teachers in frontier areas of East Kalimantan during the process of digital learning transformation. Employing a qualitative approach grounded in transcendental phenomenology, data were collected through in-depth interviews, observations, and documentation involving teachers from senior high schools and vocational schools in Berau Regency. The analysis identified four interconnected dimensions of transcendental pedagogical awareness: muhasabah as the foundation of innovative awareness, technology as a value-oriented pedagogical medium, the emergence of teachers as micro digital content creators, and pedagogical resilience in addressing frontier educational challenges. The findings indicate that meaningful digital transformation extends beyond technological proficiency and is sustained by the integration of spiritual reflection, pedagogical commitment, and contextual adaptation. This study proposes the concept of Transcendental Pedagogical Awareness as a framework for understanding value-based digital transformation in Islamic education.

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INTRODUCTION

The rapid expansion of digital technologies has reshaped educational systems across the globe, altering how teachers design instruction, facilitate learning, and interact with students. Digital transformation in education is no longer confined to the adoption of technological devices or online platforms; rather, it involves profound changes in pedagogical practices, professional identities, and institutional cultures (Alenezi, 2023; Bitar & Davidovich, 2024; Singun, 2025). Although governments and educational institutions have invested heavily in digital infrastructure and technology-based learning, the outcomes of these initiatives remain uneven (Rydzewski, 2025). In many cases, the availability of technology does not automatically lead to meaningful educational change because teachers interpret and implement innovation in different ways (Drugova et al., 2021; Kerres & Buchner, 2022; Quaicoe et al., 2023). This condition has generated an important debate regarding the factors that determine successful digital transformation. While some scholars emphasize technological competence and institutional readiness, others argue that teachers' beliefs, values, and professional commitment play equally decisive roles (Kyriakou et al., 2026; Ma et al., 2025). Consequently, understanding the human dimension of educational digitalization has become increasingly important in contemporary educational discourse (Pacheco, 2021). Exploring how

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teachers construct meaning in response to technological change is therefore essential for explaining the sustainability of digital transformation.

Within the field of Islamic Religious Education (Pendidikan Agama Islam PAI), the challenge of digital transformation is considerably more complex. Unlike other disciplines that primarily focus on cognitive achievement, Islamic education seeks to cultivate intellectual competence alongside moral integrity, spiritual awareness, and social responsibility (Surbakti et al., 2024). The integration of digital media into Islamic education has created new opportunities for teachers to develop interactive learning experiences through multimedia content, virtual platforms, and social networking applications (Susanti et al., 2024). At the same time, the rapid growth of digital culture raises concerns regarding the preservation of ethical values and the spiritual mission of education (Papakostas, 2025). Technology in Islamic education cannot simply function as an instructional instrument; it must also support the broader objectives of character formation and religious development (Adnan, 2022). Recent studies have shown that contemporary learners, particularly those belonging to Generation Z, prefer learning environments that are collaborative, visual, and technology-rich (Rylance-Graham & Ismail, 2026). These changing characteristics require Islamic education teachers to continuously adapt their pedagogical approaches while maintaining the philosophical foundations of religious instruction (Memon et al., 2024). Therefore, digital transformation in Islamic education should be understood not only as a technological shift but also as a process of pedagogical and ethical negotiation.

The urgency of this issue becomes more apparent in frontier regions, where educational transformation unfolds under conditions of geographical isolation and unequal access to technology (Gunter, 2025; Zhu et al., 2025). Many schools located in peripheral areas continue to face significant obstacles, including unstable internet connectivity, limited digital infrastructure, and disparities in technological literacy among teachers and students (Faturoti, 2022). East Kalimantan represents one of Indonesia's strategic frontier regions that simultaneously experiences rapid socioeconomic development and persistent educational challenges (Syaban & Appiah-Opoku, 2023; Wijayanti et al., 2026). In this context, Islamic education teachers carry dual responsibilities: responding to the demands of digital learning while preserving the moral and spiritual values embedded in Islamic education. The implementation of technology in such environments cannot be fully explained through conventional models that emphasize infrastructure and institutional support alone (Radtke, 2025). Instead, teachers often rely on personal initiative, contextual creativity, and adaptive strategies to sustain meaningful learning experiences. Previous research has suggested that educators working in disadvantaged settings frequently demonstrate remarkable resilience and innovation despite limited resources (Anderson et al., 2021; Beckmann & Klein, 2023; Fu & Zhang, 2024). Consequently, investigating teachers' experiences in frontier areas provides an important opportunity to enrich current understandings of educational transformation.

Beyond material and infrastructural challenges, digital transformation is fundamentally influenced by teachers' internal dispositions and professional consciousness (Timotheou et al., 2023). A growing body of research has demonstrated that technology adoption is shaped not only by technical competence but also by beliefs, identities, and the social environments in which teachers work (Lai & Jin, 2021; Thyssen et al., 2023). In Islamic educational settings, these factors are inseparable from spiritual values that guide teachers' professional actions. Concepts such as *muhasabah* (self-reflection), *muraqabah* (awareness of divine accountability), and educational responsibility constitute important dimensions of teachers' everyday experiences. These values influence how teachers interpret innovation, evaluate pedagogical practices, and respond to changing educational realities (Abedi, 2024; AlAli & Al-Barakat, 2023; Ramírez-Montoya et al., 2021). Nevertheless, discussions of educational technology have predominantly focused on measurable variables such as digital literacy, technological acceptance, and instructional effectiveness (Granić, 2022; Usfandi Haryaka, 2025). Comparatively little attention has been paid to the reflective and transcendental dimensions that shape teachers' engagement with technology (Onbasili, 2026). As a result, many digitalization policies continue to prioritize technical training while overlooking the ethical and spiritual foundations of educational change.

Over the last few years, numerous studies have examined digital transformation in education from different perspectives (Aljanazrah et al., 2022; Gkrimpizi et al., 2023). Existing research has highlighted the importance of digital literacy and technological competence in improving teachers'

instructional practices and professional development (Aslan et al., 2025; Reisoğlu, 2022). Other scholars have emphasized the role of digital pedagogical competence, demonstrating that meaningful technology integration requires a combination of technological, pedagogical, and content knowledge (Demissie et al., 2022). In the context of Islamic education, previous studies have reported that digital media can enhance student engagement, enrich learning experiences, and support instructional innovation (Kariyanto et al., 2025). Research conducted during and after the COVID-19 pandemic has further shown that teacher agency and professional learning significantly influence the success of educational transformation (Alosaimi, 2023; Ehren et al., 2021). In addition, several investigations have explored the relationships among school culture, institutional support, and teachers' willingness to adopt digital technologies (Guo et al., 2026; Karakose et al., 2021; Stumbrienė et al., 2024). Collectively, these studies have contributed valuable insights into the dynamics of technology integration in education. However, most of them continue to approach digital transformation primarily through external and instrumental perspectives.

Despite these important contributions, several limitations remain evident in the existing literature. First, previous studies have predominantly emphasized technological competence, digital literacy, and organizational support while paying insufficient attention to teachers' subjective experiences and inner awareness (J. Kukkonen et al., 2025; K. Kukkonen, 2021). Second, research on Islamic education has largely concentrated on instructional models and technological effectiveness, leaving the relationship between spiritual consciousness and pedagogical innovation relatively unexplored (Kabir et al., 2025). Third, empirical investigations have mostly been conducted in urban and technologically advantaged contexts, resulting in a limited understanding of digital transformation in frontier educational environments (Vassilakopoulou & Hustad, 2023). Furthermore, the majority of studies treat teachers as technology users rather than as reflective agents who actively interpret and reshape educational change according to their values and beliefs (Almashour et al., 2025). This tendency has created an incomplete picture of how digital transformation actually occurs in Islamic educational settings (Lohlker & Wahid, 2026; Sona, 2024). Consequently, there is still limited knowledge regarding how spiritual awareness influences teachers' responses to technological change, particularly in regions characterized by infrastructural limitations and sociocultural diversity.

Addressing these limitations requires a broader conceptual perspective that integrates technology, pedagogy, and spirituality. To date, little research has specifically examined how Islamic education teachers construct transcendental meanings in the process of digital transformation. Existing frameworks, such as digital competence and technological acceptance models, provide important explanations regarding teachers' technological behavior, yet they are insufficient to capture the ethical and spiritual dimensions embedded in Islamic educational practice. This study therefore introduces the concept of Transcendental Pedagogical Awareness, which refers to the integration of spiritual consciousness, pedagogical reflection, technological competence, and contextual adaptation in teachers' professional lives (Nagymzhanova et al., 2025). Through this perspective, digital transformation is understood not merely as an external process driven by technological innovation, but as an internal process shaped by teachers' values, commitments, and lived experiences (Pettersson, 2021; Tang et al., 2025). By employing a transcendental phenomenological approach, this research seeks to uncover the meanings that Islamic education teachers attach to their engagement with digital learning in frontier contexts (Ghiasvand et al., 2024). Such an approach offers a deeper understanding of educational transformation by positioning teachers as reflective and value-oriented actors rather than passive recipients of technological change.

Based on these considerations, this study aims to explore the transcendental pedagogical awareness of Islamic education teachers in the digital learning transformation occurring in frontier areas of East Kalimantan. Specifically, the research investigates how teachers construct spiritual awareness, interpret the role of technology, develop innovative pedagogical practices, and sustain professional resilience amid contextual challenges. Theoretically, this study contributes to the growing literature on educational digitalization by integrating perspectives from Islamic educational philosophy and phenomenological inquiry. Practically, the findings are expected to provide valuable insights for policymakers, teacher educators, and educational institutions in designing professional development programs that balance digital competence with ethical and spiritual dimensions. In

addition, the study expands existing discussions on teacher agency by demonstrating how educators in frontier regions actively negotiate technological opportunities and limitations. Ultimately, the concept of Transcendental Pedagogical Awareness proposed in this research offers an alternative framework for understanding meaningful digital transformation in Islamic education. It underscores that sustainable educational innovation depends not only on technological advancement but also on teachers' capacity to align technology with humanistic values, spiritual responsibility, and contextual realities.

METHOD

Research Design

This study employed a qualitative approach using a transcendental phenomenological design to investigate the lived experiences and reflective consciousness of Islamic Religious Education (Pendidikan Agama Islam PAI) teachers in responding to digital learning transformation in frontier areas of East Kalimantan. A transcendental phenomenological approach was selected because the primary objective of the study was not to measure the effectiveness of technological interventions but to understand how teachers construct meanings, develop spiritual awareness, and interpret digital transformation within their professional contexts. Following the phenomenological tradition proposed by Moustakas, the study sought to uncover the essence of participants' experiences by emphasizing the processes of epoche, horizontalization, thematic clustering, textual description, structural description, and synthesis of meanings (Neubauer et al., 2021). This design was considered appropriate because digital transformation in Islamic education involves complex interactions among pedagogical practices, ethical commitments, technological adaptation, and spiritual values that cannot be adequately captured through quantitative indicators alone. The study was grounded in a constructivist paradigm, which assumes that social reality is constructed through individual experiences, cultural contexts, and interpersonal interactions (Creswell & Poth, 2023). Accordingly, teachers' engagement with digital technology was understood as a subjective and value-laden process shaped by both professional responsibilities and religious commitments.

Research Setting and Period

The research was conducted in Berau Regency, East Kalimantan, Indonesia, an area characterized by diverse geographical conditions, including urban, coastal, and inland regions. Berau was selected because it represents a frontier educational context where digital transformation takes place amid infrastructural disparities, uneven internet connectivity, and limited access to educational technology. At the same time, the region has experienced rapid socioeconomic changes associated with the development of Indonesia's new capital area, creating additional demands for educational innovation. In addition, the cultural diversity and socio-religious characteristics of the region provide a unique context for examining how teachers negotiate pedagogical values within increasingly digital learning environments. The study focused on secondary schools that had begun integrating digital technologies into Islamic Religious Education, enabling an in-depth exploration of teachers' experiences in adapting to technological change while maintaining the spiritual and ethical dimensions of instruction. Data collection was conducted over a four-month period, from January to April 2026, allowing sufficient time for interviews, observations, and document analysis across different educational settings. This extended period also facilitated the development of trust and rapport with participants, which is particularly important in phenomenological research that seeks to uncover the meanings embedded in lived experiences. To provide a clearer overview of the research implementation, the overall procedure of the study is illustrated in Figure 1. The research process was systematically organized to capture the lived experiences of Islamic education teachers in responding to digital learning transformation in frontier areas of East Kalimantan. The procedure encompassed the identification of research problems, participant recruitment, instrument development, data collection, transcendental phenomenological analysis, and the synthesis of participants' experiences into the essential dimensions of transcendental pedagogical awareness.



Figure 1. Stages of the Transcendental Phenomenological Research Process

As shown in Figure 1, the study followed a rigorous and iterative process that integrated data collection, phenomenological interpretation, and trustworthiness procedures. The sequence of these stages ensured that the findings accurately reflected participants' lived experiences while maintaining methodological consistency throughout the investigation. The detailed procedures adopted in each phase of the study are described in the following sections.

Population and Participants

The population of this study comprised Islamic Religious Education teachers working in secondary educational institutions in Berau Regency. Participants were selected using purposive criterion sampling because phenomenological inquiry requires individuals who possess direct and meaningful experiences related to the phenomenon under investigation (Oluka, 2025; Shorey & Ng, 2022). Five teachers from three senior high schools and two vocational schools participated in the study. To ensure the richness and relevance of the data, participants had to meet several inclusion criteria: (1) actively teaching Islamic Religious Education at the secondary level; (2) having at least three years of teaching experience; (3) regularly integrating digital platforms or technological media into classroom instruction; and (4) demonstrating involvement in educational innovation within their schools. Teachers who had limited experience with digital learning or who had recently entered the profession were excluded from participation. The relatively small number of participants aligns with phenomenological principles, which prioritize depth, intensity, and richness of experience rather than statistical representation (Morrison, 2025).

Research Instruments

Data were collected through three complementary instruments: semi-structured interview protocols, observation sheets, and documentary analysis guidelines. The interview protocol served as the primary instrument and was developed based on the theoretical framework of teacher digital transformation, pedagogical agency, and Islamic educational values. The interview guide consisted of four major domains: teachers' perceptions of digital transformation, spiritual reflections related to teaching practices, strategies for integrating technology into Islamic education, and experiences in overcoming contextual challenges. To complement interview data, non-participant observation sheets were designed to document teachers' classroom practices, patterns of interaction, use of digital media, and instructional strategies. In addition, documentary evidence including digital teaching materials, presentation slides, online learning content, assessment products, and social media artifacts was collected to provide contextual understanding and triangulate participants' narratives. The use of multiple instruments enabled a comprehensive exploration of both teachers' subjective experiences and their observable pedagogical practices.

Instrument Validity and Trustworthiness

The quality and trustworthiness of the research instruments were established through several procedures. First, content validity was assessed through expert judgment involving two specialists in Islamic education and one qualitative research expert, who evaluated the clarity, relevance, and conceptual alignment of the interview and observation protocols. Based on their

recommendations, several interview questions were revised to improve consistency and depth. Second, a pilot interview was conducted with one Islamic education teacher outside the research sample to ensure the comprehensibility and practicality of the instruments. Because the study employed a qualitative phenomenological design, trustworthiness was emphasized instead of statistical reliability. Credibility was strengthened through methodological triangulation by comparing findings derived from interviews, observations, and documentary sources. Member checking was conducted by returning preliminary interpretations to participants to verify the accuracy of the findings. Dependability was maintained through an audit trail documenting all methodological decisions, while confirmability was ensured through reflexive notes and continuous examination of the relationship between empirical evidence and interpretation (Korstjens & Moser, 2018). Thick descriptions of participants, contexts, and learning practices were also provided to enhance transferability.

Data Collection Procedures

The data collection process was conducted in several sequential stages. The first stage involved obtaining institutional permission from school authorities and identifying potential participants who met the predetermined criteria. The second stage consisted of conducting in-depth semi-structured interviews, each lasting approximately 60–90 minutes. Interviews were audio-recorded with participants' consent and subsequently transcribed verbatim. The third stage involved classroom observations aimed at documenting teachers' actual practices in designing and implementing digital learning activities. Observations focused on the utilization of digital platforms, instructional interactions, and contextual adaptations to technological limitations. The final stage consisted of collecting documentary evidence related to teachers' digital pedagogical activities, including learning materials, multimedia content, online assignments, and educational products created by participants. Field notes were compiled throughout the process to capture contextual information, nonverbal expressions, and researchers' reflections.

Data Analysis

The data were analyzed using the transcendental phenomenological procedures proposed by Moustakas. Analysis began with the process of epoche or bracketing, during which the researchers attempted to suspend personal assumptions and prior knowledge to approach participants' experiences openly and objectively. The interview transcripts, observation records, and documentary materials were then examined through horizontalization, in which significant statements related to teachers' experiences with digital transformation were identified and treated as having equal value. In the subsequent stage, irrelevant and repetitive statements were eliminated, and the remaining data were coded and grouped into invariant meaning units. These meaning units were then organized into broader thematic categories representing the essential dimensions of transcendental pedagogical awareness. The researchers subsequently developed textual descriptions explaining what participants experienced and structural descriptions explaining how those experiences were shaped by social, cultural, and educational contexts. Finally, both descriptions were synthesized to construct the composite essence of Islamic education teachers' experiences in digital learning transformation. Throughout the analysis, NVivo 14 software was used to facilitate data organization, coding, thematic mapping, and interpretation. The analytical process remained iterative, allowing themes to emerge inductively from participants' narratives while maintaining alignment with the research objectives.

RESULTS AND DISCUSSION

Results

Muhasabah as the Foundation of Innovative Awareness among Islamic Education Teachers

The findings of this study reveal that muhasabah (self reflective evaluation) represents a fundamental spiritual mechanism that constructs the innovative awareness of Islamic Education (PAI) teachers in digital learning transformation. In the context of Islamic education, innovation does not emerge merely from external technological demands, institutional pressure, or professional obligations, but develops from an internal process in which teachers continuously evaluate their

pedagogical effectiveness, moral responsibility, and contribution to students' spiritual development. The phenomenological analysis conducted among PAI teachers in SMA and SMK Berau, East Kalimantan, demonstrates that teachers' engagement with digital transformation begins with an inner awareness that teaching is not only a professional activity but also a form of worship and moral responsibility. This finding confirms that educational innovation in Islamic contexts is deeply connected with teachers' spiritual consciousness, where self-reflection becomes the foundation for meaningful pedagogical change (Bond et al., 2023).

The participants' experiences indicate that muhasabah functions as an internal evaluation process that encourages teachers to question the effectiveness of conventional teaching practices and seek alternative approaches that are more relevant to students' contemporary learning environments. Teachers' decisions to adopt digital platforms such as Canva, Wordwall, Quizizz, and other interactive learning applications were not primarily driven by technological trends but by their awareness of students' changing characteristics, particularly Generation Z learners who require more contextual, engaging, and interactive learning experiences. Thus, technology adoption becomes an outcome of reflective consciousness rather than a simple technical adaptation. The research findings show that teachers who practice continuous self-reflection tend to perceive technological transformation as an opportunity to improve educational quality rather than as an external burden.

This finding strengthens the argument that teacher innovation requires an internal motivational foundation. Previous studies have demonstrated that technological competence alone does not guarantee successful digital transformation because teachers' beliefs, professional identity, and reflective capacity strongly influence how technology is integrated into teaching practices. Teachers who possess strong reflective awareness are more likely to redesign learning activities, explore new pedagogical strategies, and develop creative solutions according to contextual challenges (Bond et al., 2021). Therefore, the present study extends previous discussions by demonstrating that in Islamic education settings, reflective awareness has a spiritual dimension through the concept of muhasabah, which transforms technological adaptation into an ethical and meaningful educational practice.

The relationship between muhasabah and innovative awareness can be understood through the concept of inside-out transformation, where change begins from the teacher's internal consciousness before appearing in external pedagogical practices. The findings indicate that teachers in frontier areas such as Berau do not always experience transformation because of abundant technological facilities. Instead, innovation often emerges despite infrastructure limitations, unstable internet connections, and geographical challenges. Teachers' reflective consciousness enables them to reinterpret these limitations as challenges that require creativity and perseverance. This finding challenges the assumption that digital transformation is primarily determined by technological availability. Instead, human agency and reflective capacity become decisive factors in sustaining educational innovation.

From an Islamic perspective, muhasabah represents a process of evaluating oneself before God and improving personal quality continuously. This spiritual practice has strong relevance to teacher professionalism because educators are expected not only to transfer knowledge but also to demonstrate ethical and moral commitment. The teachers' narratives show that their motivation to innovate is closely associated with the belief that improving learning quality represents a form of responsibility and continuous charity (*amal jariyah*). Such orientation creates intrinsic motivation that supports sustained innovation even when external rewards are limited. This finding corresponds with research emphasizing that teachers' intrinsic motivation and professional commitment significantly influence their willingness to engage in educational change and innovation (Fitriah et al., 2022).

Furthermore, muhasabah develops what can be described as transcendental pedagogical awareness, namely the ability of teachers to connect technological practices with broader educational values. The teachers in this study did not view digital tools as neutral instruments but as educational mediums that must serve ethical, spiritual, and humanistic purposes. For example, the utilization of social media platforms was directed toward producing religious educational content and encouraging students to become responsible digital creators rather than passive technology consumers. This finding demonstrates a shift from technology-centered innovation toward value-centered innovation, where technology functions as a means to achieve educational objectives.

The findings also contribute to the reinterpretation of Rogers' Diffusion of Innovation theory within Islamic education contexts. Classical innovation diffusion theory explains adoption patterns through categories such as innovators, early adopters, early majority, late majority, and laggards. However, the present study reveals that teachers who adopt technology slowly should not always be interpreted as resistant individuals. In frontier educational contexts, delayed adoption may represent a rational pedagogical decision shaped by contextual awareness, ethical consideration, and infrastructure realities. Muhasabah enables teachers to critically assess whether a technological innovation genuinely supports learning objectives before implementation. Therefore, reflective awareness becomes a filtering mechanism that determines meaningful technology adoption.

The study further demonstrates that muhasabah encourages teachers to develop the identity of micro-pedagogical content creators. Teachers do not merely consume digital resources but actively produce localized educational materials that integrate Islamic values with students' social realities. This phenomenon reflects a transformation of teacher identity from knowledge transmitter to creative learning designer. Recent studies indicate that teacher digital agency plays a crucial role in successful educational transformation because teachers must actively construct meaningful digital practices rather than simply follow technological developments (König et al., 2021). The present study advances this perspective by highlighting that digital agency among Islamic Education teachers is strengthened by spiritual reflection and moral consciousness.

The importance of muhasabah in developing innovative awareness also relates to teacher resilience. Digital transformation in frontier regions requires teachers to overcome multiple challenges, including limited infrastructure, unequal access, and changing student behavior. The findings show that reflective teachers demonstrate higher resilience because they interpret difficulties as opportunities for professional growth. Their willingness to continuously evaluate, improve, and adapt becomes the psychological and spiritual foundation that sustains innovation. This supports previous research indicating that teacher resilience and reflective practice are important factors in maintaining professional development during periods of educational change (Mansfield et al., 2022).

Therefore, this study proposes that muhasabah should be positioned as a central element in the development of Islamic Education teacher professionalism in the digital era. Teacher digital competence needs to be integrated with reflective spirituality because technological transformation without ethical awareness may produce technical efficiency without educational meaning. Conversely, muhasabah-driven innovation allows teachers to utilize technology while maintaining the fundamental mission of Islamic education: developing intellectually capable, morally responsible, and spiritually grounded learners.

In conclusion, the findings establish that muhasabah functions as the inner foundation of innovative awareness among Islamic Education teachers. It transforms technology adoption from a reactive process into a reflective pedagogical movement. Through continuous self-evaluation, teachers develop the ability to recognize educational challenges, redesign learning strategies, and utilize digital technology as a medium for humanistic and spiritual transformation. The contribution of this research lies in proposing that sustainable digital transformation in Islamic education requires not only technological readiness but also transcendental pedagogical awareness rooted in muhasabah.

Technology as a Medium of Values in Islamic Education Learning

The findings of this study demonstrate that technology in Islamic Education (PAI) learning does not function merely as an instructional instrument but becomes a medium for transmitting, constructing, and internalizing Islamic values. The phenomenological analysis of PAI teachers in SMA and SMK Berau, East Kalimantan, reveals that teachers interpret digital technology as an educational medium that must be directed toward moral development, spiritual growth, and meaningful learning experiences. Technology is therefore not positioned as the center of transformation, but as a means through which teachers actualize educational values. This finding emphasizes that digital transformation in Islamic education is fundamentally a pedagogical and axiological process rather than only a technological process. The research findings show that PAI teachers in Berau utilize digital platforms such as Canva, Quizizz, Wordwall, CapCut, YouTube, and other digital applications not simply to improve classroom efficiency but to create learning environments that encourage

reflection, participation, and character formation. Teachers develop digital learning materials that integrate Qur'anic messages, Islamic moral teachings, and contextual examples related to students' daily lives. This practice indicates that technology becomes a bridge between religious knowledge and students' digital experiences. The teachers' innovation demonstrates that digital media can strengthen Islamic learning when it is guided by clear educational values and ethical considerations.

This finding supports the argument that educational technology should not be understood as a value-neutral tool. Technology always operates within a particular cultural, ethical, and pedagogical framework. In Islamic education, technology requires value orientation because the ultimate goal of education is not only cognitive achievement but also the formation of individuals with faith, morality, and social responsibility. Recent studies confirm that the integration of digital technology in Islamic education must balance technological competence with the preservation of religious values because uncontrolled technological adoption may weaken the ethical dimension of education (Bentri et al., 2022). The teachers' experiences in this study further indicate a transformation from technology as a teaching aid toward technology as a value-based pedagogical medium. In conventional approaches, technology is often perceived as a tool to deliver information more effectively. However, the findings reveal that innovative PAI teachers use technology to construct learning experiences that encourage students to interpret religious teachings within contemporary contexts. For example, social media platforms are transformed from spaces of entertainment consumption into platforms for Islamic educational content creation. Students are encouraged to become active producers of positive digital content rather than passive consumers of online information.

This transformation reflects a shift from a technocentric paradigm toward a human-centered digital pedagogy. The effectiveness of digital learning does not depend solely on the sophistication of applications but on teachers' ability to connect technology with pedagogical objectives and moral values. The Technological Pedagogical Content Knowledge (TPACK) framework emphasizes that meaningful technology integration requires the intersection of technological knowledge, pedagogical understanding, and subject matter expertise (Mishra & Koehler, 2006). Recent studies among Islamic Education teachers also demonstrate that technology integration becomes effective when teachers are able to combine digital competence with pedagogical and religious understanding.

The findings also reveal that technology functions as a medium for strengthening student engagement. Teachers reported that digital-based learning strategies were developed in response to students' characteristics as members of Generation Z who are highly familiar with digital environments. Interactive applications and multimedia resources allow students to experience learning through visual, collaborative, and participatory activities. Therefore, technology contributes not only to knowledge acquisition but also to emotional engagement and meaningful interaction between teachers and students. Previous research confirms that digital technology integration can improve student participation and motivation when it is designed based on learners' needs rather than merely introducing digital tools into classrooms (Siregar et al., 2024).

Another important finding concerns the ethical dimension of digital learning. Teachers in this study demonstrate awareness that digital spaces contain both educational opportunities and moral risks. Therefore, they position themselves as guides who help students navigate digital environments responsibly. The role of PAI teachers extends beyond teaching religious concepts; they become facilitators of digital ethics by guiding students to evaluate information, communicate respectfully, and use technology for constructive purposes. This finding aligns with recent discussions that digital education requires ethical frameworks because technological advancement without moral guidance may increase misinformation, digital dependency, and value degradation (Rois et al., 2025).

The study further reveals that the use of technology as a medium of values is strongly influenced by teachers' spiritual awareness. The teachers' willingness to innovate is not primarily motivated by technological competition but by their commitment to improve students' religious understanding and character development. This finding demonstrates that digital innovation in Islamic education emerges from the integration between professional responsibility and spiritual commitment. Technology becomes meaningful when teachers possess the awareness to direct it toward educational purposes aligned with Islamic principles. The research also contributes to understanding digital transformation in frontier areas. Unlike technology-driven models that assume innovation depends on advanced infrastructure, this study demonstrates that meaningful digital

transformation can emerge in environments with technological limitations. Teachers in Berau creatively adapt available resources according to local conditions. Limited internet access and geographical challenges do not completely prevent innovation because teachers reinterpret technology based on contextual needs. This finding supports research showing that digital pedagogical competence is shaped not only by infrastructure availability but also by teacher creativity, professional learning, and contextual adaptation (Bentri et al., 2022).

Furthermore, the findings challenge the assumption that successful digital learning requires complete replacement of traditional practices. Instead, the teachers demonstrate that technology and Islamic pedagogical traditions can complement each other. Digital tools are integrated with classical Islamic educational values such as moral instruction, reflection, discipline, responsibility, and respect. This integration creates a balanced educational model where technological innovation strengthens rather than replaces the fundamental mission of Islamic education. Research on Islamic Religious Education similarly shows that digital integration becomes effective when technology supports existing pedagogical principles and religious objectives (Maulani & Inayati, 2025).

Therefore, this study proposes that technology in PAI learning should be conceptualized as a value-oriented pedagogical medium. The success of digital transformation depends not only on teachers' ability to operate digital applications but also on their capacity to embed ethical, spiritual, and educational meanings into technological practices. Technology becomes transformative when it enables students to develop knowledge, character, creativity, and responsibility simultaneously. In conclusion, the findings establish that technology in Islamic Education functions as a medium of values rather than merely a learning device. Through reflective teacher agency, digital platforms become spaces for transmitting Islamic ethics, developing student creativity, and strengthening meaningful learning experiences. The contribution of this research lies in emphasizing that digital transformation in Islamic education requires the integration of technological competence, pedagogical wisdom, and spiritual awareness. Technology does not replace the values of Islamic education; instead, when guided by reflective teachers, it becomes a powerful medium for actualizing those values in the digital era.

Pedagogical Resilience of Islamic Education Teachers in Frontier Areas

The findings of this study reveal that pedagogical resilience represents a central capacity enabling Islamic Education (PAI) teachers to sustain learning transformation in frontier areas of East Kalimantan. The phenomenological analysis indicates that teachers in Berau do not experience digital transformation as a simple process of adopting technological tools, but rather as a continuous struggle to maintain educational quality amid geographical, infrastructural, and pedagogical limitations. In this context, pedagogical resilience emerges as the ability of teachers to adapt, reconstruct teaching strategies, and maintain professional commitment when facing challenging educational environments. The research findings demonstrate that PAI teachers working in frontier areas encounter multiple challenges, including unstable internet access, limited digital infrastructure, unequal availability of technological devices, and differences in students' digital readiness. However, these limitations do not prevent teachers from developing innovative learning practices. Instead, teachers demonstrate adaptive responses by modifying digital strategies according to local conditions. They combine available technological resources with contextual pedagogical approaches, such as using simple digital applications, developing offline learning materials, and integrating digital media with conventional classroom interaction. These practices indicate that resilience among PAI teachers is not merely the ability to survive difficulties but the capacity to transform constraints into opportunities for pedagogical improvement.

This finding expands the understanding of teacher resilience by emphasizing that resilience in education is not only psychological endurance but also a professional and pedagogical capability. Previous research explains that pedagogical resilience refers to teachers' ability to maintain instructional effectiveness, adjust teaching practices, and create meaningful learning experiences despite complex challenges. Teachers with strong pedagogical resilience tend to demonstrate flexibility, creativity, and commitment when responding to educational disruptions. Therefore, the experiences of PAI teachers in Berau show that resilience becomes an essential foundation for digital transformation, especially in contexts where technological resources remain limited. The findings further indicate that pedagogical resilience among PAI teachers is developed through three

interconnected dimensions: adaptive competence, reflective practice, and value-based commitment. First, adaptive competence enables teachers to modify their instructional strategies based on available resources. Rather than waiting for ideal technological conditions, teachers actively explore alternative solutions that allow digital learning activities to continue. This adaptive behavior reflects teachers' ability to negotiate between technological possibilities and contextual realities. Research on teachers' experiences with digital teaching confirms that successful technology integration requires flexibility and the ability to adjust practices according to institutional and environmental conditions (Maulani & Inayati, 2025).

Second, pedagogical resilience is strengthened through reflective practice. The teachers involved in this study continuously evaluate their teaching approaches and consider whether digital strategies genuinely support students' learning needs. Reflection allows teachers to identify weaknesses, improve instructional designs, and develop more meaningful learning experiences. This reflective dimension is particularly important in Islamic Education because teachers are responsible not only for transferring religious knowledge but also for guiding students' moral and spiritual development. Therefore, resilience is constructed through continuous self-evaluation and professional learning rather than through passive endurance. Third, the findings reveal that pedagogical resilience among PAI teachers is closely connected with value-based commitment. Teachers perceive their profession as a moral responsibility, which motivates them to continue improving despite difficult circumstances. Their willingness to innovate is not solely influenced by institutional demands but by a deeper commitment to ensuring that students receive meaningful religious education. This finding highlights an important distinction between technological adaptation and value-driven transformation. Teachers do not simply adopt digital tools because they are required to do so; they integrate technology because they believe it can support their educational mission.

The frontier context of Berau provides an important contribution to understanding digital transformation in education. Previous studies often examine technology adoption in environments with adequate infrastructure, while less attention has been given to teachers working in disadvantaged or geographically challenging areas. The findings of this study demonstrate that digital transformation can occur through contextual creativity rather than technological abundance. Teachers develop what can be conceptualized as contextual pedagogical resilience, namely the ability to design meaningful learning practices by negotiating between technological limitations and educational objectives. This finding is consistent with research on digital education resilience, which argues that resilience does not simply mean returning to previous conditions after disruption but involves the ability to develop stronger educational practices through adaptation and innovation. Digital resilience requires the combination of technological competence, institutional support, and human capacity to respond creatively to uncertainty (Yusriadi, 2022). In the context of PAI learning, this resilience is strengthened by teachers' spiritual orientation, which provides internal motivation to continue improving educational practices.

The study also reveals that pedagogical resilience influences teachers' professional identity. Teachers in frontier areas gradually reconstruct their identity from traditional knowledge transmitters into adaptive learning designers. Their experiences with digital transformation encourage them to become more creative in developing instructional materials, selecting appropriate media, and designing student-centered learning activities. This transformation demonstrates that resilience contributes not only to maintaining teaching continuity but also to professional growth. Furthermore, the findings indicate that resilient PAI teachers develop a critical perspective toward technology. They do not assume that every digital innovation automatically improves learning quality. Instead, they evaluate whether technology aligns with educational objectives, students' conditions, and Islamic educational values. This critical orientation prevents technology from becoming a dominant force that replaces pedagogical wisdom. Instead, technology becomes a supportive medium that strengthens teacher-student relationships and facilitates meaningful religious learning. The findings also challenge the deficit perspective often associated with frontier education. Frontier schools are frequently described through their limitations, such as weak infrastructure and limited resources. However, this research demonstrates that teachers in such environments possess significant innovative capacity. Their ability to adapt, create, and maintain educational commitment shows that frontier contexts can become spaces where

pedagogical creativity develops. Similar research indicates that teachers facing educational disruption often demonstrate resilience through collaboration, experimentation, and continuous adaptation (Ramakrishna & Singh, 2022).

From a theoretical perspective, this study contributes to the development of the concept of transcendental pedagogical resilience. This concept explains that resilience among Islamic Education teachers is constructed through the interaction between professional competence and spiritual consciousness. Teachers' resilience is not only driven by external adaptation but also by internal beliefs regarding responsibility, service, and educational values. This perspective expands conventional resilience theories that primarily emphasize psychological adaptation by incorporating the spiritual dimension of Islamic educational professionalism. Therefore, pedagogical resilience should become a central component of teacher development programs, particularly for Islamic Education teachers working in frontier areas. Professional development should not focus only on improving digital skills but also strengthen teachers' reflective capacity, problem-solving ability, collaboration, and spiritual commitment. Sustainable digital transformation requires teachers who are technologically capable, pedagogically adaptive, and morally committed. In conclusion, the findings establish that pedagogical resilience enables PAI teachers in frontier areas to transform limitations into opportunities for innovation. Through adaptive competence, reflective practice, and value-based commitment, teachers maintain educational quality while navigating technological challenges. The contribution of this research lies in demonstrating that successful digital transformation in Islamic Education depends not only on infrastructure availability but also on teachers' resilience as reflective and value-oriented educational actors.

Islamic Education Teachers as Micro Digital Content Creators: A New Identity in Digital Learning Transformation

The findings of this study reveal that Islamic Education (PAI) teachers in frontier areas of East Kalimantan have experienced a significant transformation of professional identity, shifting from technology users into micro digital content creators. This transformation indicates that teachers no longer position digital technology merely as a medium for accessing learning resources, but actively produce, modify, and distribute digital educational content according to students' learning needs and Islamic educational values. The phenomenological analysis shows that PAI teachers in Berau utilize digital platforms such as Canva, Quizizz, Wordwall, CapCut, YouTube, and other digital applications to develop instructional materials, create religious learning content, and construct interactive learning experiences. This finding demonstrates that digital transformation in Islamic education involves a change in teacher agency, where teachers become producers of knowledge in digital spaces rather than passive consumers of technological products. The emergence of PAI teachers as micro digital content creators represents a new form of pedagogical agency. In conventional educational practices, teachers are commonly positioned as transmitters of knowledge who deliver predetermined materials through textbooks and classroom explanations. However, the findings of this study indicate that digital transformation has expanded teachers' roles into designers, curators, and producers of educational content. Teachers create digital learning materials that combine Islamic concepts, visual representations, interactive activities, and contextual examples relevant to students' everyday experiences. This transformation reflects a movement from teacher-centered information delivery toward teacher-driven digital knowledge construction.

The findings indicate that teachers' digital content creation practices are strongly influenced by their understanding of students' learning characteristics. The teachers recognize that contemporary students are highly connected with digital environments and are accustomed to receiving information through visual, audio, and interactive formats. Therefore, teachers develop digital content to bridge Islamic educational messages with students' digital cultures. This approach allows Islamic values to enter students' everyday digital experiences rather than remaining limited to conventional classroom settings. Previous research confirms that effective digital learning requires teachers to design learning experiences that align with learners' technological habits, cognitive characteristics, and social contexts rather than simply transferring traditional materials into digital formats (Yondler & Blau, 2021). The findings further demonstrate that the role of PAI teachers as micro digital content creators is closely related to the development of digital pedagogical competence. Digital competence is not limited to technical ability in operating applications but

includes the ability to select, evaluate, transform, and create digital resources for meaningful educational purposes. Teachers in this study demonstrate this competence by adapting digital tools according to pedagogical objectives and Islamic educational principles. They do not merely download digital materials but reconstruct and contextualize content based on students' needs and learning environments. This finding supports research showing that teacher digital literacy influences the quality of technology integration because teachers need higher-order skills to design, evaluate, and produce digital learning resources (Listiaji & Subhan, 2021).

A significant finding of this research is that digital content creation among PAI teachers is not driven solely by technological motivation but by a moral and educational commitment. Teachers perceive digital spaces as new arenas for Islamic education and character formation. Through digital content production, teachers attempt to provide religious materials that are accurate, educational, and ethically responsible. This finding is important because digital platforms contain diverse religious information, including content that may not align with Islamic educational principles. Therefore, PAI teachers act as knowledge filters who help students develop critical digital literacy and responsible engagement with religious information. Previous research highlights that Islamic Education teachers have an important role in guiding students to evaluate digital religious content critically and develop ethical digital behavior (Zubaidah, 2023). The study also reveals that micro digital content creation becomes a strategy for overcoming geographical and infrastructural limitations in frontier areas. Teachers in Berau demonstrate creativity by producing learning materials using accessible applications and available resources. Rather than waiting for sophisticated technological facilities, they utilize simple digital tools to maintain learning continuity. This finding challenges the assumption that digital innovation requires advanced infrastructure. Instead, it shows that teacher creativity and agency can generate meaningful digital transformation even within limited technological environments. Research on digital technology utilization among Islamic Education teachers indicates that professional technology use depends strongly on teachers' creativity, willingness to learn, and ability to adapt digital resources to educational contexts (Ikhwan et al., 2023). The emergence of teachers as micro digital content creators also reflects a transformation in the relationship between teachers and knowledge production. Previously, educational content was largely produced by publishers, curriculum developers, and educational institutions. However, digital platforms enable teachers to become independent producers of localized educational materials. The teachers in this study create content based on their classroom experiences, students' characteristics, and local cultural contexts. This process produces learning resources that are more contextual and responsive compared with standardized digital materials. Digital content creation therefore strengthens teacher autonomy and expands professional identity beyond classroom boundaries.

Another important finding is that digital content creation allows PAI teachers to integrate Islamic values into contemporary digital communication forms. Teachers adapt religious messages into videos, presentations, interactive quizzes, and visual learning materials that are more accessible to students. This practice represents a form of pedagogical translation, where traditional Islamic knowledge is transformed into digital formats without losing its ethical and spiritual dimensions. Recent studies on Islamic Education technology integration emphasize that digital learning becomes effective when technology supports the transmission of religious values, student engagement, and contextual learning experiences (Firdaus et al., 2023). The findings also demonstrate that becoming a micro digital content creator requires teachers to develop continuous professional learning habits. Teachers must constantly explore new applications, understand emerging digital trends, and evaluate the effectiveness of their content. This process encourages teachers to become lifelong learners who continuously improve their professional competence. Digital transformation therefore does not end with technology adoption but involves continuous development of teacher knowledge and creativity. From a theoretical perspective, this study contributes to the understanding of teacher digital agency by introducing the concept of Micro Digital Content Creator in Islamic Education. This concept explains that PAI teachers in digital environments operate as small-scale producers of educational knowledge who combine technological skills, pedagogical understanding, and Islamic values. Unlike conventional perspectives that emphasize teachers as technology adopters, this study highlights teachers as active creators who shape digital learning environments according to educational objectives.

The findings extend the Technological Pedagogical Content Knowledge (TPACK) perspective by demonstrating that effective digital integration among PAI teachers requires an additional dimension: value consciousness. Teachers must not only understand technology, pedagogy, and Islamic content but also possess the ability to ensure that digital products reflect ethical and spiritual educational goals. This suggests the importance of developing a broader framework that integrates technological competence with religious and moral awareness. Therefore, the role of PAI teachers as micro digital content creators represents a significant dimension of digital transformation in Islamic education. Teachers are no longer limited to implementing digital policies designed by external actors but actively participate in creating digital educational ecosystems. Through digital content production, teachers strengthen student engagement, preserve Islamic values, and expand the reach of religious education beyond physical classrooms. In conclusion, this study demonstrates that PAI teachers in frontier areas of East Kalimantan have developed a new professional identity as micro digital content creators. Their digital practices are not simply technological activities but value-oriented educational actions. By producing contextual, interactive, and ethical digital content, teachers transform technology into a medium for Islamic learning innovation. The contribution of this finding lies in showing that sustainable digital transformation depends on teachers' ability to become creative producers of knowledge who integrate technology, pedagogy, and Islamic values.

Discussion

The findings demonstrate that digital transformation among Islamic Education teachers in frontier areas is fundamentally initiated by an internal process of spiritual reflection rather than by technological pressure alone. As shown in the study, muhasabah functions as a reflective mechanism through which teachers evaluate their pedagogical practices, moral responsibilities, and educational purposes in the midst of rapid digital change. This pattern suggests that innovation in Islamic education follows an "inside-out" trajectory in which technological adaptation emerges from teachers' spiritual consciousness and professional commitment. Such evidence extends existing perspectives on educational digitalization, which have traditionally emphasized technological competence and institutional readiness (Lai et al., 2022). While previous studies have confirmed the importance of teachers' beliefs and professional identity in shaping digital practices (Eraku et al., 2023; König et al., 2021), the present findings reveal that reflective spirituality constitutes an additional dimension that strengthens pedagogical agency in Islamic educational settings. Consequently, the proposed concept of transcendental pedagogical awareness enriches contemporary discussions by positioning spiritual reflection as a driving force behind sustainable educational innovation.

The central role of muhasabah also provides an alternative interpretation of innovation theories, particularly within frontier educational contexts. Rogers' diffusion framework explains technology adoption primarily through categories of adopters and patterns of acceptance; however, the findings suggest that delayed or selective adoption may reflect ethical considerations and contextual judgments rather than resistance to change. Teachers in Berau critically evaluate whether particular technologies genuinely contribute to students' intellectual and spiritual development before integrating them into classroom practices. This finding supports recent arguments that teacher agency is inseparable from professional values and reflective capacity (Bond et al., 2021; Mansfield et al., 2022). At the same time, it challenges technocentric assumptions that equate innovation solely with the speed of technological adoption. In this regard, transcendental pedagogical awareness modifies prevailing innovation theories by demonstrating that educational transformation in Islamic contexts is filtered through moral accountability, contextual sensitivity, and religious commitments.

Another significant finding concerns the changing status of technology from a neutral instructional tool into a value-oriented pedagogical medium. Teachers do not merely employ digital applications to improve efficiency; instead, they intentionally integrate Qur'anic teachings, moral narratives, and contextual examples into digital learning environments. This indicates that digital transformation in Islamic education is essentially axiological because technological practices are continuously negotiated through ethical and spiritual frameworks. Such evidence aligns with recent studies emphasizing that technology integration in religious education requires a balance between digital competence and value preservation (Bentri et al., 2022). Nevertheless, the present study

advances these discussions by showing that technology becomes meaningful only when teachers consciously embed educational values within digital spaces. Therefore, successful digitalization depends not only on technical expertise but also on teachers' ability to transform technological instruments into vehicles for moral and spiritual formation.

The findings further expand the Technological Pedagogical Content Knowledge (TPACK) framework by revealing the necessity of an additional dimension: value consciousness. Classical TPACK emphasizes the integration of technological, pedagogical, and content knowledge (Mishra & Koehler, 2006), yet the experiences of Islamic Education teachers demonstrate that effective digital practices also require ethical discernment and spiritual awareness. Teachers consistently evaluate whether digital platforms support character development, responsible citizenship, and religious understanding. This perspective resonates with studies showing that contemporary learners demand interactive and technology-rich environments (Firdaus et al., 2023; Siregar et al., 2024), but it also suggests that engagement alone is insufficient without moral guidance. Consequently, the study contributes conceptually by proposing that digital pedagogy in Islamic education should be understood as the intersection of technological competence, pedagogical wisdom, and transcendental values.

A further contribution of the study lies in its identification of Islamic Education teachers as micro digital content creators. Rather than functioning merely as users of educational technology, teachers actively produce localized learning resources through platforms such as Canva, Quizizz, Wordwall, CapCut, and YouTube. This transformation reflects a broader shift in professional identity from knowledge transmitters to designers, curators, and producers of digital learning experiences. Similar trends have been identified in recent scholarship, which emphasizes that teacher digital literacy increasingly involves the capacity to create, adapt, and evaluate educational content (Listiaji & Subhan, 2021; Ikhwan et al., 2023; Yondler & Blau, 2021). However, unlike previous studies that focus predominantly on technical creativity, the present findings demonstrate that content production among Islamic Education teachers is deeply rooted in moral responsibility and pedagogical intentionality. As a result, the concept of the micro digital content creator offers a new analytical lens for understanding teacher agency within religious and culturally diverse educational settings.

Importantly, the emergence of teachers as digital content creators also highlights the role of contextual adaptation in shaping innovation. Frontier educational environments are often portrayed through narratives of infrastructural deficiency, limited internet access, and unequal technological opportunities. Yet the findings reveal that such constraints do not necessarily inhibit educational transformation; instead, they stimulate creativity and encourage teachers to develop context-sensitive pedagogical strategies. This observation is consistent with previous research demonstrating that educators in disadvantaged contexts frequently display high levels of innovation and adaptive capacity (Yusriadi, 2022; Ramakrishna & Singh, 2022). Nevertheless, the current study goes further by arguing that creativity in frontier regions emerges not despite contextual limitations but partly because of them. Therefore, frontier schools should no longer be viewed merely as spaces of educational scarcity but as environments in which alternative forms of pedagogical innovation can flourish.

The study likewise underscores the importance of pedagogical resilience as a critical foundation for sustaining digital transformation. Teachers' resilience extends beyond psychological endurance and encompasses adaptive competence, reflective practice, and value-based commitment. This multidimensional understanding supports contemporary resilience theories, which emphasize flexibility, creativity, and professional learning in times of educational disruption (Mansfield et al., 2022). However, the findings introduce a significant theoretical refinement by illustrating that resilience among Islamic Education teachers is strengthened by spiritual consciousness and ethical responsibility. Teachers persist not only because institutional demands require adaptation but because they perceive teaching as an act of service and moral obligation. Consequently, the study proposes the notion of transcendental pedagogical resilience, which integrates professional competence with spiritual motivation in explaining teachers' responses to educational change.

Taken together, these findings position the present study within the broader global literature on educational digitalization while simultaneously offering an original conceptual contribution. Existing research has largely examined digital transformation through external variables such as

infrastructure, technological readiness, and institutional support (Widodo & Haris, 2025). By contrast, this study demonstrates that meaningful and sustainable transformation depends equally on teachers' spiritual awareness, reflective agency, and contextual adaptation. The concept of Transcendental Pedagogical Awareness therefore fills an important gap in contemporary scholarship by integrating spirituality, pedagogy, technology, and resilience into a unified framework. Practically, the findings imply that teacher professional development programs should move beyond technical training and incorporate reflective, ethical, and value-based dimensions. Ultimately, the study contributes a new perspective to the global discourse on digital education by arguing that the future of Islamic learning depends not only on technological advancement but also on educators' capacity to align innovation with humanistic and spiritual purposes.

CONCLUSION

This study concludes that digital transformation in Islamic Education extends far beyond the adoption of digital technologies and should instead be understood as a pedagogical process grounded in spiritual awareness, professional responsibility, and contextual adaptation. The experiences of Islamic Education teachers in frontier areas of East Kalimantan reveal that meaningful educational change is shaped by four interconnected dimensions: muhasabah as a source of innovative awareness, technology as a medium for transmitting values, the emergence of teachers as creators of digital learning content, and pedagogical resilience in the face of geographical and infrastructural constraints. These findings demonstrate that teachers do not simply respond to technological developments; rather, they actively reinterpret and integrate digital tools into educational practices that reflect Islamic values and students' needs. Building on these insights, the study proposes the concept of Transcendental Pedagogical Awareness, which highlights the importance of combining spiritual consciousness, pedagogical reflection, technological creativity, and contextual sensitivity in sustaining educational transformation. This perspective broadens conventional understandings of digitalization that tend to emphasize technical competence alone by showing that innovation in Islamic education is deeply influenced by teachers' inner convictions and ethical commitments. From a practical standpoint, the findings suggest that teacher development initiatives should move beyond technology training and place greater emphasis on reflective practice, moral responsibility, and value-oriented pedagogy. Nevertheless, because this research was conducted within a specific frontier context using a qualitative phenomenological approach, further studies involving different educational settings and methodological designs are needed to deepen understanding of how transcendental pedagogical awareness evolves across diverse contexts. Ultimately, the future of digital learning in Islamic education depends not only on technological progress but also on teachers' capacity to transform technology into a meaningful instrument for human, moral, and spiritual development.

AUTHOR CONTRIBUTIONS STATEMENT

Dody Wisono conceptualized the study, designed the research methodology, conducted the field investigation, analyzed the data, and led the writing of the manuscript. Syamsul Arifin contributed to the development of the theoretical framework, supervised the research process, and provided critical input on the interpretation of the findings and the revision of the manuscript. M. Nurul Humaidi assisted in the phenomenological analysis, contributed to the interpretation of the data, and participated in drafting and refining the discussion section. Syamsurizal Yazid contributed to the conceptual development of the study, critically reviewed the manuscript, and refined the conclusion and overall academic presentation of the paper. All authors reviewed, approved, and agreed to the final version of the manuscript.

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