

Learning Islamic religious education based on digital literacy to strengthen students' religious character

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Abstract

This study analyzes the contribution of digital literacy-based Islamic Religious Education (IRE) learning to strengthening students' religious character at the Ummul Quro Putri Pamekasan Islamic Boarding School, Madura. Using a mixed-method sequential explanatory design, the study involved 100 student respondents in the quantitative phase and five informants in the qualitative phase, including a pesantren administrator, two IRE teachers, and two students. Quantitative data were collected through Likert-scale questionnaires and analyzed using Partial Least Squares Structural Equation Modeling, while qualitative data were obtained through semi-structured interviews and analyzed thematically. The findings show that digital literacy significantly influences digital literacy-based IRE learning, which in turn strengthens students' religious character. Mediation analysis confirms that IRE learning acts as a significant mediator between digital literacy and religious character. Qualitative findings reveal that character strengthening is supported through teacher guidance, credible Islamic digital sources, digital tabayyun practices, ethical media use, and pesantren culture emphasizing discipline, responsibility, worship awareness, and moral conduct. This study positions digital literacy as a critical, ethical, and religious pedagogical strategy for developing digitally and morally competent Muslim students.

Keywords: digital literacy, Islamic religious education, character.

INTRODUCTION

The development of digital technology has fundamentally changed the landscape of religious education, including the way students access, understand, and practice Islamic teachings (Ahmadi et al., 2025). On the one hand, digitalization opens up great opportunities for Islamic Religious Education learning to be more interactive, open, contextual, and close to the world of students (Sugianto, 2024). Through the internet, learning platforms, social media, educational videos, digital Qur'an apps, Islamic podcasts, and electronic reading resources, students can gain access to a wide range of religious materials quickly and widely. In this context, digital literacy is not enough to be understood as the ability to use technological tools, but must be interpreted as the ability to search, assess, choose, process, and use information critically, ethically, and responsibly (Aisha et al., 2025). Therefore, learning Islamic Religious Education based on digital literacy is very important, because PAI is not only in charge of conveying religious knowledge, but also guiding students to be able to live religiously, politely, honestly, disciplined, tolerant, and responsible in real life and the digital space.

A number of studies show that the integration of digital literacy in PAI learning has a strong relevance to the formation of students' character (Nasution et al., 2025). Sulastri and Abrianto researched the improvement of digital literacy in PAI courses in supporting the implementation of the Independent Curriculum, which shows the importance of digital skills in strengthening the religious learning process in schools (Sulastri & Abrianto, 2024). Bollard examined the implementation of digital-based Islamic education in shaping religious character and digital literacy of the Alpha generation, and emphasized that PAI learning innovations are needed because the younger generation is used to digital interaction (Bollard et al., 2023). The relationship pattern of this study shows that digital literacy, PAI learning, and religious character are three interrelated themes, digital literacy becomes a pedagogical instrument, PAI becomes a space of values and moral development, while religious character is the main orientation of learning (Miftahussurur, 2026).

The uniqueness of this research lies in its location, namely the Ummul Quro Putri Pamekasan Islamic Boarding School, Madura, as a pesantren-based Islamic educational institution that has a different character from ordinary formal schools. Women's Islamic boarding schools are not only a place for academic and religious learning, but also a space for character formation through dormitory life, examples of caregivers and ustazah, worship

habits, daily discipline, students' social interaction, and intensive moral supervision (Siskandar et al., 2025). In this context, digital literacy cannot be understood freely without limits, but must be placed within the framework of pesantren values, student manners, Islamic ethics, and the formation of religious character (All et al., 2025). Another uniqueness is that students live in an educational atmosphere that integrates formal learning, spiritual guidance, pesantren culture, and religious social control. Therefore, this study not only looks at how technology is used in PAI learning, but also how digital literacy is directed to be in harmony with religious values, digital manners, tabayyun ability, discipline, responsibility, and politeness of students in utilizing religious information (Amin, 2025).

This research is directed to examine the implementation of digital literacy-based Islamic Religious Education (PAI) learning at the Ummul Quro Putri Islamic Boarding School in Pamekasan, Madura, the ways teachers or ustazah integrate digital literacy with religious character values in the PAI learning process, and the contribution of digital literacy-based PAI learning to strengthening students' religious character, particularly in the aspects of honesty, discipline, responsibility, digital politeness, tolerance, and worship awareness.

METHOD

This study uses a mixed method with sequential explanatory design (Supandi, 2025), which is research that begins with the collection and analysis of quantitative data, then continues with the collection of qualitative data to deepen and explain the quantitative results. This design was chosen because research on Digital Literacy-Based Islamic Religious Education Learning for Strengthening Students' Religious Character is not enough to be explained only through numbers, but also needs to be understood through the experience of teachers or ustazah, learning practices, pesantren culture, and the process of forming students' religious character at the Ummul Quro Putri Pamekasan Islamic Boarding School, Madura.

Research Approach and Design

The first stage of this study uses a quantitative approach to test the relationship between variables, namely digital literacy, digital-based Islamic Religious Education learning, and students' religious character. Quantitative analysis was performed using Equation Modeling *Partially Least Square based structure* or PLS-SEM (Rahadi, 2023). PLS-SEM was chosen because it is suitable for studies with relatively limited sample counts, predictive

Models, and latent variables measured through multiple indicators. The second stage uses a qualitative approach to explain the quantitative findings in more depth. Qualitative data was obtained through in-depth interviews with informants who had direct involvement in PAI learning and the development of students' religious character (Miles & Huberman, 1994). With this design, quantitative results provide an overview of the relationships between variables, while qualitative data explain the processes, meanings, and contexts behind those relationships.

Location and Research Subject

This research was conducted at the Ummul Quro Putri Islamic Boarding School in Pamekasan, Madura. This location was chosen deliberately because the women's pesantren has a distinctive character as an Islamic educational institution that not only manages formal and religious learning, but also grows the character of the students through pesantren culture, worship habits, discipline, example, and moral supervision in daily life. The quantitative respondents in this study amounted to 100 students to be more convincing that the data obtained was really valid and convincing.

Respondents were selected using purposive sampling techniques with the following criteria: actively participating in Islamic Religious Education learning, having experience using digital media in the learning process, and being in the educational environment of the Ummul Quro Putri Pamekasan Islamic Boarding School. The number of respondents as many as 100 is considered adequate for the PLS-SEM analysis because this study is predictive and uses a relatively simple model.

Meanwhile, the qualitative informants amounted to 5 people, consisting of: 1 head or manager of Islamic boarding schools or madrasas, 2 teachers or ustazah of Islamic Religious Education, and 2 students. Informants were chosen deliberately because they were considered to have knowledge, experience, and direct involvement in digital literacy-based PAI learning and the formation of students' religious character.

Research Variables and Indicators

This study uses three main variables. First, digital literacy as an exogenous variable, namely the ability of students to access, understand, evaluate, and use digital information critically and responsibly (Purnama et al., 2021). These indicators include the ability to access

digital sources, evaluate the credibility of religious information, conduct digital tabayyun, use media ethically, and avoid negative content.

Second, PAI learning is based on digital literacy as a mediating variable or intervention variable (Fauzi et al., 2025). This variable describes the PAI learning process that utilizes digital media, online learning resources, digital discussions, technology-based assignments, and teacher guidance in using religious information correctly. These indicators include the use of digital media in learning, the selection of Islamic learning resources, the integration of PAI values in digital activities, student involvement, and the guidance of teachers or ustazah.

Third, the religious character of students as an endogenous variable (Pratiwi et al., 2024). This variable shows students' religious attitudes and behaviors formed through digital literacy-based PAI learning. These indicators include honesty, discipline, responsibility, digital politeness, tolerance, social concern, and worship awareness.

Conceptually, this research model examines the relationship between digital literacy and digital literacy-based PAI learning, and this learning has an effect on strengthening students' religious character. In addition, this study also examines whether digital literacy-based PAI learning acts as a mediator between digital literacy and students' religious character.

Data Collection Techniques

Quantitative data were collected through a closed-ended questionnaire using a Likert scale of 1-5, ranging from strongly disagree to strongly agree (Miles & Huberman, 1994). The questionnaire was compiled based on the indicators of each variable, then given to 100 respondents. Before use, the instrument is checked through expert validation to ensure the suitability of the content with the concepts of digital literacy, PAI learning, and religious character. The questionnaire is also tested for readability so that it is easy for students to understand.

Qualitative data were collected through semi-structured in-depth interviews with 5 informants. Interviews with the head or manager of the pesantren are directed to explore policies and institutional support for digital learning. Interviews with PAI teachers or ustazah are directed to find out learning strategies, digital media selection, curation of religious sources, and strengthening religious character. Interviews with students are directed to

understand the experience of digital-based PAI, behavior change, media politeness, discipline, and responsibility in using technology.

In addition to questionnaires and interviews, this research also uses documentation, such as learning tools, teaching modules, students' digital assignments, screenshots of learning activities, activity schedules, and other relevant documents. Documentation is used to reinforce the results of questionnaires and interviews.

Quantitative Data Analysis Techniques with PLS-SEM

Quantitative data was analyzed using PLS-SEM through two main stages, namely external model evaluation and inner model. External model evaluation was carried out to test the quality of the research instruments (Khorsan & Crawford, 2014). These tests include convergent validity, discriminant validity, and reliability. Convergent validity is seen through the loading factor value and the Extracted Mean Variance or AVE. The indicator is declared valid if the loading factor value is ideally more than 0.70 and the AVE value is more than 0.50. Reliability is tested through Alpha Reliability and Cronbach Composites, with a value criterion of more than 0.70. Discriminant validity can be tested through the Fornell-Larcker Criterion or HTMT values to ensure that each latent variable is completely different from the others.

Internal model evaluation was carried out to test the relationships between variables in the research model. This stage includes R-squared values, path coefficients, t-statistics, p-values, and effect sizes. The squared value of R is used to find out how much the ability of an independent variable explains the dependent variable. The path coefficient is used to see the direction and strength of the relationship between variables. Significance testing was carried out through bootstrapping techniques. The relationship between variables is stated to be significant if the statistical t-value of $>$ is 1.96 and the p-value is $<$ 0.05.

In addition to direct influences, this study also examines indirect or mediated influences, namely whether digital literacy-based PAI learning mediates the relationship between digital literacy and students' religious character. The mediation test was carried out by looking at the value of indirect effects on the bootstrapping results.

Qualitative Data Analysis Techniques

Qualitative data were analyzed using thematic analysis (Moleong, 2004). The analysis process is carried out through several stages, namely transcription of interview results,

repeated data reading, initial coding, grouping of codes into categories, formation of themes, and interpretation of data (Ravindran, 2019). The themes developed include teachers' strategies in digital PAI learning, curation of religious resources, habituation of digital ethics, strengthening religious character, digital learning obstacles, and pesantren-based cultural support.

The results of the qualitative analysis are used to explain the quantitative findings (Nurlan, 2019). For example, if the results of PLS-SEM show that digital literacy has a significant influence on religious character, then interview data is used to explain how the influence process occurs in PAI learning, how teachers guide students, and how pesantren culture strengthens the use of technology religiously and civically.

Quantitative and Qualitative Data Integration

Data integration is carried out at the final interpretation stage (Lenzerini, 2002). Quantitative results are used to show patterns of relationships between variables, while qualitative results are used to explain why and how these relationships occur. Thus, this study not only produces statistical evidence, but also a contextual explanation of the learning practices of digital literacy-based PAI at the Ummul Quro Putri Islamic Boarding School in Pamekasan, Madura.

Research Validity and Ethics

The validity of the quantitative data is maintained through testing the validity and reliability of the instrument using PLS-SEM (Chan & Lay, 2018). Meanwhile, the validity of qualitative data is maintained through source triangulation, technical triangulation, member checking, and trace audits. Source triangulation is carried out by comparing data from the head or manager, teachers or ustazah, and students. The triangulation technique was carried out by comparing the results of questionnaires, interviews, and documentation (Ammenwerth et al., 2003). The examination of members is carried out by confirming the results of interviews with informants so that the researcher's interpretation does not deviate from the informant's intention.

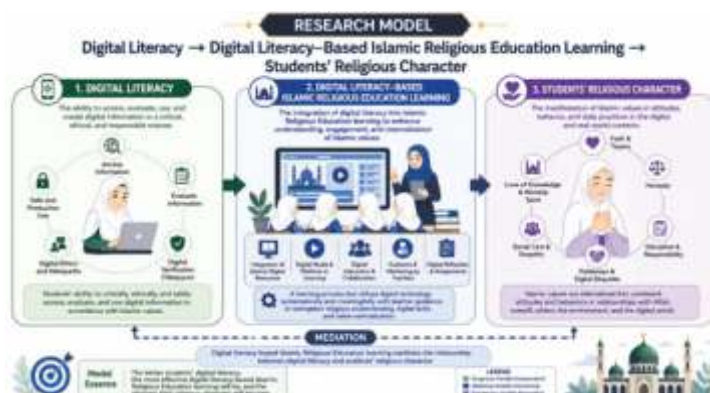


Figure 1. Research Model

RESULTS AND DISCUSSION

Respondent Profile

The respondents in this study were 100 students of the Ummul Quro Putri Pamekasan Islamic Boarding School which consisted of the following table presentation:

Table 1. Respondent Profiles

Characteristics	Categories	Total	Percentage
Education level	MT	38	38%
	AND	47	47%
	Senior Student	15	15%
Long studies in Islamic boarding schools	1-2 years	36	36%
	3-4 years	44	44%
	More than 4 years	20	20%
Intensity of using digital media for learning	Low	18	18%
	Medium	53	53%
	Height	29	29%

The data shows that most of the respondents are at the MA level, which is 47%, and the majority have studied at Islamic boarding schools for 3-4 years, which is 44%. In terms of the use of digital media, most students are in the medium category, which is 53%. This shows that the use of digital media in PAI learning has occurred, but not all students have a high intensity of use.

Descriptive Statistics of Research Variables

This study measures three main variables, namely digital literacy, digital literacy-based PAI learning, and students' religious character. The results of descriptive statistics are shown in the following table:

Table 2. Statistical Results

Variable	Red	Percentage	Categories
Digital literacy	4,05	81,0%	Good
PAI learning based on digital literacy	4,12	82,4%	Good
Religious character of learners	4,18	83,6%	Awesome

The descriptive results showed that the students' religious character obtained the highest score of 83.6%, followed by digital literacy-based PAI learning at 82.4%, and digital literacy at 81.0%.

Results of External Model Analysis

The test was conducted through loading factor values, Average Variance Extracted (AVE), Cronbach's Alpha, and Composite Reliability.

Table 3. Loading Factors

Variable	Indicator	Loading Factor	Remarks
Digital Literacy	Access digital resources	0,781	Applicable
	Evaluation of the credibility of information	0,824	Applicable
	Tabayyun Digital	0,846	Applicable
	Media ethics	0,803	Applicable
	Avoid negative content	0,792	Applicable
Digital Literacy-Based PAI Learning	Use of digital media	0,812	Applicable
	Online Islamic learning resources	0,835	Applicable
	Teacher/ustazah guidance	0,861	Applicable
	Digital task activities	0,798	Applicable
	Integration of PAI values in digital media	0,829	Applicable
Religious Character	Honesty	0,817	Applicable
	Discipline	0,805	Applicable
	Responsibilities	0,836	Applicable

Digital honor	0,849	Applicable
Tolerance	0,788	Applicable
Awareness of worship	0,821	Applicable

Educational system in which all stakeholders contribute to creating a fair, safe, and meaningful learning environment. Parental involvement, institutional support, and input from special education teachers enrich instructional practices and enhance the sustainability of inclusive education.

All indicators have a loading factor value above 0.70, so they can be declared valid. The indicator with the highest score on the digital literacy variable was tabayyun digital with a score of 0.846. In the digital literacy-based PAI learning variable, the highest indicator was the guidance of teachers/ustazah with a score of 0.861. Meanwhile, in the religious character variable, the highest indicator was digital politeness with a score of 0.849.

Construct Validity and Reliability

Table 4. Construction Validity and Reliability

Variable	Alpha Cronbach	Composite Reliability	AVE	Remarks
Digital Literacy	0,873	0,908	0,663	Reliable and valid
Digital Literacy-Based PAI Learning	0,891	0,921	0,699	Reliable and valid
Religious Character	0,902	0,925	0,673	Reliable and valid

The table shows that all variables have an Alpha value and Cronbach's Composite Reliability above 0.70, so the research instrument is declared reliable. The AVE values of all variables are also above 0.50, so they qualify for convergent validity.

Results of Deep Model Analysis

Internal model analysis was used to examine the relationship between variables, the influence of digital literacy-based PAI learning on students' religious character, and the influence of digital literacy on students' religious character.

Table 5. R-Square Values

Endogenous Variable	R-Square	Categories
Digital Literacy-Based PAI Learning	0,518	Medium
Religious Character of Students	0,637	Medium-strong

The R-Square value in the digital literacy-based PAI learning variable is 0.518. This means that digital literacy is able to explain the variation of digital literacy-based PAI learning by 51.8%, while the rest is influenced by other factors. Meanwhile, the R-Square value of students' religious character was 0.637, which means that PAI learning based on digital literacy and digital literacy was able to explain the strengthening of students' religious character by 63.7%.

Table 6. Path Coefficients and Hypothesis Tests

Intervariable Relationships	Path Coefficients	T-Statistics	P-Value	Remarks
Digital Literacy → PAI Learning Based on Digital Literacy	0,720	11,284	0,000	Significant
PAI Learning Based on Digital Literacy → Religious Character	0,548	6,437	0,000	Significant
Digital Literacy → Religious Character	0,302	3,218	0,001	Significant

The results of the analysis showed that all relationships between variables had a positive and significant influence. First, digital literacy has a significant influence on digital literacy-based PAI learning with a coefficient value of 0.720, t-statistic of 11.284, and p-value of 0.000. Second, digital literacy-based PAI learning has a significant influence on students' religious character with a coefficient value of 0.548, t-statistic of 6.437, and p-value of 0.000. Third, digital literacy also has a direct effect on students' religious character with a coefficient value of 0.302, t-statistic of 3.218, and p-value of 0.001.

Table 7. Mediation Test

Mediation Relationship	Indirect Effects	T-Statistics	P-Value	Remarks
Digital Literacy → PAI Learning Based on Digital Literacy → Religious Character	0,394	5,726	0,000	Significant

The results of the mediation test showed that digital literacy-based PAI learning significantly mediated the relationship between digital literacy and students' religious character. The value of the indirect effect was 0.394, the t-value was 5.726, and the p-value was 0.000. Thus, digital literacy not only has a direct effect on religious character, but also has an indirect effect through digital literacy-based PAI learning.

Student Digital Literacy Developed Through Teacher Guidance and Islamic Boarding School Culture

The results of the interviews show that students' digital literacy does not develop freely without direction, but is guided by teachers and controlled by pesantren culture. Teachers or ustazah not only ask students to use the internet as a learning resource, but also direct them to choose credible sources, avoid content that is not in accordance with Islamic boarding school manners, and not disseminate religious information without tabayyun. One of the ustazah explained that students are often given the task of finding additional material about Islamic morality, worship, or history through digital sources, but must explain the sources used. This aims for students not only to copy material from the internet, but to learn to assess whether the source is trustworthy. These findings explain why the digital tabayyun indicator has the highest loading factor in the digital literacy variable. Students are not only taught to use digital media, but also guided to be careful with digital religious information.

Digital PAI learning does not replace the role of teachers, but rather strengthens value guidance

Qualitative findings also show that the use of digital media in PAI learning does not replace the position of teachers/ustazah. On the contrary, technology is used as a tool to enrich the material, while the teacher remains the value guide, the interpreter of the material, and the guardian of manners. PAI teachers use digital media such as learning videos, Islamic articles, digital presentations, Qur'an applications, and internet-based assignments. However, each digital material is still discussed together so that students understand the content, context, and moral values contained in it. This is in line with the results of PLS-SEM which shows that the indicator of teacher/ustazah guidance has the highest loading factor in the digital literacy-based PAI learning variable, which is 0.861.

Digital Literacy Strengthens Students' Politeness and Responsibility

The results of interviews with students show that digital literacy-based PAI learning helps them be more careful in using social media. The students admitted that they better understand the importance of preserving the language, not spreading unclear information about the truth, not making rude comments, and not sharing content that is contrary to Islamic values. One of the students said that after learning about media etiquette, he was more

Careful when sharing religious quotes on social media. He felt the need to make sure that the content of the message was correct and did not offend others.

Islamic Boarding School Culture Strengthens Religious Character in Digital Learning

The pesantren manager explained that the use of technology in the pesantren is still directed to be in accordance with the values of the pesantren, such as manners, simplicity, discipline, responsibility, and compliance with the rules. Students are not allowed to use digital media freely, but are directed for learning and self-development. The culture of the pesantren is an important factor that strengthens the learning of PAI based on digital literacy. Values such as respecting teachers, maintaining morals, worship discipline, and social responsibility become moral frameworks in the use of technology. Thus, digital literacy not only produces technical skills, but is also directed at the formation of religious character.

Table 8. Research Findings

Focus of Findings	Quantitative Results	Qualitative Results	Meaning of Findings
Students' digital literacy	Average 4.05 or 81.0%	Students are guided to choose digital sources and do tabayyun	Digital literacy develops as a technical, critical, and ethical ability
PAI learning based on digital literacy	Average 4.12 or 82.4%	Teachers use digital media, but remain a guide to grades	Technology enriches learning, not replaces the role of teachers
Religious character	Average 4.18 or 83.6%	Character is seen in digital politeness, responsibility, discipline, and media ethics	Digital literacy contributes to the formation of digital morality
SEM Relationships	All significant relationships	The interview explained that the influence occurred through the guidance of teachers and the culture of the pesantren	Empirical models are supported by field data
Mediation	Indirect effect 0.394, p value 0.000	PAI learning becomes a space for the integration of digital and religious values	PAI learning mediates digital literacy and religious character

Digital Literacy-Based PAI Learning and the Strengthening of Religious Character

The results of this study show that Islamic Religious Education learning based on digital literacy at the Ummul Quro Putri Pamekasan Islamic Boarding School, Madura, has an important contribution in strengthening the religious character of students. Quantitative findings through PLS-SEM analysis show that all relationships between variables are positive and significant. Digital literacy has a significant influence on digital literacy-based PAI learning with a coefficient of 0.720, digital literacy-based PAI learning has a direct effect on religious character with a coefficient of 0.548, and digital literacy also has a direct effect on religious character with a coefficient of 0.302. In addition, digital literacy-based PAI learning has been proven to mediate the relationship between digital literacy and religious character with an indirect effect value of 0.394. This data confirms that digital literacy not only has an impact on technical skills using technology, but can also be a pedagogical instrument to form religious character if properly integrated in PAI learning (Asaniyah, 2017).

The first findings show that students' digital literacy is in the good category with a percentage of 81.0%. This illustrates that students have basic skills in accessing, understanding, and using digital learning resources. However, in the context of Islamic boarding schools, digital literacy is not interpreted freely without limits, but is directed to be in harmony with Islamic Islamic manners, values, and culture. Students are not only required to be able to find religious information through digital media, but also must be able to assess the credibility of sources, perform tabayyun, maintain media ethics, and avoid negative content (Aslan & Pong, 2023). Thus, digital literacy in PAI learning has a broader dimension, namely technological, critical, ethical, and religious dimensions.

The digital tabayyun indicator, which has the highest loading factor on the digital literacy variable, shows that information verification ability is the strongest aspect in the formation of students' digital literacy. These findings are important because today's digital space is filled with a variety of religious information that is not all valid, authoritative, or in accordance with moderate Islamic values. Without tabayyun skills, students are easily exposed to superficial, provocative, exclusive, or even misleading religious content. Therefore, PAI learning needs to make digital tabayyun a core competency in religious education in the digital era. Students need to be guided not to easily accept information just because they use

religious symbols, but to assess the source, content, context, and social impact of the information.

The second finding shows that digital literacy-based PAI learning is in the good category with a percentage of 82.4%. This means that the use of digital media in PAI learning is quite effective. Teachers or ustazah utilize learning videos, Islamic articles, Qur'an applications, digital presentations, and internet-based assignments to enrich the learning process (Azzahra et al., 2025). However, qualitative findings confirm that technology does not replace the role of teachers. Precisely in PAI learning, teachers or ustazah remain the center of value guidelines, guides of understanding, and guardians of manners. Technology functions as a supporting medium, while teachers function as curators and interpreters of values.

This can be seen from the indicator of teacher guidance or ustazah which has the highest loading factor in the digital literacy-based PAI learning variable, which is 0.861. These findings show that the success of digital learning in PAI is highly dependent on the quality of teacher mentoring (Aulia & Arifin, 2023). Students may be able to access a variety of digital resources, but they still need teachers to explain context, straighten understanding, guide attitudes, and connect digital materials to Islamic values. In the context of the Ummul Quro Putri Islamic Boarding School, the role of ustazah is becoming increasingly important because students live in an educational environment that emphasizes manners, discipline, and moral formation.

The Role of PAI Learning, Teacher Guidance, and Pesantren Culture

The third finding showed that the religious character of students was in the very good category with a percentage of 83.6%. Religious character is reflected in honesty, discipline, responsibility, tolerance, digital politeness, and awareness of worship. In this context, religious character is not only understood as adherence to worship rituals, but also includes moral behavior in the digital space (Gaol & Hutasoit, 2021).

The results of PLS-SEM show that digital literacy has a strong influence on digital literacy-based PAI learning with a coefficient of 0.720. This means that the better the digital literacy of students, the better the quality of their involvement in digital-based PAI learning. Students who have good digital literacy are better able to utilize digital learning resources, follow technology-based assignments, understand teachers' instructions, and assess religious information more critically. These findings confirm that digital literacy is an important

prerequisite for the successful transformation of PAI learning. Without digital literacy, technology is just a technical tool; However, with digital literacy, technology can become a means of critical and religious learning.

The effect of digital literacy-based PAI learning on religious character of 0.548 shows that PAI learning has a strategic position as a bridge between digital skills and character formation. This means that religious character is not formed automatically just because students use technology, but is formed when technology is used in a value-packed learning process. PAI learning provides a moral framework for digital literacy to be directed to the right goal: seeking knowledge, strengthening worship, maintaining good manners, spreading goodness, and avoiding digital dangers (da Silva et al., 2024). Thus, PAI functions as a value filter in the use of technology.

The mediation's findings reinforce the argument. The indirect effect value of 0.394 shows that digital literacy-based PAI learning significantly mediates the relationship between digital literacy and religious character. In other words, digital literacy becomes more effective in forming religious character when entering the PAI learning process. Here are the important findings of this study: technology and digital literacy are not neutral in Islamic education; Both need to be directed through the values, curriculum, teacher guidance, and religious culture of Islamic boarding schools. Without a PAI framework, digital literacy can cease to be a technical skill. On the other hand, through PAI, digital literacy can be transformed into a means of forming digital morality and social piety.

The qualitative findings clarify the mechanism. Teachers and ustazah not only use digital media to deliver materials, but also curate Islamic resources, guide students to do tabayyun, associate the use of technology with good manners, and instill the value of responsibility in the use of media. This shows that the transformation of PAI learning does not only occur in the media aspect, but also in the aspect of the teacher's role. PAI teachers in the digital era must play the role of facilitators, curators, moral guides, and digital role models. This role becomes especially important because learners often access technology faster than they understand the quality of information and its moral impact.

The culture of the pesantren is also an important factor that strengthens the effectiveness of digital literacy-based PAI learning. The Ummul Quro Putri Islamic Boarding School has an educational environment that emphasizes discipline, good manners, worship

habits, respect for teachers, and moral control. This culture makes the use of technology not run freely without limits, but is directed in accordance with the values of the pesantren. Thus, digital literacy in Islamic boarding schools has a different character from digital literacy in public education spaces. In Islamic boarding schools, the use of technology is not only measured by the ability to access information, but also by its suitability with students' manners, Islamic values, and the purpose of character building.

Challenges, Theoretical Contributions, and Practical Implications

However, the study also showed some challenges. Limited access to devices and the internet makes the use of digital literacy not fully optimal. On the one hand, restricting digital access in Islamic boarding schools is necessary to maintain student manners and discipline. However, on the other hand, restrictions that are too strict can hinder the development of critical and productive digital literacy. Therefore, pesantren need to design a balanced policy on the use of technology: not allowing students to use technology freely without control, but also not closing useful digital learning spaces.

Theoretically, the findings of this study reinforce the view that digital literacy in Islamic education should be understood as valuable literacy. Digital literacy is not only a technical competence, but also a moral and spiritual competence (Falloon, 2020). In the context of PAI, digital literacy includes the ability to seek knowledge, verify information, maintain communication manners, avoid negative content, and use technology for the benefit of others. Thus, this study expands the concept of digital literacy to religious digital literacy, namely digital capabilities that are controlled by Islamic values, ethics, and social responsibility.

Practically, these findings show that Islamic boarding schools and educational institutions need to develop a structured digital literacy-based PAI learning model. This model can include several steps: first, the teacher chooses credible Islamic digital sources; Second, students are trained to do tabayyun about digital information; third, learn to connect PAI material with media ethics; Fourth, students are given the task of making religious digital works; and fifth, learning evaluation not only assesses cognitive understanding, but also digital attitudes, responsibilities, and manners.

CONCLUSION

This study confirms that digital literacy-based PAI learning at the Ummul Quro Putri Islamic Boarding School positively contributes to strengthening students' religious character. Theoretically, the study reinforces the perspective that digital literacy in pesantren-based Islamic education functions as a bridge between technological competence and religious character formation. The findings show that religious character is shaped not only by students' ability to use technology, but also by the integration of digital literacy into PAI learning through tabayyun values, media ethics, curation of Islamic digital resources, and teacher or ustazah guidance. Practically, the study implies that pesantren should not reject technological developments, but manage them selectively, educationally, and in accordance with Islamic values. Future research is recommended to involve pesantren with different characteristics, apply longitudinal designs to examine long-term changes in religious character, and explore additional variables such as digital self-control, family religiosity, pesantren culture, and social media intensity. Further studies may also develop more applicable and replicable digital literacy-based PAI learning models for broader Islamic educational contexts.

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