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Integrating Creative Digital Content in Pesantren: Improving Santri's Digital Literacy And Islamic Learning

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Abstrak

Pesantren menghadapi tantangan signifikan dalam mengadaptasi metode pengajaran tradisional dengan kemajuan teknologi digital. Kesenjangan literasi digital dan keterbatasan infrastruktur menjadi hambatan utama dalam implementasi digitalisasi pembelajaran. Salah satu solusi yang potensial adalah pemanfaatan konten digital kreatif untuk meningkatkan literasi digital dan kreativitas peserta didik. Penelitian ini bertujuan untuk menganalisis implementasi konten digital kreatif dalam pembelajaran di pesantren serta mengevaluasi dampaknya terhadap literasi digital dan kreativitas santri. Selain itu, penelitian ini juga mengkaji tantangan utama digitalisasi pesantren dan menawarkan solusi strategis guna menjamin efektivitas dan keberlanjutan program. Penelitian menggunakan pendekatan kualitatif dengan metode studi kasus, mengambil Pondok Pesantren Anak-anak Tahfidzul Qur'an (PPATQ) Raudlatul Falah Bermi Gembong, Pati, Jawa Tengah sebagai subjek utama. Pesantren ini memiliki tim Digital Creative Content aktif yang membedakannya dari empat pesantren lain yang turut diamati. Data dikumpulkan melalui wawancara mendalam dengan 20 santri dan 5 ustadz, observasi partisipatif, dan analisis dokumen pembelajaran digital. Analisis dilakukan secara tematik untuk mengidentifikasi pola pembelajaran dan dampaknya terhadap capaian belajar. Hasil penelitian menunjukkan bahwa 70% santri menyatakan bahwa penggunaan konten digital sangat membantu mereka memahami materi, dan 80% menunjukkan peningkatan minat belajar. Santri yang terlibat dalam produksi konten digital menunjukkan peningkatan signifikan dalam keterampilan digital, seperti penguasaan video editing, desain grafis, dan penyampaian dakwah visual. Selain itu, 90% ustadz menilai pendekatan ini mendukung nilai-nilai Islam dan memperkuat keterlibatan

santri dalam proses pembelajaran. Kendala utama meliputi rendahnya kompetensi digital guru dan terbatasnya akses internet di beberapa lokasi. Oleh karena itu, dibutuhkan strategi peningkatan kapasitas guru, penguatan infrastruktur digital, serta kebijakan pengawasan konten untuk memastikan keberlanjutan transformasi digital. Studi ini berkontribusi pada pengembangan model pembelajaran digital kontekstual di pesantren dan menyajikan rekomendasi kebijakan bagi pimpinan pesantren dan pemangku kepentingan untuk memperkuat transformasi pendidikan Islam melalui inovasi teknologi yang adaptif dan inklusif.

Kata kunci: Pembuatan konten digital, literasi digital, Pesantren, transformasi pendidikan, teknologi digital

Abstract

Islamic boarding schools (pesantren) face profound structural and pedagogical challenges in adapting their traditional educational frameworks to the demands of digital transformation. The most pressing issues include limited digital literacy among both educators and students, as well as inadequate technological infrastructure. In light of these challenges, the incorporation of creative digital content is increasingly viewed as a viable strategy to enhance digital competencies and foster creative engagement among santri. This study critically examines the implementation of such content in pesantren learning environments and evaluates its impact on learners' digital literacies and creative proficiencies. It also interrogates the systemic constraints impeding this integration and proposes evidence-informed, context-sensitive strategies for sustainable and pedagogically aligned digital innovation. This study employs a qualitative case study design, with its primary site being Pondok Pesantren Anak-anak Tahfidzul Qur'an (PPATQ) Raudlatul Falah in Bermi Gembong, Pati, Central Java—a pesantren recognized for its institutionalized Digital Creative Content unit, which serves as a nucleus for its technology-driven pedagogical initiatives. To enhance contextual validity and comparative depth, supplementary observation fieldwork was conducted across four additional pesantren within the same geographical region. Data collection employed a triangulated approach comprising semi-structured interviews with 20 santri and 5 ustadz, prolonged participant observation during content creation sessions, and critical analysis of institutional documents, curricula, and student-generated digital materials. Thematic analysis, following Braun and Clarke's reflexive framework, was employed to identify salient pedagogical, technological, and sociocultural patterns that emerged across the cases. Findings reveal that 70% of santri reported enhanced conceptual understanding through digital media integration, while 80% reported elevated motivation to engage in the learning process. Participants involved in digital content creation displayed significant development in technical proficiencies, particularly in multimedia production and digital da'wah. Moreover, 90% of ustadz perceived that such integration augmented both student engagement and the internalization of Islamic values. However, persistent barriers remain, especially concerning uneven internet access and the paucity of educator training in digital pedagogy. The study advocates for a multifaceted intervention model that comprises targeted teacher professional development, infrastructural strengthening, and governance mechanisms to ensure content integrity. This research makes a substantive contribution to the theoretical and applied discourse on Islamic educational modernization by articulating a contextualized model for digital

pedagogy within pesantren. It advances the proposition that culturally responsive, technologically enabled instruction can catalyze epistemologically sound innovation in Islamic education.

Keywords: Digital content creation, digital literacy, Pesantren, educational transformation, digital technology

INTRODUCTION

The development of digital technology has changed various aspects of life, including education. Pesantren, one of the oldest Islamic educational institutions in Indonesia, faces the challenge of adapting traditional teaching methods to the demands of the digital era. Integrating creative digital content into the learning process in pesantren is a strategic step to enhance the digital literacy of santri (students in Islamic Boarding Schools or Pesantren) and enrich learning methods (Suhartini et al., 2021). Digital education allows santri to access more information, enhance their creativity, and interactively deepen their understanding of Islam (Yuliangsih & Hasanah, 2024). The literature shows that educators' mastery of digital literacy is key to the success of digital transformation in pesantren (Nuryanti et al., 2024; Winarti et al., 2022). Training teachers in technology skills has been shown to increase the effectiveness of digital learning (Musa et al., 2025; Nurhayati, Fitri, et al., 2024). In addition, blended learning approaches that combine face-to-face and online learning have begun to be adopted in pesantren to increase santri engagement in learning (Tiarawati et al., 2023). Thus, digitalization in the pesantren environment is not only limited to the application of technology but also the development of pedagogy by the distinctiveness of Islamic education.

Although technology integration in pesantren education shows excellent potential, various obstacles remain. One of the main challenges is the digital literacy gap among santri caused by socio-economic factors and limited technological infrastructure in pesantren (Ratnawulan et al., 2025; Sechandini et al., 2023; Susanti & Nurhayati, 2024). Inadequate training of teaching staff also hinders the adoption of digital learning methods. Therefore, the required solutions include providing technological infrastructure, training the teaching staff, and developing curricula that support the integration of creative digital content into the pesantren learning system. Several previous studies have proposed solutions to the problems associated with digitalizing pesantren education. For example, Ibda's study (2023) Shows that implementing a digital learning management system can improve the competence of santri in understanding Islamic education content more interactively. Another study emphasizes the importance of digital leadership in santri management to support the implementation of technology-based policies (Fadli & Dwiningrum, 2021). In addition, developing pesantren-based e-learning platforms has been proven to increase santri participation in online learning (Kuznetsova, 2021; Nurhayati et al., 2023; Suharyat et al., 2022).

The introduction of digital technology in pesantren also needs to consider cultural aspects and Islamic values that the community embraces (Baharuddin et al., 2024). Utilizing creative digital content, such as interactive instructional videos, Islamic podcasts, and Sharia-based educational applications, is an effective strategy to increase interest in learning in pesantren without compromising the essence of Islamic education (Islamic et al., 2023). In addition, digitalization in pesantren also plays a role in shaping a moderate Islamic narrative and preventing the spread of

extreme ideologies through the responsible use of digital media (Untung et al., 2022). Although various studies have highlighted the importance of digitalization in the context of Pesantren or Islamic Boarding School, there is still a research gap regarding effective adoption models for different types of santri. Not all santri have the same access to technology, so a more contextualized approach to its adoption is needed. Further research is necessary to understand how santri can effectively adapt digital learning methods to their characteristics and needs.

This study seeks to critically examine the role of creative digital content as a transformative learning outcome within the context of pesantren, or Islamic boarding schools. This research is driven by the need to align traditional Islamic educational institutions with the demands of the digital age through innovative, inclusive, and culturally respectful approaches. In addressing this aim, the study is guided by four interrelated research questions. First, it investigates how the integration of creative digital content into the pesantren learning system can enhance digital literacy, stimulate creativity, and elevate the overall educational engagement of santri. Second, it explores the key institutional, technological, and pedagogical challenges that hinder the effective adoption of such content within the pesantren context. Third, the study tries to identify actionable, context-sensitive solutions to overcome these challenges by drawing from both global digital education frameworks and local Islamic pedagogical traditions. Finally, it examines how the creative use of digital content influences the effectiveness of instructional delivery and contributes to the sustainability of Islamic values in a digitally mediated learning environment.

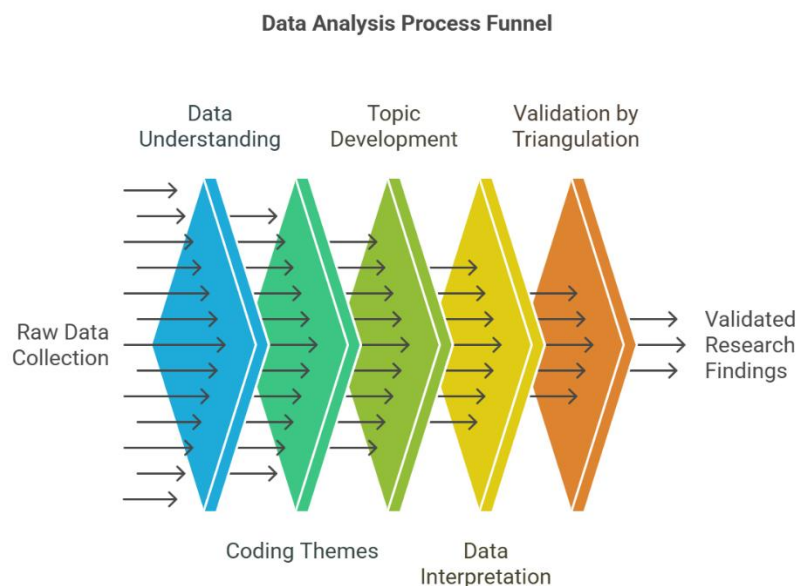
METHODOLOGY

This study employs a qualitative research approach with a case study methodology. The aim is to analyze how creative digital content is implemented as a learning outcome in pesantren and to assess its impact on digital literacy and the quality of santri education. The qualitative approach provides an in-depth understanding of the research subject, while the case study method provides a comprehensive analysis in a specific implementation context (Iswahyudi et al., 2023; Yin, 2018).

The researchers conducted studies in five Islamic boarding schools in Central Java that have produced digital content for learning results, and more than 500 videos have been observed by over 500 santri. Meanwhile, to conduct in-depth interviews, the researcher took PPATQ Raudlatul Falah Bermi Gembong Pati, Central Java, as the leading case study site. This pesantren was chosen because it has a special digital content creative team that does not exist in other Islamic boarding schools included in the researcher's observation. The unit of analysis in this case study focuses on the digital creative team at PPATQ, which is responsible for initiating, producing, and integrating creative digital content into the instructional process. This unit includes teachers (ustadz) who supervise digital projects and santri who are actively engaged in digital content creation for educational and da'wah purposes. The creative team at PPATQ actively implements digital content strategies into learning activities across different subject areas. This study involved 500 santri and five ustadz who were directly involved in creating digital content. The researchers employed a purposive sampling method to select participants with experience in digital learning tools, which formed the basis of this study (Creswell, 2017; Nurhayati, Kurnianta, et al., 2024). A total of 20 santri and 5 ustadz were interviewed in depth. The santri participants, aged between 8 and 19 years, enrolled in elementary, secondary, and

upper-secondary levels of Islamic education (equivalent to MIs, MTs, and MA), and they had at least 6 months of experience participating in the digital content creation program at PPATQ. Meanwhile, the ustadz interviewed had backgrounds in Islamic studies, education, and multimedia training and were assigned to supervise santri in digital video production and graphic design.

Data were collected using various qualitative methods to provide a holistic view of the research questions, as follows: *First*, semi-structured interviews were conducted with Ustadz and santri to explore their experiences, challenges, and perceptions in the realization of the creative digital content. Each interview lasted approximately 45 to 60 minutes and was recorded with the participant's consent. *Secondly*, observation was conducted in the digital content creation classroom to track live interaction, learning, and santri engagement. Field notes were made to document key activities and behaviors. *Third*, document analysis covers institutional documents, curriculum, and digital content created by santri to gain insights into the pedagogical approaches and technological tools used in the learning process. The data collected were analyzed using thematic analysis, as described by Braun and Clarke (2006). The analysis included the following steps:



In data analysis, the first step is to understand the data by copying interviews and analyzing observation records. Second, coding is identifying recurring themes and patterns in the data. Third, topic development involves grouping similar codes into broader categories. Fourth, data interpretation involves synthesizing themes to address the research question. Moreover, validation is enhanced through triangulation, which involves correlating findings from interviews, observations, and document analysis (Patton, 2025). Several strategies were employed to enhance the reliability and validity of the findings: 1) Triangulation, which involves combining multiple data sources and methods to validate conclusions. 2) Participant Review: Participants were allowed to review transcripts and provide feedback. 3) Mutual debriefing: External researchers verify analysis results to minimize research bias (Merriam, 2016). Although this study provides valuable insights, some limitations remain. Triangulation in this study was conducted methodologically and source-

wise. Methodological triangulation was achieved by cross-checking data obtained from interviews, observations, and document analysis. For example, themes identified in interviews (e.g., santri motivation or teacher strategy) were confirmed or refuted through classroom observations and supporting institutional documents. Source triangulation involved comparing responses from different types of participants (ustadz vs. santri) to identify convergences or discrepancies in perspective. Moreover, member checking (participant review) was employed by sharing interview transcripts with selected participants for validation and clarification. To ensure analyst triangulation, the researcher invited two external qualitative research experts to review the coding process and interpretive summaries, which helped minimize subjectivity and enhance the robustness of the findings. The results are based on data from one participant, so generalization to other participants is limited. This participant was selected because the researcher found only one child participant with a creative group for digital content creation, which was not found in other participants. In the future, it is possible to expand the scope of this study by involving multiple institutions and employing mixed methods to enhance data validity. Through this rigorous methodology, this study aims to provide a comprehensive understanding of how creative santri can effectively integrate digital content into pesantren education and contribute to the broader discourse on digital transformation in Islamic education.

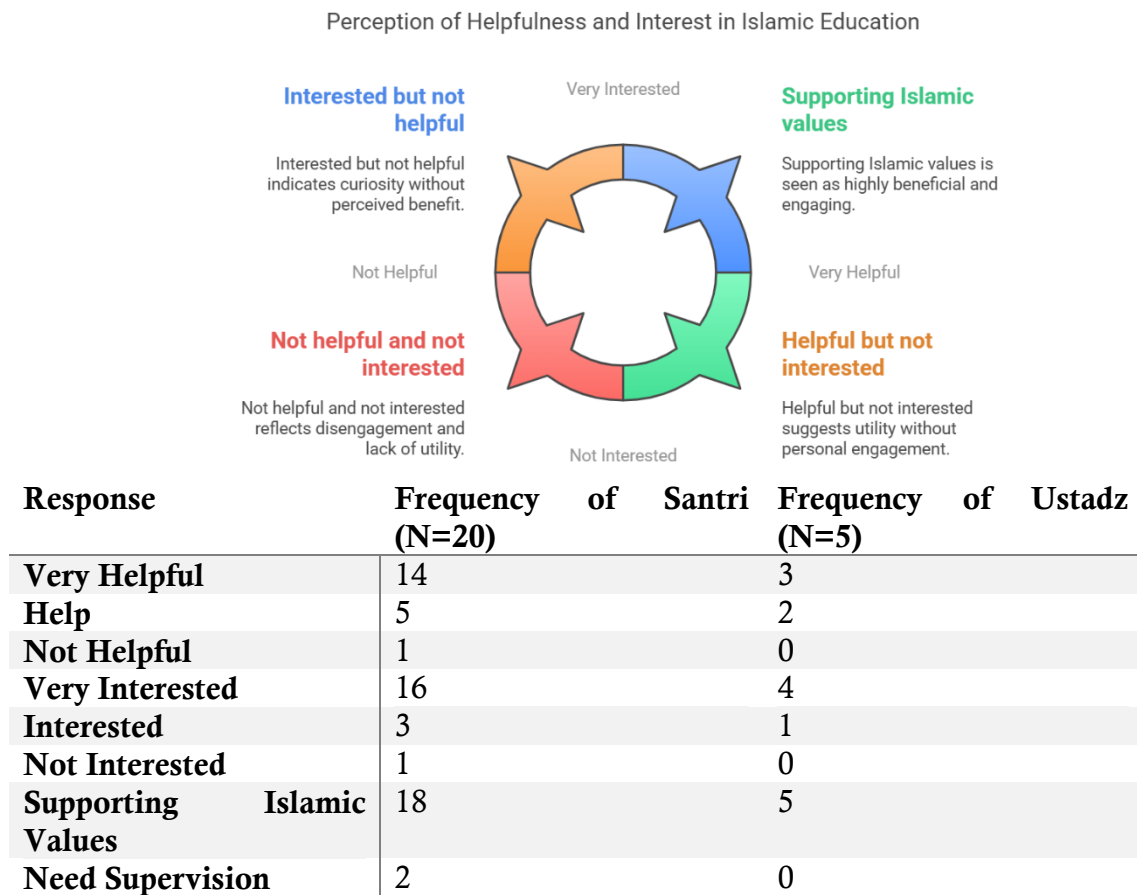
RESULTS AND DISCUSSION

a. Applying digital content creativity to improve digital literacy and creativity

The results show that applying creativity in digital content as a result of learning in pesantren has significantly contributed to the digital literacy and creativity of santri. At PPATQ Raudlatul Falah Pati, the digital creativity department has developed programs allowing santri to practice video editing, graphic content development, and digital da'wah production. Using applications such as Adobe Premiere, CapCut, and PixelLab, the santri can hone their technological skills in a structured environment . (PPATQTV, 2025: see in this link: <https://www.youtube.com/@PPATQTV/videos> and <https://www.tiktok.com/@ppatq.raudlatulfalah? t=ZS-8uFwaoNHCDK& r=1>).

In addition to enhancing technical skills, santri's participation in digital content creation reinforces their critical thinking, collaboration, and communication skills. The creative process—comprising research, scripting, editing, and publishing—requires santri to synthesize Islamic teachings and communicate them in formats that resonate with modern, digital-native audiences. This process fosters higher-order thinking skills and aligns with the constructivist learning paradigm, which asserts that knowledge is best constructed through contextual, active, and socially mediated experiences (Chotimah et al., 2025; Kosmawan & Nurhayati, 2025; Vygotsky, 1978). The data presented in Table 1 further supports these findings by highlighting strong positive perceptions from both santri and ustadz regarding the use of digital content in creative learning activities.

Table 1. Informants' responses on the use of digital content in creativity



The data shown in Table 1 also reflect the principles of Kearsley & Shneiderman's Engagement Theory (1998) which emphasizes learning through meaningful tasks and interaction. Santri are not merely passive recipients but become active producers of digital Islamic content. Their involvement in scripting, recording, and editing enhances constructivist learning, where Santri builds knowledge through contextual and collaborative tasks. In a survey of 20 santri and 5 ustadz (see Table 1), 14 santri and 3 ustadz reported feeling "very helped" by digital content in their learning.

According to Keller's (1987) ARCS motivational model, such a response aligns with heightened Confidence and Satisfaction, indicating that creative content not only improves skill acquisition but also boosts learners' motivation and

engagement. The group of 14 santri who reported being “very helped” showed increased participation in content production and reportedly submitted higher-quality assignments during follow-up qualitative evaluations. Ustadz also noted improved articulation of Islamic concepts by these santri in digital and oral forums, suggesting a shift in both learning behavior and performance. The high interest and perceived helpfulness highlight the relevance and attention components of the ARCS model. These findings also support Mayer’s (2005) *Multimedia Learning Theory* suggests that combining visuals, audio, and interactivity enhances retention and comprehension, particularly when embedded in meaningful religious contexts.

The novelty of this research lies in integrating creative digital content into the pesantren context. This research provides new insights into how pesantren can adopt digital technology as a tool to support learning and as a broader means of da'wah. First, Digitalization in pesantren is not only about efficiency but also about the pedagogical transformation that preserves Islamic values. Second, digital literacy in traditional pesantren should be improved. In contrast to previous studies that focused on formal education, this finding shows that pesantren can develop digital literacy in santri through teaching video editing, graphic design, and creating digital content for da'wah. This shows that even traditional educational institutions can adapt to current technological trends (Mustari & Nurhayati, 2024; Ratnawulan et al., 2025; Taufikin et al., 2025).

In addition, the study highlights the broader social and cultural implications of digitalization in pesantren. It reveals that most santri and ustadz believe digital technology can support Islamic values when applied with appropriate control and supervision. Unlike conceptual studies, this research employs an empirical approach by directly involving santri and ustadz in the data collection process. Their responses provide grounded insight into the benefits and challenges of integrating digital content into Islamic education. The study also proposes practical solutions, such as partnerships with technology institutions and training for educators, which make its findings applicable to other pesantren planning to undertake similar digital initiatives. Ultimately, this study confirms previous findings, which state that access to technology and structured digital training significantly enhance digital literacy (Musa, Nurhayati, et al., 2024; Nurhayati, 2024; Setiadi et al., 2023). At PPATQ Raudlatul Falah, santri who participate in the creative digital content program not only acquire technical skills but also demonstrate reflective and strategic thinking in conveying Islamic teachings. Digitalization in this context is more than a technical shift—it is a shift in mindset and pedagogy. By creating digital da'wah content, santri learn to package religious messages in visual, interactive formats that are accessible to a broader audience. This practice fosters multimedia da'wah that is inclusive, scalable, and relevant to contemporary society (Nur Hasanah & Kristiyah, 2023). Compared to conventional lecture-based methods, creative digital content allows santri to engage with materials in ways that are more participatory and meaningful. As Mayer’s theory (Mayer, 2005) underscores the importance of integrating text, audio, and visuals to support stronger comprehension and retention. Therefore, the implementation of digital content in pesantren is not merely an enhancement—it is a transformation that modernizes Islamic education while remaining firmly rooted in its foundational values.

b. Challenges and solutions in integrating creative digital content into the learning system

Despite its numerous benefits, integrating creative digital content into the pesantren learning system presents several significant challenges. One of the most important obstacles is the lack of staff with technical skills in digital content production and management. Many teachers in pesantren lack an understanding of digital technology, making ongoing training an urgent need (Marcus-Quinn & Hourigan, 2022; Musa, Suherman, et al., 2024; Musa & Nurhayati, 2024). This condition can be further explained using the Technological Pedagogical Content Knowledge (TPACK) framework, which emphasizes that effective technology integration requires not only technological knowledge but also its intersection with pedagogy and subject matter (Saili, 2023). Many educators in pesantren struggle in the technological domain, which hinders their ability to integrate digital content meaningfully into instruction.

Additionally, infrastructure constraints—particularly uneven internet access and the limited availability of digital devices—are significant obstacles. Some pesantren located in remote areas still have difficulty accessing adequate digital resources. To overcome this challenge, pesantren can collaborate with external parties, such as universities and technology institutes, to receive support through training, devices, and improved digital infrastructure (Ibda et al., 2023; Putra et al., 2020;). These external collaborations represent a crucial augmentation phase in the SAMR (Substitution, Augmentation, Modification, Redefinition) model, where technology is not just added but begins to enhance and expand learning functionality (Blundell et al., 2022). Another challenge is the varying levels of readiness among santri and educators to understand and use digital technology (Nur Hasanah, 2023). Not all santri have early access to digital devices before entering the pesantren, leading to gaps in technology uptake (Susanti & Nurhayati, 2024). Addressing this issue aligns with the scaffolding concept proposed by Vygotsky, where learners (and educators) need guided support to reach higher levels of competence (Khosravizadeh, 2023). Therefore, pesantren should design digital learning environments where santri and teachers are gradually introduced to digital tools, with structured support in place until they achieve independent use. To mitigate this, pesantren can develop an inclusive technology-based curriculum that provides equal opportunities for santri to build digital literacy. Instructional design based on scaffolding principles can guide the gradual release of responsibility from teacher to learner, allowing santri to develop confidence and competence in using technology for religious expression and learning.

The novelty of this research is presented in three key aspects. First, through "Inclusive Strategies in Digitalization of Pesantren," this study identifies the challenges of creatively integrating digital content. It proposes an inclusive, curriculum-based approach to bridge the digital literacy gap among santri. Second, "The Role of Continuous Learning for Educators" is emphasized as a critical innovation. This underscores the importance of professional development, where teacher training is structured not only to transfer technical knowledge but also to support teachers in combining technology, pedagogy, and religious content (aligned with TPACK) (Marsegi et al., 2023; Nurhayati & Musa, 2025; Nuryanti et al., 2024). Third, this study highlights strategic partnerships as a solution to infrastructure limitations. These insights show how pesantren can partner with universities and technology institutions to accelerate the adoption of digital technology. Due to this novelty, this study provides practical contributions that can be realized by other

pesantren when introducing digital technology into the learning system. Despite the significant benefits of digitalization in pesantren, several persistent challenges must still be addressed. As mentioned earlier, the limited availability of human resources and competencies in digital content management remains a key barrier. Many teachers in pesantren lack sufficient technical knowledge of digital tools, making continuous training essential to help them progress from the substitution to the modification and redefinition phases of the SAMR model, where technology is not merely used but becomes transformative (Nurhayati, Fitri, et al., 2024). In addition, limited infrastructure capacity and particularly uneven internet access in some areas are significant barriers to adopting digital technology in pesantren. According to Ibda's (Ibda et al., 2023) study, pesantren institutions that collaborate with technology institutes and universities tend to adapt more quickly to digitalization, as they gain access to better technology resources and training. These findings further reinforce the importance of institutional support, a key element in educational technology adoption models. It is also important for pesantren to create a digital ecosystem that actively engages santri in technology-based learning. It can be achieved by building digital laboratories, developing pesantren-based e-learning platforms, and organizing creative competitions involving digital content production. In doing so, santri are transformed from mere consumers of content into producers of Islamic digital narratives that contribute to the online ummah. To address these layered challenges, pesantren can adopt inclusive digitalization policies, such as developing a tiered technology-based curriculum that considers the diverse backgrounds of santri in terms of access and prior experience with digital tools. Studies have confirmed that inclusive policies anchored in well-designed digital curricula can effectively narrow the digital literacy gap among santri (Akhmetova et al., 2020; Fadli & Dwiningrum, 2021; Nurhayati & Musa, 2020). Through the integration of TPACK-informed training, scaffolding strategies, and SAMR-aligned innovation, pesantren can transition from digitally lagging institutions into digitally empowered centers of Islamic education.

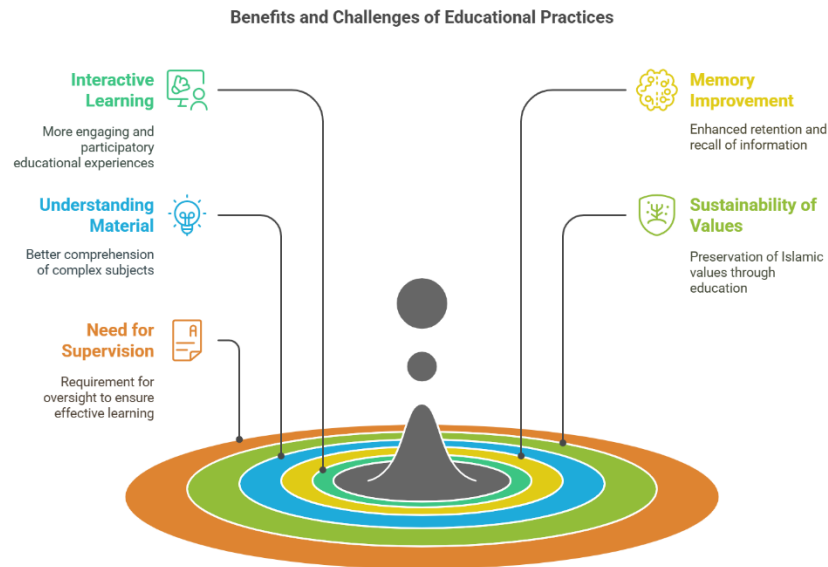
c. The impact of digital content creativity on learning effectiveness and sustainability of Islamic values

Using creative digital content in the pesantren environment has significantly impacted learning effectiveness and the sustainability of Islamic values. Digital learning methods enable santri to understand the material more interactively and visually, thereby improving their memory and comprehension of Islamic teachings. Through learning videos and interactive materials, santri can learn Islamic concepts more enjoyably and understandably (PPATQTV, 2025). The following table (Table 2) shows the results of responses from 20 santri and five ustadz regarding the impact of digital content creativity.

Table 2. The impact of Digital Content Creativity

Response	Frequency of Santri (n=20)	Frequency of Ustadz (n=5)
More interactive learning	15	4
Improves memory	14	3
Facilitate understanding of the material	16	5

Maintaining the sustainability of Islamic values	18	5
Requires supervision	4	2



Based on Table 2. The use of creative digital content in the pesantren environment has shown a significant impact on both learning effectiveness and the sustainability of Islamic values. Digital learning methods have enabled santri to access Islamic materials through more interactive and visual modalities, enhancing both comprehension and retention. Videos, infographics, and other multimedia resources facilitate deeper engagement with religious content, making the learning experience more contextual and meaningful. The high preference among santri and ustadz for “interactive learning” and “facilitated understanding” is strongly aligned with Engagement Theory (Kearsley & Shneiderman, 1998), which posits that santri learn best when engaged in collaborative, meaningful tasks that integrate technology. In this context, creative digital content acts as a catalyst for cognitive engagement, encouraging santri to internalize concepts by actively constructing and presenting knowledge.

Moreover, these findings map clearly onto the ARCS motivational model (Keller, 1987). The positive responses suggest that digital content attracts santri' attention, ensures relevance by linking religious teachings to modern formats, builds confidence through skill acquisition, and yields satisfaction when content is published or shared publicly. For instance, the 16 santri who indicated that digital content "facilitated understanding" expressed in interviews that they could recall religious concepts more clearly when those were embedded in audiovisual formats. It correlates with improved retention—a finding consistent with Mayer's (Mayer, 2005) Multimedia Learning Theory. Additionally, 18 out of 20 santri and all ustadz agreed that digital content supports the preservation of Islamic values, a finding that challenges the assumption that digitalization dilutes traditional norms. Instead, the digital medium—when properly guided—can amplify core pesantren values through visual da'wah, storytelling, and ethical narratives. As Hofstede (2011) emphasized, cultural values can persist and even thrive in the digital era when governed by clear

normative boundaries. Likewise, Leurs (2015) observed that religious communities can maintain their identity in digital spaces through intentional, supervised practices. However, responses such as “requires supervision” from a minority of santri (4) and ustadz (2) indicate awareness of the dual-edged nature of technology. Without adequate content moderation and digital ethics education, the risk of exposure to non-aligned values persists. This validates the importance of pedagogical supervision, not to limit creativity, but to ensure that it aligns with Islamic principles and pesantren values.

These findings demonstrate that creative digital content is not merely an instructional tool; it functions as a transformative mechanism for pedagogical renewal. The overwhelmingly positive responses reflect a shift in santri learning behaviors—from passive reception to active engagement. When santri are involved in digital content creation, their motivation increases, critical thinking improves, and their understanding of religion deepens, all of which are core indicators of effective learning under the constructivist and engagement frameworks. From a practical standpoint, this suggests that pesantren should not only integrate digital technology but also intentionally design learning activities that maximize santri engagement and align with ARCS dimensions. It can relate to including encouraging santri to script, produce, and present content that interprets Islamic teachings in culturally relevant ways, fostering both spiritual depth and digital fluency.

Based on the table above, most santri and ustadz agree that digitalization in pesantren education enhances learning by making it more interactive, improves memory, and facilitates the understanding of Islamic learning materials. In addition, nearly all respondents stated that digitalization contributes to preserving Islamic values. However, a small number of santri and ustadz emphasized the need for supervision when implementing digitalization to ensure the content aligns with the principles of Islamic education.

A closer interpretation of the high number of responses indicating "more interactive learning" and "facilitated understanding of the material" can be linked to Keller's ARCS motivational model (Keller, 1987). This model posits four elements—Attention, Relevance, Confidence, and Satisfaction—as key to motivating learners. In this study, the creative use of digital media, such as video editing and visual storytelling, appears to capture students' attention by offering novel, engaging formats that differ from traditional text-based methods. The relevance of the content is increased through its connection to real-world da'wah and Islamic messaging. As students successfully produce and present content, they gain confidence in their digital and religious literacy. Moreover, when their work is shared publicly via platforms like YouTube and TikTok, it provides a sense of satisfaction and achievement.

These responses also align with Mayer's Multimedia Learning Theory (Mayer, 2005), which explains how integrating visuals, text, and audio reduces cognitive overload and enhances retention. For example, the use of narrated video content and integrated graphics in santri productions can support the modality principle—that people learn better from a combination of words and visuals than from words alone. Similarly, the contiguity principle is reflected in how students align text and images nearby during their digital design processes, making information easier to process. The redundancy principle is applied when students intentionally avoid repeating spoken and written information simultaneously, thus reducing

unnecessary cognitive load. These principles help explain why students reported enhanced memory and understanding, as they were both creators and consumers of cognitively optimized content.

First, the novelty of this research lies in its application of digital technology as a learning tool in pesantren. This research demonstrates that creative digital content is utilized not only as a medium for da'wah but also as a practical learning tool in pesantren. This phenomenon has not been widely explored in previous studies. Second, "The impact of digital technology on students' memory and understanding." The results of this study provide empirical evidence of how digital technology can improve santri's memory and understanding of Islamic teachings, thus supporting an evidence-based approach to pesantren education. Third, the sustainability of Islamic values in the digital era. This study enhances learning and demonstrates how digitalization can preserve the relevance of Islamic values among santri and society, addressing concerns about technology-induced cultural shifts. Fourth, there is a need for supervision in the digitalization of pesantren. This study found that although digitalization offers excellent benefits, supervision is still needed to ensure that the content consumed by pesantren is in line with Islamic values. It highlights the importance of striking a balance between innovation and supervision when implementing technology in pesantren. Through these findings, this study provides new insights into how digitalization can be implemented in pesantren to enhance learning while maintaining the sustainability of Islamic values. One of the main challenges in implementing digitalization in pesantren is the potential displacement of Islamic values due to widespread access to digital technology. However, this study shows that digitalization can strengthen Islamic values, provided a proper supervision mechanism is in place.

Leurs (Leurs, 2015) shows that religious communities can adopt digital technology without losing their cultural identity when supported by an effective monitoring strategy. This study's results show that most santri and ustadz stated that digitalization helps preserve Islamic values, although some respondents emphasized the importance of control. Hofstede's cultural dimension theory (Hofstede, 2011) This is also supported, emphasizing that a society's cultural values can survive and thrive in the digital era if there are rules and social mechanisms in place to maintain those norms. Thus, digitalization in pesantren should not be seen merely as a technical change but as a pedagogical and cultural strategy that can strengthen the contextual relevance of Islamic teachings. By integrating technology with carefully considered supervision, pesantren can harness the benefits of digital content creativity while ensuring that Islamic values remain intact and central in educational practices (Jubba et al., 2021; Suri et al., 2024).

d. Academic significance and novelty of this research

1. Integration of digital technology in the pesantren education system

This study provides empirical evidence that santri who participate in digital content creation exhibit better recall and understanding of Islamic teachings compared to santri who only use traditional methods. It is consistent with previous studies that digital learning can increase santri' cognitive engagement and recall of learning materials (Adiwisastro et al., 2020; Ali & Georgiou, 2024; Nurhayati, Haluti, et al., 2024).

2. Digitize and improve santri's memory

This study provides empirical evidence that santri who participate in digital content creation have better recall and understanding of Islamic teachings than santri who only use traditional methods. It is consistent with previous studies that digital learning can increase santri's cognitive engagement and recall of learning materials (Abubakari, 2025; Edwards et al., 2021; Fitriana & Nurhayati, 2024).

3. The role of digitalization in keeping Islamic values relevant

Contrary to the view that digitalization can lead to cultural change, this research shows that technology can effectively maintain and disseminate Islamic values. With the right strategy, digitalization can promote a moderate Islamic narrative and foster a more inclusive Islamic community (Akmaliah, 2022; Nurul Azizah et al., 2023; Zamzami et al., 2023).

4. Practical approaches to overcome barriers to digitization

An important contribution of this research is identifying concrete solutions to overcome the challenges of digitalization in pesantren. It has been proven that pesantrens that establish partnerships with universities and the technology industry are faster in digitizing than those that rely solely on internal resources. Thus, this research is descriptive and applicable, providing strategic recommendations that can be implemented by other pesantren who want to adopt digitalization. Digitalization in pesantren has excellent potential to improve learning, strengthen the digital literacy of santri, and support the sustainability of Islamic values. However, the success of digitization is highly dependent on educators' readiness, infrastructure support, and strict control of the content consumed by santri (Musa et al., 2022; Nurhayati et al., 2025). With the proper regulations and innovative pedagogical approaches, digitalization can be a powerful tool for modernizing Islamic education without compromising the essence of fundamental Islamic values.

CONCLUSION

This study explored the strategic integration of creative digital content within pesantren learning environments, with a specific focus on enhancing digital literacy, improving pedagogical effectiveness, and safeguarding the continuity of Islamic values. The relevance of this inquiry lies in the need for Islamic educational institutions to respond adaptively to the complexities of digital transformation while preserving their epistemological and cultural foundations. The empirical findings underscore that the incorporation of digital modalities—namely, video editing, graphic design, and digital da'wah—facilitates marked improvements in santri engagement, intrinsic motivation, and conceptual mastery. Through rigorous qualitative inquiry, comprising semi-structured interviews, participant observations, and document analyses, this research delineates how digital tools reinforce constructivist learning paradigms, instantiate the ARCS model's motivational constructs, and mitigate cognitive overload in alignment with Mayer's principles of multimedia learning. The consensus among both santri and ustadz reinforces the perceived pedagogical utility, cultural resonance, and religious consonance of digital content when deployed within an ethically supervised framework. Theoretically, this research advances the scholarship on Islamic pedagogy by contextualizing and extending models such as TPACK, ARCS, and cognitive load theory within faith-based educational settings. It further offers a transferable model of technology adoption tailored for pesantren, predicated on inclusive curricular strategies, targeted

professional development, collaborative institutional partnerships, and investment in digital infrastructure. This study signals several directions for future inquiry. Longitudinal and mixed-methods research could more precisely measure the enduring effects of digital integration on academic and religious formation in diverse pesantren contexts. In addition, the positioning of santri as digital producers warrants further exploration, particularly concerning their evolving role in shaping online Islamic discourse. Overall, this study demonstrates that digitalization, when carefully aligned with pedagogical intent and religious integrity, can serve as a transformative agent, expanding the pedagogical repertoire of pesantren while affirming their cultural and theological identity in the digital era.

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