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Digital Literacy in Islamic Higher Education Instruction: Exploring Innovative Approaches to Curriculum Integration

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ABSTRACT

This study examines the integration of digital literacy into Islamic higher education instruction through the implementation of blended learning at the State Islamic Institute of Takengon. Using a mixed-methods design, the research involved 30 participants (10 students, 10 lecturers, and 10 administrators) selected through stratified random sampling. Quantitative data were collected through structured questionnaires, while qualitative data were obtained from semi-structured interviews and focus group discussions. The findings reveal that participants demonstrate strong proficiency in basic digital skills such as word processing and internet navigation, yet show limited competence in advanced skills, including digital content creation and critical evaluation of digital sources. Blended learning emerged as an effective pedagogical strategy for embedding digital literacy into Islamic studies courses, particularly in Ulumul Qur'an and Ulumul Hadits. However, infrastructural limitations, insufficient professional development, and institutional resistance remain significant challenges. The study offers a contextual model of digital literacy integration grounded in Islamic educational values and highlights the importance of structured digital pedagogy training and improved technological infrastructure. These findings provide practical and policy-oriented recommendations for strengthening curriculum innovation in Islamic higher education.

Keywords*: *digital literacy, blended learning, Islamic higher education, curriculum integration

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INTRODUCTION

The rapid development of digital technologies has fundamentally transformed teaching, learning, and knowledge production in higher education. Digital literacy has evolved beyond basic technical competence to include cognitive, critical, and socio-cultural dimensions (Eshet-Alkalai, 2004; Gilster, 1997). In contemporary education, digital literacy is widely recognized as essential for fostering critical thinking, responsible digital citizenship, and lifelong learning (Hobbs, 2020; Ng, 2012). Within higher education contexts, research has demonstrated that integrating digital tools into instructional practices can enhance student engagement and academic performance (Sung et al., 2016). Blended learning, which combines face-to-face instruction with online learning environments, has been identified as an effective pedagogical model for embedding digital competencies into curriculum structures (Al-Fraihat et al., 2020; Muilenburg and Berge, 2005). Furthermore, digital storytelling and project-based learning approaches have shown potential in strengthening students' higher-order digital skills (Eshet-Alkalai, 2004; Robin, 2008).

Although previous research emphasizes the importance of digital literacy in general higher education settings (Al-Fraihat et al., 2020), limited empirical studies specifically examine how digital literacy can be integrated into Islamic higher education curricula in a manner aligned with Islamic educational values. Most existing studies focus on technological access and student readiness rather than pedagogical transformation and curriculum design.

This study addresses this gap by investigating how blended learning can function as a structured strategy for integrating digital literacy into Islamic higher education instruction. Specifically, the research explores current digital literacy levels, identifies institutional challenges, and examines innovative

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curriculum integration strategies within Islamic studies courses such as Ulumul Qur'an and Ulumul Hadits. By proposing a contextual model of digital literacy integration grounded in blended learning and Islamic pedagogical principles, this study contributes to extending digital literacy frameworks into a culturally specific higher education context.

This study offers a new viewpoint on incorporating digital literacy into Islamic higher education. It specifically emphasises the use of innovative and culturally appropriate methods for designing the curriculum. This study stands out from existing studies on digital literacy in higher education because it focuses on the distinct requirements and difficulties that students in Islamic higher education face. This research addresses a significant gap in the existing literature by integrating digital literacy with Islamic beliefs and educational concepts. Moreover, the study's focus on practical and easily expandable methods for curriculum incorporation, supported by empirical evidence, offers practical insights that educators and policymakers can directly apply. Research Questions:

1. What is the current level of digital literacy among stakeholders in Islamic higher education?
2. What institutional challenges affect literacy integration?
3. How can blended learning facilitate curriculum integration of digital literacy?
4. How do stakeholders perceive digital literacy integration?

LITERATURE REVIEW

Conceptualizing Digital Literacy

Digital literacy has evolved significantly since its early conceptualization. Gilster (1999) first defined digital literacy as the ability to understand and use information in multiple digital formats. Subsequent scholars expanded the concept beyond technical competence to include cognitive and socio-cultural dimensions (Eshet-Alkalai, 2004; Lankshear & Knobel, 2008). Contemporary perspectives emphasize that digital literacy involves critical evaluation of online information, ethical participation, and the ability to create digital content (Ng, 2012; Hobbs, 2010). Thus, digital literacy is increasingly understood as a multidimensional construct encompassing technical, cognitive, and ethical competencies required for effective engagement in digital environments.

Digital Literacy in Higher Education

In higher education contexts, digital literacy is associated with improved academic engagement and learning performance. Sung et al. (2016) demonstrate that the integration of digital technologies into instruction can enhance learning outcomes when pedagogically structured. However, the mere availability of technology does not guarantee meaningful integration. Research indicates that barriers such as lack of institutional support, insufficient professional development, and limited digital infrastructure often hinder implementation (Warschauer, 2003). Ertmer & Ottenbreit-Leftwich (2010) further argue that teacher belief systems and readiness significantly influence technology adoption in educational settings. These findings suggest that effective digital literacy integration requires both technological resources and pedagogical transformation.

Blended Learning as a Curriculum Integration Strategy

Blended learning has emerged as a prominent instructional model combining face-to-face and online learning environments. Al-Fraihat et al. (2020) highlight that blended learning environments enhance student satisfaction and system effectiveness when supported by appropriate instructional design. Similarly, Yagcioglu (2017) argues that blended learning provides flexibility while maintaining structured academic interaction. Innovative approaches such as digital storytelling (Robin, 2008) and project-based learning (Markula & Aksela, 2022). further demonstrate how digital competencies can be embedded into course activities rather than taught separately. These approaches emphasize experiential learning and active engagement, aligning

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digital skill development with disciplinary content. Blended learning, therefore, offers a structured pedagogical mechanism for integrating digital literacy into curriculum design.

Digital Literacy in Islamic Higher Education

Islamic higher education institutions operate within a distinctive epistemological framework that integrates classical Islamic scholarship with contemporary academic disciplines. While digital technologies are increasingly present, systematic digital literacy integration remains uneven. Studies indicate that resistance to change, limited professional training, and infrastructural constraints often slow digital transformation in similar contexts (Purmayanti, 2023). Moreover, research on digital literacy in Islamic higher education remains limited, particularly regarding curriculum integration strategies aligned with Islamic educational values. Most existing research focuses on general digital adoption rather than pedagogical restructuring of Islamic studies courses such as Ulumul Qur'an and Ulumul Hadits.

Research Gap and Theoretical Positioning

Although digital literacy and blended learning have been extensively studied in general higher education contexts (Ng, 2012; Sung et al., 2016), limited empirical research examines how blended learning can function as a structured strategy for embedding digital literacy within Islamic higher education curricula. Existing studies tend to emphasize technological readiness rather than curriculum design and value alignment. Therefore, this study positions blended learning as a mediating pedagogical framework that integrates digital literacy competencies with Islamic educational principles.

METHOD

This study aims to investigate the current state of digital literacy, identify obstacles, develop innovative methods for incorporating digital skills into the curriculum, evaluate teaching methods, and gather input from stakeholders in the context of Islamic higher education.

Research Design

This study employed a mixed-methods exploratory design to examine the integration of digital literacy through blended learning in Islamic higher education. The combination of quantitative and qualitative approaches allowed for a comprehensive understanding of participants' digital literacy levels and institutional challenges. The quantitative component provided descriptive insights into digital competencies, while the qualitative component explored experiences, perceptions, and curriculum integration strategies.

Research Settings and Participants

The study was conducted at the State Islamic Institute of Takengon. A total of 30 participants were involved, consisting of 10 students, 10 lecturers, and 10 administrators. These groups were selected to represent key academic stakeholders within the institution. Given the exploratory nature of the study, the sample size was considered appropriate for generating institutional-level insights rather than statistical generalization.

Sampling Technique

Stratified random sampling was employed to ensure proportional representation across institutional roles (students, lecturers, and administrators). Each subgroup was treated as a stratum, and participants were selected to reflect balanced representation within the institutional structure. This sample size is appropriate for descriptive and exploratory institutional analysis.

Instruments

Quantitative data were collected using a structured questionnaire designed to assess digital literacy competencies, including:

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1. Basic technical skills
2. Digital content creation
3. Critical evaluation of digital sources

The questionnaire items were adapted from established digital literacy frameworks (Ng, 2012) and contextualized for Islamic higher education settings. The questionnaire was reviewed for content validity by two experts in educational technology. Qualitative data were collected through:

1. Semi-structured interviews
2. Focus group discussions

These instruments explored participants' experiences with blended learning and digital integration in Islamic studies courses.

Data Collection Procedures

Data collection was conducted over four weeks. Questionnaires were distributed directly to participants, while interviews and focus group discussions were conducted in person and audio-recorded with participant consent.

Data Analysis

Quantitative data were analyzed using descriptive statistics, including percentages and mean scores, to identify patterns in digital literacy competencies across participant groups. The analysis focused on identifying patterns and institutional trends rather than testing statistical significance. Given the limited sample size, inferential statistical tests were not conducted. The analysis focused on institutional-level trends rather than population generalization. Qualitative data were analyzed using thematic analysis. Interview and focus group transcripts were coded systematically to identify recurring themes related to:

1. Institutional challenges
2. Pedagogical strategies
3. Blended learning implementation

Trustworthiness and Validity

To ensure credibility and reliability, several strategies were employed:

1. Data triangulation across questionnaires, interviews, and focus groups
2. Member checking to confirm interpretation accuracy
3. Peer debriefing during qualitative coding

These procedures enhanced the trustworthiness of the findings.

Ethical Considerations

Ethical approval was obtained from the institutional authority. All participants provided informed consent before participation. Confidentiality and anonymity were maintained throughout the study.

RESULTS AND DISCUSSION

The survey results suggest that the digital literacy levels among students in Islamic higher education are diverse. A substantial percentage of students exhibited fundamental digital competencies, such as proficiency in word processing and internet navigation. Nevertheless, there was a noticeable absence of advanced proficiencies, such as coding, digital content creation, and critical evaluation of digital sources. Let see the Table 1 below.

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Table 1. Digital Literacy Levels among Students

Digital Literacy Skill	Percentage of Students Proficient
Word Processing	80%
Internet Navigation	75%
Coding	25%
Digital Content Creation	30%
Critical Evaluastion of Sources	35%

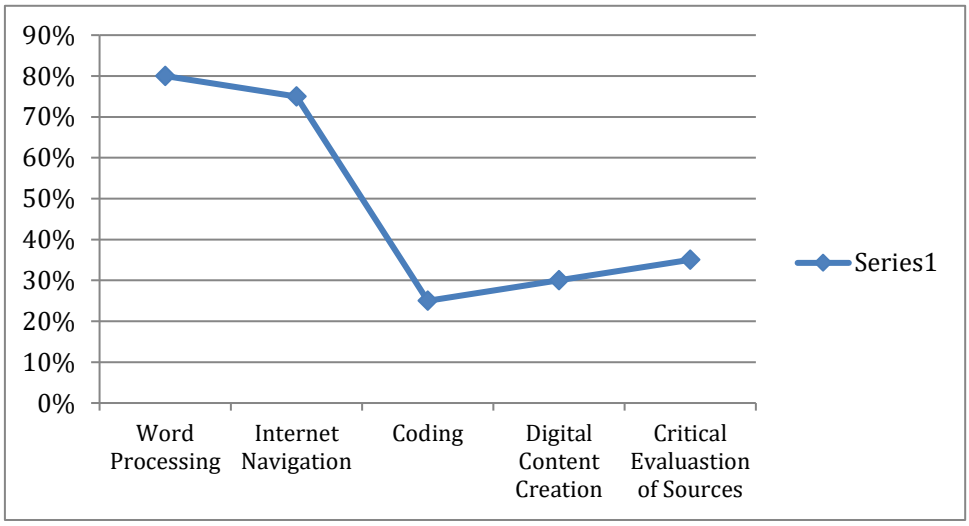


Figure 1. Digital Literacy Levels among Students

The survey findings indicate a wide spectrum of digital literacy proficiency among students in Islamic higher education. According to the data presented in Table 1 and Figure 1, a significant proportion of students demonstrate competence in basic digital skills like word processing (80%) and internet navigation (75%). However, there is a clear lack of advanced proficiencies, such as coding (25%), digital content creation (30%), and critical evaluation of digital sources (35%).

Discussions: The findings indicate a disparity between fundamental and advanced digital literacy skills, which may impede students' capacity to effectively utilise digital resources. There may be a need to broaden the focus of the current curriculum to incorporate more advanced competences, in addition to the emphasis on basic skills. This supports Ng's (2012) claim that digital literacy comprises a wide range of skills that are essential for active engagement in a digital society. Table 2 and Figure 2 present the digital literacy proficiency levels among educators at the State Islamic Institute of Takengon.

Table 2. Digital Literacy Levels among Educators Identify Challenges

Digital Literacy Skill	Percentage of Educators Proficient
Word Processing	90%
Internet Navigation	85%
Coding	20%
Digital Content Creation	40%
Critical Evaluastion of Sources	45%

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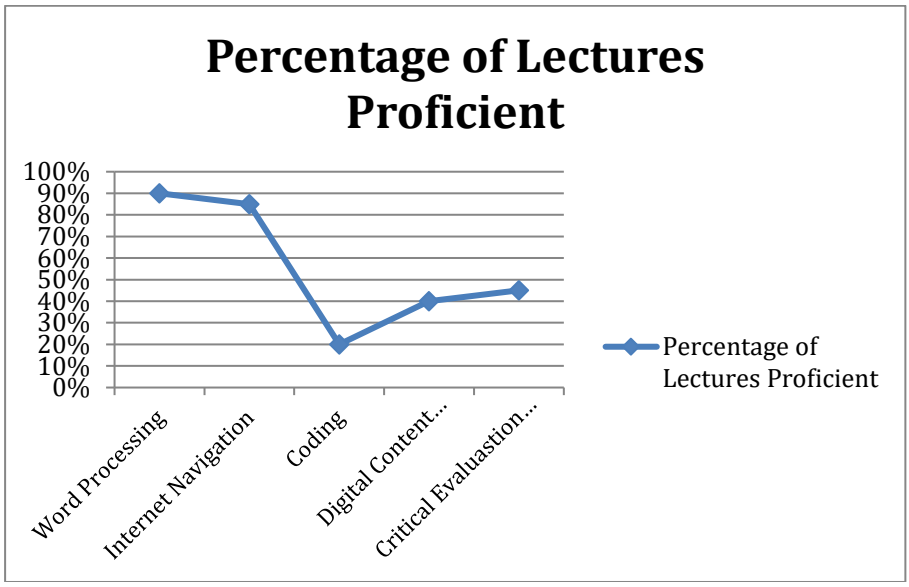


Figure 2. Digital Literacy Levels among Educators Identify Challenges

Educators have a high level of competency in fundamental digital abilities, as evidenced by the survey results, which show that 90% of them are fluent in word processing and 85% are proficient in internet navigation. Only twenty percent of people are fluent in coding, forty percent in digital content development, and forty-five percent in critical evaluation of sources. In light of this, it appears that educators are well-versed in essential digital skills; nonetheless, there is a need for professional development in more advanced digital competencies in order to improve their teaching approaches and effectively incorporate digital literacy into the curriculum.

Examples of Integration

Educators are using digital resources to instruct Ulumul Qur'an by integrating online platforms for interactive tafsir (interpretation) exercises, utilizing digital libraries for accessing diverse Quranic commentaries, and employing software to evaluate Quranic text. In teaching Ulumul Hadits, educators use digital databases to access and compare various collections of Hadiths. They also use online technologies to verify the authenticity of hadiths. Additionally, they construct interactive modules that enable students to examine the context and practical application of hadiths. Islamic Methods of Study: To teach digital literacy in Islamic methods of study, e-learning platforms are used for remote instruction, digital mind mapping tools are used to organize and present Islamic law, and virtual simulations are used to show how Islamic teachings relate to history and culture. Table 3 and Figure 3 present the digital literacy proficiency levels among administrators at the State Islamic Institute of Takengon.

Table 3. Digital Literacy Levels among Administrators

Digital Literacy Skill	Percentage of Administrators Proficient
Word Processing	85%
Internet Navigation	80%
Coding	15%
Digital Content Creation	35%
Critical Evaluastion of Sources	40%

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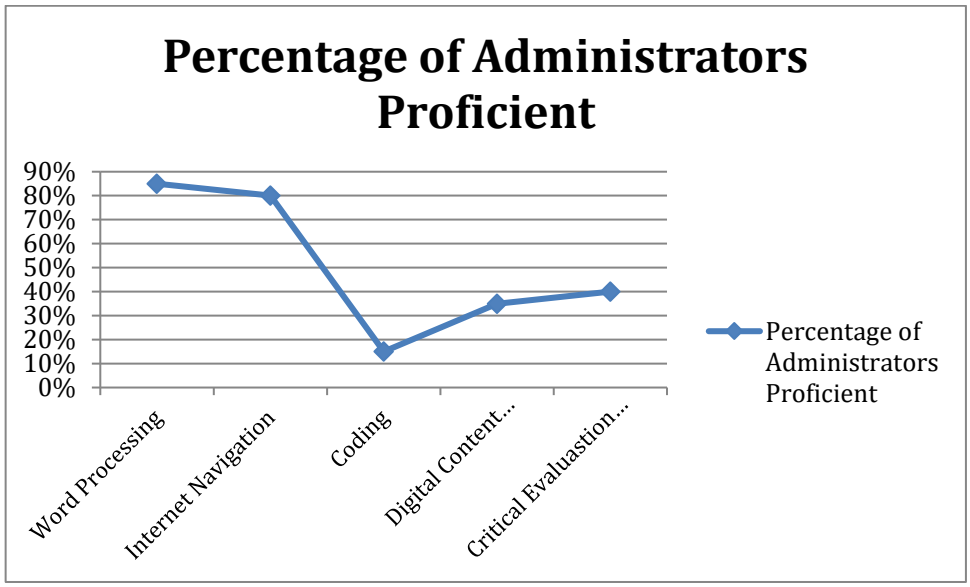


Figure 3. Digital Literacy Levels among Administrators

The poll results indicate that administrators possess a significant level of expertise in fundamental digital abilities, with 85% demonstrating competency in word processing and 80% in internet browsing. Nevertheless, the level of expertise in advanced skills is quite low, as just 15% of individuals demonstrate competency in coding, 35% in digital content creation, and 40% in critically evaluating sources. These findings emphasize the need for specialized training programs to improve administrators' digital literacy, enabling them to successfully support and manage the integration of digital technologies within their institutions.

Instances of Integration

Ulumul Qur'an: Administrators streamline the incorporation of digital technologies by ensuring their availability in online Quranic libraries and digital tafsir resources, which enhance both teaching and research endeavors. Ulumul Hadits advocates for the utilization of Hadith databases and online verification technologies to facilitate the accessibility and authentication of Hadith literature for educators and students. Islamic Methods of Study: Administrators are tasked with creating e-learning platforms and guaranteeing the availability and accessibility of digital resources for courses on Islamic law and history in order to foster a more participatory and engaging learning environment.

This study undertook a comprehensive analysis of digital literacy in Islamic higher education, with a specific focus on the State Islamic Institute of Takengon. By examining data from 10 students, 10 educators, and 10 administrators, the research yielded significant findings regarding the present condition, challenges, inventive curriculum integration techniques, pedagogical strategies, and stakeholder perspectives. Current Digital Literacy Levels: Students exhibit basic digital skills but lack advanced competencies such as coding, creating digital material, and critically evaluating digital resources. Educators and managers demonstrate mastery in fundamental abilities, although they require enhancement in more advanced proficiencies. This disparity underscores the need for a broader curriculum that places a higher importance on advanced digital literacy skills.

Students, instructors, and administrators face difficulties in acquiring reliable internet connections and modern digital equipment, worsened by a lack of institutional support for promoting digital literacy. These issues underscore the need for improved infrastructure and specialized training programs. Modern Curriculum Integration: Focus groups recommend incorporating project-based learning, e-portfolios, and digital literacy

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modules into current courses, all while adhering to Islamic educational principles. These novel strategies promote hands-on learning and cultural importance. Pedagogical Approaches: Researchers have recognized blended learning, which combines online and face-to-face training, as an effective method for integrating digital literacy into the curriculum.

Ulumul Qur'an, Incorporation of digital technologies for collaborative interpretation exercises, digital libraries, and text analysis software. Ulumul Hadits, the use of digital databases, online verification tools, and interactive modules to study Hadith. Islamic Methods of Study: Implementation of e-learning platforms, utilization of digital mind mapping tools, and incorporation of virtual simulations. The results indicate that incorporating digital literacy into higher education improves academic achievement and prepares students with the essential abilities to navigate the complexities of the modern digital landscape. This integration fosters the development of analytical thinking, collaboration, and responsible use of technology. As a result, this study emphasizes the importance of incorporating digital literacy into Islamic higher education in order to cultivate a competent and capable student body that can efficiently utilize digital technology.

The qualitative data obtained from interviews and focus groups uncovered numerous difficulties. Students encountered challenges in obtaining dependable internet connections and modern digital equipment. Furthermore, there was a dearth of institutional backing for the cultivation of digital literacy, exemplified by inadequate training initiatives and restricted availability of digital resources.

Discussions

The problems identified highlight the necessity of improving infrastructure and providing institutional assistance to boost digital literacy. It is crucial to guarantee fair and equal access to technology and resources, as emphasised by (Hobbs, 2010), who highlighted the importance of digital literacy in addressing educational fairness. The results also indicate the need for focused training programmes to assist both students and instructors in enhancing their digital skills. The focus groups yielded numerous inventive strategies for incorporating digital literacy into the curriculum. These initiatives encompassed project-based learning that integrates digital technologies, the utilisation of e-portfolios for creating digital content, and the incorporation of digital literacy modules into current courses. Participants emphasised the significance of harmonising these strategies with Islamic educational principles.

The suggested methods demonstrate an innovative approach to designing a curriculum that emphasises hands-on learning and the real-world use of digital skills. By aligning digital literacy instruction with Islamic beliefs, we can ensure that it is culturally relevant and accepted, which in turn improves student engagement. This approach aligns with the concepts proposed by Sung et al. (2016), who support the incorporation of digital literacy in a manner that enhances and supplements current educational frameworks. The assessment of several teaching methods showed that blended learning, which involves a combination of online and in-person education, was very successful in enhancing digital literacy abilities. Students experienced enhanced engagement and achieved better learning outcomes when digital resources were effortlessly included into their learning activities.

Blended learning is beneficial in enhancing learning results by incorporating digital tools into traditional teaching techniques. This discovery aligns with the research conducted by (Al-Fraihat et al., 2020), which demonstrated that blended learning settings had a substantial impact on improving students' digital literacy abilities. The efficacy of this strategy indicates that Islamic higher education institutions should contemplate embracing blended learning as a customary procedure. Feedback from educators and students emphasised the recognised importance of digital literacy in improving academic achievement and equipping students for the digital labour market. Nevertheless, there were apprehensions regarding the insufficient availability of professional development opportunities for educators to augment their proficiency in digital abilities.

The favourable perceptions of digital literacy emphasise its significance in contemporary education. Nevertheless, the concerns expressed by educators highlight a crucial issue that need attention. Professional

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development programmes that specifically target digital skills are crucial in providing educators with the fundamental tools to properly teach digital literacy. This is consistent with the conclusions of (Muilenburg, L. Y., & Berge, 2005), who highlighted the significance of continuous professional growth in the field of educational technology.

The integration of digital technology into Islamic Studies has led a significant transformation in contemporary pedagogical practices. In the field of *Ulumul Qur'an*, online platforms serve as structured spaces for Tafsir (exegesis) discussions, enabling students to explore diverse interpretations and engage in critical analysis. Digital resources, including applications and software, are also utilized to support Qur'anic memorization and recitation, thereby facilitating more systematic and effective *Hifz* (memorization) exercises. Similarly, in *Ulumul Hadits*, the utilization of digital databases of Hadith collections allows students to efficiently search, verify, and cross-reference Hadith texts. These online platforms further promote cooperative learning and analytical reasoning by encouraging scholarly discussions on the authenticity, contextual relevance, and practical application of Hadith. In addition, Islamic instructional methodologies are enhanced through the use of educational software that simulates historical Islamic events and contexts, resulting in interactive and immersive learning experiences. The implementation of e-portfolios complements these approaches by enabling students to systematically document and reflect upon their learning processes, thereby integrating digital literacy with conventional Islamic study frameworks in an academically rigorous manner.

The study has presented a thorough analysis of the present condition of digital literacy in Islamic higher education, identified notable obstacles, and suggested inventive methods for incorporating it into the curriculum. The results emphasise the necessity of enhancing digital literacy abilities among students and educators through infrastructural upgrades, institutional assistance, and professional development programmes. The findings propose practical suggestions for educators and policymakers, such as embracing blended learning methods, creating digital literacy courses, and executing focused training programmes. To maintain cultural relevance and acceptance, it is important that these programmes are in line with Islamic educational principles.

Future research should focus on examining the enduring effects of integrating digital literacy into education on student outcomes and evaluating the efficacy of targeted digital literacy treatments. Furthermore, research might investigate the impact of digital literacy on the development of critical thinking and problem-solving abilities in different educational settings. To enhance the readiness of students in Islamic higher education institutions for the fast-paced changes in the digital world, it is crucial to tackle the highlighted gaps and obstacles. This will enable them to acquire the essential skills needed to effectively participate and make valuable contributions in a digital society.

CONCLUSIONS AND RECOMMENDATION

This study undertook a comprehensive analysis of digital literacy in Islamic higher education, with a specific focus on the State Islamic Institute of Takengon. The research yielded valuable insights into the present condition, challenges, inventive curricular integration techniques, pedagogical strategies, and stakeholder perspectives of stakeholders by examining data from 10 students, 10 educators, and 10 administrators. The primary findings encompass:

1. Current Digital Literacy Levels: Students exhibit basic digital skills but lack advanced competencies such as coding, creating digital material, and critically evaluating digital resources. This disparity underscores the need for a more comprehensive curriculum that places a higher importance on advanced digital literacy skills.
2. Challenges: The lack of institutional support for promoting digital literacy exacerbates the difficulties students, instructors, and administrators face in acquiring reliable internet connections and modern digital equipment. These issues underscore the need for improved infrastructure and specialized training programs.

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3. Innovative Curriculum Integration: Focus groups suggested integrating project-based learning, e-portfolios, and digital literacy modules into existing courses, aligning with Islamic educational principles. These novel strategies promote hands-on learning and cultural importance.
4. Pedagogical Approaches: Blended learning, which combines online and face-to-face instruction, can effectively integrate digital literacy into the curriculum.

The results indicate that incorporating digital literacy into higher education improves academic achievement and provides students with the essential abilities to navigate the complexities of the modern digital landscape. This integration fosters the development of analytical thinking, collaboration, and responsible online behavior. As a result, this study emphasizes the importance of incorporating digital literacy into Islamic higher education in order to cultivate a competent and capable student body capable of efficiently employing digital technology.

Theoretical Contribution

This study contributes to the literature by proposing a contextual digital literacy integration model tailored to Islamic higher education. Unlike general digital literacy frameworks, this model positions blended learning as a mediating mechanism that aligns digital competencies with Islamic pedagogical principles. The study, therefore, extends existing digital literacy scholarship into a culturally specific institutional context.

Practical and Policy Implications

The findings suggest several policy-oriented recommendations for Islamic higher education institutions:

a. Institutionalize structured digital pedagogy training programs for lecturers.
b. Allocate dedicated funding for sustainable digital infrastructure development.
c. Integrate digital literacy components systematically into Islamic studies curricula rather than treating them as supplementary skills.
d. Develop culturally responsive blended learning guidelines aligned with Islamic educational values.

Limitations and Future Research

This study is limited by its small sample size and single-institution focus, which restricts broader generalization. Additionally, the research relied primarily on descriptive analysis without inferential statistical testing. Future studies should involve larger multi-institutional samples and explore longitudinal impacts of blended learning on digital literacy development. Further research may also examine how digital literacy integration influences critical thinking and research competencies within Islamic higher education contexts.

Credit authorship contribution statement

First Author: Methodology, Formal analysis, Data curation, Conceptualization. Second Authors: Resources, Project Administration, Methodology. Last Author: Funding acquisition, Formal analysis, Data curation.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Ethical Declaration

All participants provided informed consent before their involvement in the study. They were informed about the study's purpose, procedures, and their right to withdraw at any time without consequence.

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