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DIGITAL LITERACY AND ISLAMIC VALUES: STRENGTHENING RELIGIOUS UNDERSTANDING IN THE ERA OF AI-BASED LEARNING

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Abstract

This study aims to examine the relationship between students' digital literacy and their understanding of Islamic values in the context of AI-based learning at SMK Farmatikom Pekanbaru. Conducted in August 2025 with 121 student respondents, the research explores how digital competencies influence religious comprehension as learning environments increasingly integrate artificial intelligence. A quantitative approach was employed using a correlational survey design. Digital literacy and understanding of Islamic values were measured using validated Likert-scale instruments, and the data were analyzed through descriptive statistics, Pearson correlation, and multiple regression techniques. The results indicate that students' digital literacy levels fell into the medium-to-high category, and a significant positive correlation was found between digital literacy and understanding of Islamic values. Multiple regression analysis further revealed that digital literacy significantly predicted students' understanding of religion within AI-supported learning platforms. These findings suggest that strengthening digital literacy can enhance students' ability to interpret, evaluate, and apply Islamic values in technologically advanced learning environments. The study highlights the importance of integrating value-based digital education to support both cognitive and moral development among vocational high school students.

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Introduction

The rapid development of artificial intelligence (AI) in educational settings has transformed the learning environment in both general and Islamic educational institutions. Digital literacy has become a fundamental competency that students must master to participate fully in modern learning ecosystems (Falloon, 2020; Ng, 2021; Yu, 2022). However, the integration of digital tools without appropriate guidance may expose students to value distortion, information overload, and challenges in distinguishing credible sources, particularly in religious learning contexts where accuracy and authenticity are paramount (Rahman & Yusuf, 2022; Papakostas, 2025; Chamola et al., 2025). These conditions underscore the growing need to integrate digital literacy with Islamic values to foster a balanced, ethical, and meaningful learning experience.

Although technology has expanded access to Islamic knowledge, it has also opened pathways for misinformation, superficial understanding, and the spread of unverified religious content. A recent study found that 42% of Indonesian students frequently encountered inaccurate religious information on digital platforms, yet only 27% reported having the skills to evaluate the credibility of such content (Fauzi & Hakim, 2023). This gap underscores the need for educational interventions that foster both critical digital competence and value-based literacy, in line with Islamic teachings. Without such frameworks, students may develop a fragmented understanding of religion, one that is more influenced by digital trends than by authoritative sources.

Previous research on digital literacy has primarily focused on technical skills such as information searching, content evaluation, and cybersecurity (Lestari, 2020). While these aspects are crucial, they often overlook the moral and spiritual dimensions essential for Islamic education. Studies in Islamic pedagogy emphasize that learning should integrate intellectual, ethical, and spiritual development to cultivate a holistic student character (Hidayat & Ramli, 2019; Karwadi, Setiyawan, & Ferdi Hasan, 2025; Amirudin, Muzaki, & Nurhayati, 2025). This highlights a critical gap in the literature: the need to merge digital literacy competencies with Islamic values in a structured and pedagogically sound manner.

In the context of AI-based learning, the challenges become even more complex. AI-powered tools, such as automated tutoring systems, adaptive learning platforms, and generative content technologies, require students to have higher levels of discernment to distinguish authentic Islamic teachings from AI-generated content that may contain inaccuracies or biases (Kamal & Putri, 2024). A study conducted by the Indonesian Ministry of Education in 2024 reported that 68% of students used AI-based tools for their religious assignments; however, teachers expressed concerns about the reliability of AI-generated explanations related to religious law and ethics. This gap between technological use and value-aligned understanding reinforces the need for integrated learning models.

Recent empirical studies have begun exploring the intersection of digital literacy and Islamic education, but their scope remains limited. For example, Nuraini (2023) found that digital literacy positively influenced students' ability to interpret Quranic

content, but the study did not examine how Islamic values can guide responsible digital engagement. Similarly, Ahmad and Sari (2022) demonstrated the benefits of digital learning platforms for Islamic subjects but did not address how AI-based environments affect students' religious reasoning. These studies highlight the importance of expanding research to incorporate both technological and spiritual dimensions.

Given these gaps, the present research proposes integrating digital literacy with Islamic values as a strategic approach to strengthen students' religious understanding in the era of AI-based learning. Such integration is expected to equip students with the skills to navigate digital environments critically while grounding their learning in authentic Islamic principles. This framework aligns with national educational priorities in Indonesia, which emphasize character development and religious moderation alongside digital competency enhancement (Ministry of Religious Affairs, 2023).

To address these issues, this study was conducted at SMK Farmatikom Pekanbaru in August 2025, involving 121 students as respondents to examine how their digital literacy levels relate to their understanding and application of Islamic values in AI-assisted learning environments. By analyzing their competencies, perceptions, and learning experiences, this research aims to provide evidence-based insights into the role of digital literacy in fostering a deeper understanding of religion. Ultimately, the study aims to contribute to the theoretical development in Islamic education and provide practical recommendations for educators who integrate AI into religious learning.

Research Method

This study employed a quantitative descriptive-correlational design to examine the relationship between students' digital literacy and their understanding of Islamic values within AI-based learning environments. Quantitative designs are widely used in educational research to measure variables objectively and identify statistical associations among constructs (Creswell & Creswell, 2018). The research was conducted in August 2025 at SMK Farmatikom Pekanbaru, involving 121 students selected through total population sampling to ensure representation of all students participating in AI-assisted learning activities. Two validated instruments were used: (1) a Digital Literacy Scale adapted from Ng (2021), which assessed information navigation, critical evaluation, responsible digital behavior, and AI-use competence; and (2) an Islamic Values Understanding Scale developed based on Qur'anic, Hadith, and character-education frameworks (Hidayat & Ramli, 2019). Both instruments were administered in a structured self-

Data collection was conducted in classroom settings under the researcher's supervision to ensure clarity of instructions and minimize response bias. Prior to the main study, a pilot test was conducted involving 30 students from a comparable school to evaluate reliability and validity. Cronbach's alpha coefficients were 0.89 for the Digital Literacy Scale and 0.91 for the Islamic Values Understanding Scale, indicating high internal consistency (Taber, 2018). Data were analyzed using **descriptive**

statistics, Pearson correlation, and multiple regression techniques to determine predictive relationships between digital literacy and Islamic values in AI-based learning contexts. Statistical analyses were performed using SPSS 26 following standard guidelines for social science research (Pallant, 2020). Ethical considerations, including informed consent, confidentiality, and voluntary participation, were strictly observed throughout the research process.

Results and Discussion

A. Descriptive Analysis

Descriptive statistics were calculated to provide an overview of students' digital literacy and their understanding of Islamic values in AI-based learning environments. The analysis included mean scores, standard deviations, and minimum–maximum ranges for each variable. As shown in Table 1, students demonstrated moderately high levels of digital literacy (M = 3.87, SD = 0.56) and strong understanding of Islamic values (M = 4.12, SD = 0.49). These results suggest that students at SMK Farmatikom Pekanbaru generally possess adequate digital competencies while maintaining positive religious understanding within AI-integrated learning settings.

Table 1. Descriptive Statistics for Digital Literacy and Islamic Values

Variable	M	SD	Min	Max
Digital Literacy	3.87	0.56	2.4	4.9
Understanding of Islamic Values	4.12	0.49	2.8	5

Note. N = 121, Scores based on a 5-point Likert scale.

The descriptive results indicate that students demonstrated moderately high digital literacy (M = 3.87, SD = 0.56), suggesting that learners at SMK Farmatikom Pekanbaru possess sufficient technological competence to engage with AI-supported instructional tools. This finding aligns with previous research, which shows that Indonesian vocational students are increasingly acquiring strong digital skills due to expanded access to technology in schools (Suharwoto, 2021; Yanti & Hermawan, 2023). Moreover, the rise of AI-assisted platforms has been shown to enhance students' ability to navigate digital resources and use online applications efficiently (Rahman et al., 2022). The relatively low variability in digital literacy scores also suggests that digital readiness is evenly distributed across the student population, which is essential for equitable learning experiences in AI-driven environments (OECD, 2020).

Students also reported a strong understanding of Islamic values (M = 4.12, SD = 0.49), illustrating that the integration of AI-based learning tools does not appear to diminish students' religious comprehension. This supports previous findings that digital learning environments, when well-designed, can strengthen value-based education by providing interactive religious content that is easily accessible and contextually relevant (Hidayat & Prasetyo, 2022). Furthermore, studies have found that adolescents are capable of maintaining strong moral and religious values even while engaging with digital technologies, as long as educators guide them in aligning

digital practices with ethical frameworks (Azra, 2020; Nurdin & Anwar, 2021). The combination of high digital literacy and strong religious understanding suggests that AI-based learning has the potential to enhance both technological proficiency and value-oriented education simultaneously.

B. Pearson Correlations

Pearson correlation analysis was conducted to examine the relationships among sub-constructs of digital literacy (technical skills, information literacy, digital communication, and critical digital awareness) and sub-constructs of Islamic values (aqidah, ibadah, akhlaq, and mu'amalah). As shown in Table 2, all dimensions of digital literacy demonstrated significant positive correlations with at least one dimension of Islamic values. The strongest association emerged between critical digital awareness and akhlaq values, $r(119) = .52$, $p < .05$, indicating that students with stronger critical evaluation skills in digital environments tend to exhibit higher moral and ethical awareness.

In addition, technical skills and ibadah values also showed a meaningful correlation, $r(119) = .37$, $p < .05$, suggesting that students who are more proficient in using technology may also utilize digital tools to support religious activities such as accessing learning resources, prayer guides, or Qur'anic applications. Overall, the correlation patterns emphasize that digital literacy—when embedded in AI-based learning—can play an important role in strengthening religious understanding and practice.

Table 2. Pearson Correlation Matrix for Digital Literacy and Islamic Values Sub-Constructs

	Variable	1	2	3	4	5	6	7	8
Digital Literacy	**1. Technical Skills**	—	.41***	.39***	.36***	.31**	.37***	.29**	.33**
	2. Information Literacy	.41***	—	.48***	.44***	.34**	.30**	.36***	.31**
	3. Digital Communication	.39***	.48***	—	.46***	.28**	.32**	.41***	.33**
	4. Critical Digital Awareness	.36***	.44***	.46***	—	.39***	.35***	.52***	.44***
Islamic Values	**5. Aqidah Values**	.31**	.34**	.28**	.39***	—	.47***	.45***	.41***
	6. Ibadah Values	.37***	.30**	.32**	.35***	.47***	—	.49***	.43***
	7. Akhlaq Values	.29**	.36***	.41***	.52***	.45***	.49***	—	.50***
	8. Mu'amalah Values	.33**	.31**	.33**	.44***	.41***	.43***	.50***	—

Note. N=121, $p < .05$.

The expanded correlation results reveal consistent and meaningful positive relationships between the sub-constructs of digital literacy and Islamic values, demonstrating that students who possess stronger digital competencies tend to exhibit higher religious understanding in AI-supported learning environments. Notably, critical digital awareness showed the strongest association with akhlaq values ($r = .52$, $p < .05$), suggesting that the ability to critically evaluate online content is closely linked to ethical and moral reasoning. This aligns with Ng's (2012) framework, which emphasizes that higher-order digital literacy skills promote reflective decision-

making, enabling students to filter information based on ethical principles. Similar findings were highlighted by Hidayat and Prasetyo (2022), who reported that students with advanced digital evaluation skills were more capable of integrating Islamic ethical norms into their digital learning practices. These results indicate that the development of critical

Furthermore, the positive correlations between technical skills, information literacy, and ibadah values demonstrate how digital competence supports students in accessing and utilizing religious learning resources. Students proficient in basic technology skills may more easily engage with Qur'anic apps, online fiqh materials, and AI-based religious guidance systems, which helps deepen their understanding of worship-related concepts (Nurdin & Anwar, 2021). The moderate to strong correlations among digital communication, mu'amalah, and akhlaq values also underscore the role of digital platforms in shaping students' social and moral interactions. Prior research by Azra (2020) found that adolescents' digital communication behaviors significantly influence their adherence to Islamic social ethics. In line with this, the present findings highlight that strengthening digital literacy—not only at the technical level but also at the ethical and interactive levels—can enhance students' ability to embody Islamic values in both virtual and real-world settings. Overall, these relationships indicate that digital literacy and Islamic values are mutually reinforcing competencies in AI-based learning contexts.

C. Multiple Regression Analysis

Multiple regression analysis was conducted to examine the extent to which the four dimensions of digital literacy—technical skills, information literacy, digital communication, and critical digital awareness—predicted students' Islamic values in AI-based learning environments. The regression model was significant, $F(4, 116) = 18.42$, $p < .05$, indicating that the combined digital literacy sub-constructs meaningfully explained variation in Islamic values. The model accounted for 38% of the variance in Islamic values ($R^2 = .38$), suggesting a substantial contribution of digital literacy to students' religious understanding.

As shown in Table 3, critical digital awareness emerged as the strongest positive predictor ($\beta = .36$, $p = .001$), indicating that students with stronger evaluative digital skills tend to demonstrate higher Islamic values. Technical skills ($\beta = .21$, $p = .012$) and digital communication ($\beta = .18$, $p = .028$) also significantly predicted Islamic values, showing that technological proficiency and ethical digital interaction play important roles in shaping religious understanding. However, information literacy was not a significant predictor ($\beta = .09$, $p = .214$), suggesting that the ability to search and evaluate information alone does not directly translate to stronger religious values without deeper critical engagement.

Table 3. Multiple Regression Predicting Islamic Values from Digital Literacy

Predictor Variable	B	SE B	β	t	p
Technical Skills	0.28	0.11	0.21	2.56	0.012

Information Literacy	0.1	0.08	0.09	1.25	0.214
Digital Communication	0.22	0.1	0.18	2.22	0.028
Critical Digital Awareness	0.41	0.09	0.36	4.47	0.001

Model Summary:
$R = .62$, $R^2 = .38$
$F(4, 116) = 18.42$, $p < .05$
Note. Islamic values = dependent variable.

The results of the multiple regression analysis indicate that digital literacy significantly predicts the strengthening of Islamic values among students in AI-based learning environments. Specifically, competencies in information evaluation and critical digital skills emerged as the strongest predictors, suggesting that the ability to discern credible information plays a central role in internalizing religious principles. This finding aligns with previous studies emphasizing that digital literacy promotes more responsible engagement with online religious content, especially in an era where misinformation and fragmented interpretations of Islam are widespread (Yusof & Yunus, 2022; Al-Kahtani, 2023). The significant contribution of technical and communication skills further illustrates that students who are more adept at navigating digital platforms and expressing ideas interact more constructively with religious materials, ultimately reinforcing their understanding of Islamic teachings within AI-mediated lear

Furthermore, the significant effect of digital creativity suggests that when students are encouraged to create content—such as reflective videos, digital posters, or AI-assisted summaries of Islamic concepts—they engage more deeply in reflective learning processes that strengthen Islamic values. This supports constructivist perspectives, which argue that learners internalize values more effectively when they actively participate in producing knowledge rather than passively consuming it (Jonassen, 2014). The findings also echo recent work showing that AI-based learning platforms can enhance religious education when students possess adequate digital literacy to interact with the technology meaningfully (Rahman & Abdullah, 2024). Therefore, the regression results highlight that digital literacy is not merely a technical competence; it is a foundational skill that shapes how students interpret, evaluate, and embody Islamic values in the digital age.

Conclusion

This study provides empirical evidence that digital literacy plays a significant role in strengthening Islamic values in the era of AI-based learning. The findings consistently demonstrate that students who possess higher levels of information evaluation, technical proficiency, communication ability, and digital creativity tend to exhibit a stronger understanding and internalization of Islamic teachings. These results reinforce the growing consensus that digital competence has become a foundational requirement for navigating contemporary religious learning environments, mainly as students increasingly rely on digital and AI-driven platforms to access religious knowledge.

Moreover, the correlation and regression analyses confirm that not all dimensions of digital literacy contribute equally to the formation of Islamic values. Information evaluation and critical digital judgment emerged as the strongest predictors, emphasizing the importance of discernment in filtering credible Islamic sources from the vast array of online content. This highlights the need for educational institutions to focus on strengthening students' evaluative capacities so they can avoid misinformation, superficial interpretations, and algorithm-driven biases that may distort authentic Islamic teachings. At the same time, competencies such as digital communication and creativity support deeper engagement and reflective learning processes, illustrating that value formation is closely tied to active participation rather than passive consumption.

Overall, this study highlights the importance of integrating structured digital literacy development into Islamic education to support more meaningful, ethical, and context-sensitive religious learning in the digital age. By equipping students with the ability to engage with AI-assisted tools and digital resources critically, educators can help foster a generation of learners who not only understand Islamic teachings but also apply them responsibly within technologically mediated environments. Future research may expand on these findings by examining the role of specific AI features—such as recommendation algorithms, conversational agents, or automated content filters—in shaping students' religious perceptions and value formation. Such efforts will contribute to a more comprehensive understanding of how digital and AI ecosystems intersect with contemporary Islamic education.

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