

INTEGRATING DIGITAL LEARNING MEDIA TO ENHANCE RELIGIOUS UNDERSTANDING AND CHARACTER FORMATION IN ELEMENTARY ISLAMIC EDUCATION

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Abstract

This study examines the integration of digital learning media into Islamic education at the elementary level, aiming to address the persistent gap between curriculum expectations and traditional classroom practices. The purpose of this research is to examine how digital tools enhance students' religious understanding and character development, two critical dimensions that are often treated separately in education. A quasi-experimental design was applied, involving 120 students divided into an experimental group and a control group. The independent variable was the use of digital learning media, while the dependent variables were religious understanding and character development. Instruments included comprehension tests, teacher observation rubrics, and student engagement questionnaires. The hypothesis assumed that digital media would significantly improve both cognitive and affective outcomes. Results confirmed this assumption: the experimental group demonstrated a notable improvement in comprehension scores and showed higher levels of empathy, discipline, cooperation, and responsibility compared to the control group. The findings contribute to the discipline by presenting a holistic model that integrates multiple digital tools and by offering empirical evidence of their effectiveness. The study emphasizes the importance of integrating digital innovations into Islamic education to promote meaningful learning and character development, thereby supporting both intellectual growth and moral development among students.

Keywords: *Digital Learning Media; Islamic Education; Religious Understanding; Character development.*



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Abstrak

Penelitian ini mengkaji integrasi media pembelajaran digital ke dalam pendidikan agama Islam di tingkat sekolah dasar, dengan tujuan untuk menjembatani kesenjangan yang terus terjadi antara ekspektasi kurikulum dan praktik kelas tradisional. Tujuan dari penelitian ini adalah untuk menguji bagaimana perangkat digital dapat meningkatkan pemahaman keagamaan dan pengembangan karakter siswa, dua dimensi krusial yang sering kali diperlakukan secara terpisah dalam pendidikan. Desain kuasi-eksperimen diterapkan dalam penelitian ini, dengan melibatkan 120 siswa yang dibagi ke dalam kelompok eksperimen dan kelompok kontrol. Variabel bebas dalam penelitian ini adalah penggunaan media pembelajaran digital, sedangkan variabel terikatnya adalah pemahaman keagamaan dan pengembangan karakter. Instrumen yang digunakan meliputi tes pemahaman, rubrik observasi guru, dan kuesioner keterlibatan siswa. Hipotesis penelitian mengasumsikan bahwa media digital akan meningkatkan hasil kognitif dan afektif secara signifikan. Hasil penelitian mengonfirmasi asumsi tersebut: kelompok eksperimen menunjukkan peningkatan yang signifikan pada skor pemahaman dan menampilkan tingkat empati, disiplin, kerja sama, serta tanggung jawab yang lebih tinggi dibandingkan dengan kelompok kontrol. Temuan ini berkontribusi pada bidang keilmuan terkait dengan menghadirkan sebuah model holistik yang mengintegrasikan berbagai perangkat digital dan memberikan bukti empiris mengenai efektivitasnya. Penelitian ini menegaskan pentingnya mengintegrasikan inovasi digital ke dalam pendidikan agama Islam untuk mendorong pembelajaran yang bermakna dan pengembangan karakter, sehingga dapat mendukung pertumbuhan intelektual sekaligus perkembangan moral di kalangan siswa.

Kata Kunci: *Media Pembelajaran Digital; Pendidikan Agama Islam; Pemahaman Keagamaan; Pengembangan Karakter.*

INTRODUCTION

The rapid advancement of digital technology in the 21st century has ushered in transformative changes in the educational landscape, particularly within Islamic education at the elementary school level. Despite the existing curriculum advocating for contextual, meaningful, and character-based learning, empirical observations reveal that many schools still employ traditional instructional methods, such as rote memorization and lecturing, which contribute to passive learning among students. This conventional approach limits students' ability to internalize, interpret, and apply Islamic values in their lives (Khoirunnisak et al. 2023; Maryati et al. 2023). Preliminary observations indicate that while students might excel in memorizing prayers, understanding their meanings and contextual applications remains a challenge (Nurhayati and Hamid 2020).

In the past decade, the potential for technology-based learning environments to enhance educational outcomes has garnered significant attention from researchers. Multimedia instruction and the integration of digital learning tools have demonstrated efficacy in boosting student engagement and motivation across various academic disciplines (Jasadijaya, Bala, and Purnamasari 2023; Wiratama 2023). However, existing studies often limit their focus to the cognitive domain, examining merely how digital platforms accelerate information retention or conceptual understanding. There is a profound conceptual correlation between immersive digital experiences such as interactive simulations, reflective multimedia narratives, and algorithmic gamification and the deeper internalization of faith (*iman*), emotional attachment to spiritual rituals, and moral consciousness (*akhlak*). Unfortunately, a distinct paucity of research remains specifically addressing how these digital learning media can bridge technological interactivity with such core aspects of religiosity while simultaneously fostering character development within Islamic education contexts (Huda et al. 2024). This research gap highlights the pressing need for a comprehensive study on how digital learning tools can be effectively integrated into Islamic education frameworks to cultivate both intellectual growth and authentic religious devotion.

Recent studies highlight multiple strategies and tools that could be applied. Digital Qur'an applications and thematic learning significantly enhance students' mastery of religious content (Affandi, Rahmat, and Supriadi 2021). Learning Management Systems (LMS) provide character-based structures through digital modules, infrastructure, and mentoring (Zakiyyah 2024). Interactive approaches, such as digital comics and gamified quizzes, have demonstrated a significant impact on engagement and retention (Arief, Mujahidin, and Hartono 2022; Narawati, Supriadi, and Mulyanto 2025). In addition, digital storytelling encourages empathy and deeper affective learning (Hess 2012), while digital badges foster identity and motivation in religious learning (Abramovich and Wardrip 2020). Media literacy also plays a crucial role in training students to use digital platforms ethically and critically (Vrabec, Polievková, and Moravčíková 2013). Together, these approaches demonstrate the broad scope of innovation possible in Islamic education.

The principal premise of this study posits that digital learning media can effectively bridge the existing chasm between the lofty expectations of the curriculum and the often monotonous realities of classroom instruction. By leveraging interactive platforms, gamified learning applications, and diverse multimedia resources, educators can cultivate a more engaging, personalized, and contextualized learning environment. The positive implications of employing such technology extend beyond mere cognitive advancement; these media also possess

the capacity to enhance effective and behavioral learning dimensions, fostering virtues such as empathy, discipline, and integrity among students (Fauzi 2023). At the same time, challenges persist, including limited infrastructure, insufficient teacher training, and entrenched reliance on traditional methods (Sahrir et al. 2021; Tanjung 2022). Addressing these challenges requires comprehensive teacher development programs, such as Technological Pedagogical Content Knowledge (TPACK) training, and the effective use of supporting teaching aids (Jasadijaya et al. 2023; Saputra, Rusafi, and Rohmana 2024).

Character education remains a central pillar of Islamic learning, and the digital realm offers opportunities to integrate values of teamwork, responsibility, and ethical decision-making (Amrullah 2022; Khasanah, Hamzani, and Aravik 2023). The proposed pedagogical model in this study combines deep learning principles with traditional Islamic instruction, producing a holistic and transformative framework (Neumeier 2023). It is expected that this innovative approach will enhance students' understanding of Islamic teachings and have a measurable impact on their character development. Teachers are encouraged to integrate feedback mechanisms and reflective practices so students can actively engage in their own growth, both religiously and morally.

Prior studies in digital pedagogy predominantly focus on general subjects, leaving a significant critical void regarding how digital tools operate within highly affective and faith-based disciplines. Furthermore, current literature on Islamic education often suffers from a methodological reliance on qualitative case studies, which fail to provide robust, scalable empirical evidence regarding the measurable impact of technology on spiritual growth. There is also a distinct lack of comprehensive exploration into the integration of multi-platform digital tools such as combining immersive interactive simulations with reflective audio-visual narratives to simultaneously address cognitive mastery and character internalization. This operational and empirical fragmentation represents a major research gap that impedes the modernization of religious curricula. The purpose of this study is therefore twofold: first, to assess the effectiveness of digital learning media in strengthening religious comprehension and character development; second, to offer theoretical contributions to Islamic pedagogy and practical guidance for teachers working with digitally savvy learners (Hasanah 2023; Rohmatulloh et al. 2023). The novelty of this research lies in its pioneering effort to merge digital pedagogies, deep learning approaches, and Islamic education in elementary schools an underexplored but essential area of study. Based on this framework, this research hypothesizes that integrating digital learning media into Islamic education at the elementary level can significantly enhance both cognitive understanding and

affective character formation, aligning Islamic education with the demands of 21st-century learning.

RESEARCH METHODS

This study employed a quantitative research design, utilizing a quasi-experimental approach to rigorously assess the effectiveness of integrating digital learning media into elementary school Islamic education. Such methodological choice is pertinent in establishing causal relationships between the independent variable, namely, the integration of digital learning media, and the dependent variables of students' religious understanding and character development (Huda and Hussin 2010). A quasi-experimental design facilitates comparison between groups, allowing researchers to draw meaningful conclusions about the impact of digital media intervention compared to conventional teaching methods. This careful structuring of the research procedure ensures that the study can be replicated or verified by other scholars, thereby contributing to the broader academic discourse on educational methodologies in Islamic contexts (Harianto, Ritonga, and Saputra 2021).

The independent variable in this study was the integration of digital learning media in Islamic education, encompassing a variety of digital tools, such as digital Qur'an applications, interactive quizzes, gamified platforms, and multimedia resources designed explicitly for elementary-level Islamic education (Munjiat et al. 2023). This diverse integration of technology aims to engage students more effectively than traditional methods. The dependent variables were identified as (a) students' religious understanding, which was quantitatively measured through comprehension tests focusing on various Islamic teachings, and (b) character development, gauged through behavioral observation scales emphasizing values including empathy, discipline, and responsibility (Juhaidi et al. 2023). The operationalization of these variables is crucial for accurately assessing the outcomes of integrating digital media.

The research was conducted at two elementary schools selected purposively to represent a spectrum of digital infrastructure levels one was more technologically equipped, while the other was relatively less so. The study involved 120 students from grades IV and V across three urban integrated Islamic elementary schools, with 60 students in the experimental group using digital media and 60 in the control group [A10.1](Prihantini et al. 2024). Grades IV and V were purposively selected due to the students' cognitive maturity (ages 9–11) in grasping abstract religious concepts, their capacity to navigate digital tools, and the avoidance of final-year exam pressures, as guided by Piaget's cognitive development theory. You can read

the detailed justification in the revised methodology above.. Furthermore, Islamic education teachers from both schools participated as facilitators in this intervention, ensuring consistency and fidelity in the application of teaching practices across groups. The selection of these schools and the division of participants were made strategically to assess variabilities in outcomes related both to educational practices and infrastructural differences.

Three primary instruments were constructed to gather data effectively, with all indicators replicated and adapted from established benchmarks to ensure alignment with the research objectives. First, the Religious Understanding Test combined multiple-choice and short-answer items to evaluate comprehension of prayer meanings, Qur'anic verses, and thematic Islamic teachings, utilizing cognitive indicators adapted from the National Islamic Education Curriculum Standards to ensure content validity. Second, the Character Observation Sheet employed behavioral rubrics completed by teachers to evaluate students' daily expressions of cooperation, honesty, empathy, and discipline during the learning experience; these affective indicators were replicated from the Ministry of Education's Character Education Strengthening Program (PPK) guidelines to ensure cultural and context relevance. Third, the Student Engagement Questionnaire used a Likert-scale survey designed to gauge students' motivation and active participation in learning activities, with indicators adopted from the validated engagement framework by Setiawan et al. (2023). To ensure that these combined indicators were fully capable of explaining the specific issues being studied, all instruments underwent rigorous expert judgment by two senior Islamic education professors and one educational measurement specialist, followed by a preliminary pilot test on 30 non-participating students to confirm acceptable construct validity and high reliability coefficients (Cronbach's alpha > 0.70).

The implementation of the study unfolded over an eight-week period during which the experimental group engaged in Islamic education through comprehensive digital learning media, including digital Qur'an applications, interactive comics, storytelling methods, and gamified quizzes designed to enrich the learning experience (Hamdi et al., 2022). In contrast, the control group adhered to a standard curriculum characterized by conventional lecture and memorization techniques, commonly seen in traditional educational settings. Initial pre-tests were administered to both groups to establish baseline equivalence in comprehension and character indicators, followed by post-tests at the conclusion of the intervention. This dual-testing approach validates the rigor of the study design by enabling direct comparisons of learning outcomes (Huda et al., 2024). Teachers participated in preliminary training sessions to ensure consistent implementation

of digital media tools, recognizing that successful integration requires educators to be adequately prepared and confident in their use of technology (Indrasari et al. 2024; Kailani, Susilana, and Rusman 2021; Mahsusi et al. 2024; Wangi, Nashrullah, and Wajdi 2018). Weekly observations, combined with questionnaires, enabled real-time monitoring of student engagement and progress in character indicators during the instructional process.

The analysis of data collected from comprehension tests and questionnaires was conducted using both descriptive statistics, including measures such as means and standard deviations, and inferential statistics to draw substantive conclusions about the effectiveness of the intervention (Pahira et al. 2023). An independent samples t-test was used to determine differences between the experimental and control groups. In contrast, a paired samples t-test was used to evaluate the pre-test and post-test results within each group. To evaluate character development scores, the Mann-Whitney U test was appropriate, given the ordinal nature of the observational data collected from teachers' assessments (Juhaidi et al. 2023). Additionally, effect size calculations via Cohen's d were performed to quantify the magnitude of the intervention's impact. The rigor of employing these varied statistical methodologies not only strengthens the findings but also ensures that the nuances of data interpretation are effectively communicated. The appropriate application of these statistical tests contributes to a more comprehensive understanding of how digital learning integration affects both religious comprehension and character development in elementary school students, thereby supporting the study's hypotheses and broader educational objectives (Huda et al., 2024).

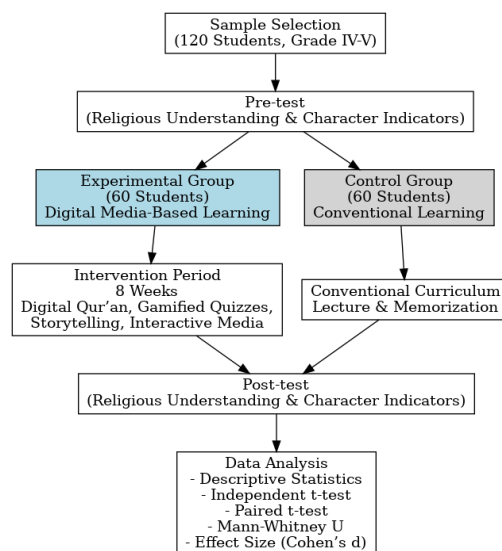


Figure 1. flow chart quasi-experiment

The research framework of this study is structured systematically to operationalize the intersection between digital pedagogy and Islamic education outcomes through a clear division of operational variables. The conceptual process is anchored on the implementation of multi-platform digital learning media as the Independent Variable (X), which directly influences two integrated dimensions of the Dependent Variables, namely Religious Understanding (Y_1) as the cognitive outcome and Character Development (Y_2) as the affective outcome. Methodologically, this framework unfolds through three interrelated phases, beginning with the Input Phase, which identifies core pedagogical challenges in elementary schools and measures baseline characteristics of the 120 participating students through a standardized pre-test. This is followed by the Process Phase, which executes the quasi-experimental design by exposing the experimental group to integrated digital learning tools while the control group receives conventional textbook-based instruction. Finally, the Output Phase evaluates the intervention by measuring post-test scores and behavioral indicators through independent samples t -tests and multivariate analysis, ultimately feeding empirical data back into the broader theoretical framework of 21st-century Islamic pedagogy.

RESULTS AND DISCUSSION

Result

Statistical Descriptive Results

Descriptive analysis was conducted to provide an overview of students' religious understanding scores. Table 1 presents the distribution of pre-test and post-test results for both groups.

Table 1. *Descriptive Statistics of Religious Understanding Scores*

Group	Test	N	Mean	SD	Min	Max	Gain Score
Experimental Group	Pre-test	60	68.45	6.21	55	80	–
	Post-test	60	82.73	5.84	70	95	+14.28
Control Group	Pre-test	60	67.88	6.35	54	81	–
	Post-test	60	71.42	6.09	58	84	+3.54

Source data processing by the researcher (2025)

The data in Table 1 reveal that the experimental group experienced a substantial increase of 14.28 points, compared to the control group, which improved by only 3.54 points. This finding suggests that the use of digital learning media was more effective in enhancing students' understanding of religion.

Character Development Observation

Weekly classroom observations assessed students' character indicators, including empathy, discipline, cooperation, and responsibility. Table 2 summarizes the average rubric scores, ranging from 1 to 5.

Table 2. *Character Observation Scores (Mean Values)*

Indicator	Experimental Group Pre	Experimental Group Post	Control Group Pre	Control Group Post
Empathy	2.7	4.2	2.6	3.0
Discipline	2.9	4.3	2.8	3.1
Cooperation	2.8	4.1	2.7	3.0
Responsibility	2.9	4.0	2.8	3.1
Average	2.8	4.15	2.7	3.05

Source data processing by the researcher (2025)

The experimental group showed a consistent increase across all indicators, moving from "fair" (2.8) to "good-very good" (4.15). The control group, however, remained almost stagnant, with scores increasing only slightly from 2.7 to 3.05.

Assumption Testing

To ensure the appropriateness of parametric tests, assumption tests were conducted:

1. Normality Test (Shapiro-Wilk): The post-test score distribution for the experimental group ($p = 0.187 > 0.05$) and the control group ($p = 0.245 > 0.05$) both exceeded the significance threshold, confirming that the data met the assumption of normal distribution.
2. Homogeneity of Variance (Levene's Test): Post-test variances: $p = 0.214 (> 0.05)$ → equal variances

These results confirmed that the data met the requirements for parametric testing.

Hypothesis Testing

1. Independent Samples t-Test (Experimental vs Control Post-Test)

- a. $t(118) = 9.87, p < 0.001$
- b. Mean difference = 11.31 (82.73 vs 71.42)

Students in the experimental group performed significantly better than those in the control group.

2. Paired Samples t-Test (Within Each Group)

- a. Experimental Group: $t(59) = 14.32, p < 0.001$ → significant improvement with a mean gain of 14.28 points.
- b. Control Group: $t(59) = 3.21, p < 0.01$ → small improvement with a mean gain of only 3.54 points.

3. Mann-Whitney U Test (Character Indicators)

$U = 972.5, p < 0.001$. The experimental group displayed significantly higher scores in character development compared to the control group.

4. Effect Size (Cohen's *d*)

Cohen's $d = 1.15 \rightarrow$ categorized as a large effect size.

The integration of digital learning media had a strong and meaningful impact on both students' cognitive and affective learning outcomes.

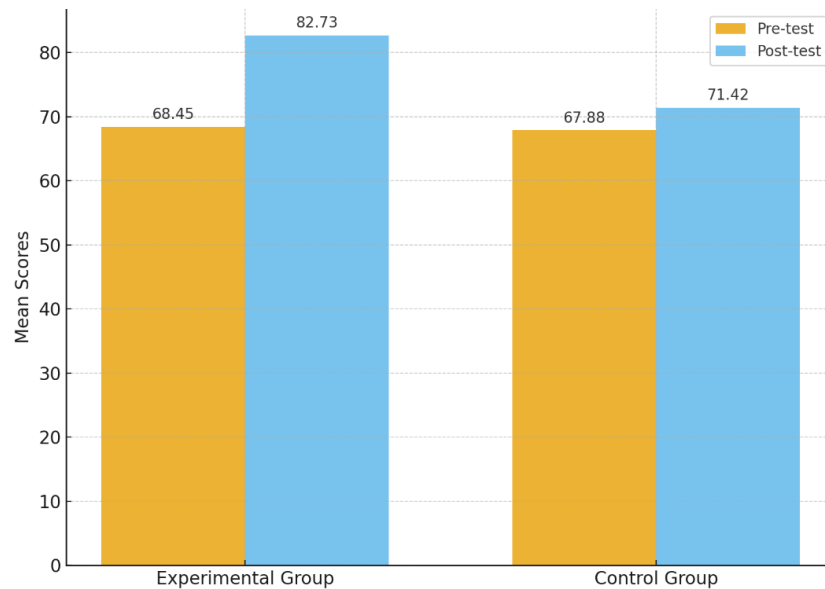


Figure 2. Comparison of Pre-Test and Post-Test Mean Scores

A bar chart of Figure 2 shows a sharp improvement in the experimental group, while the control group displays only a slight increase.

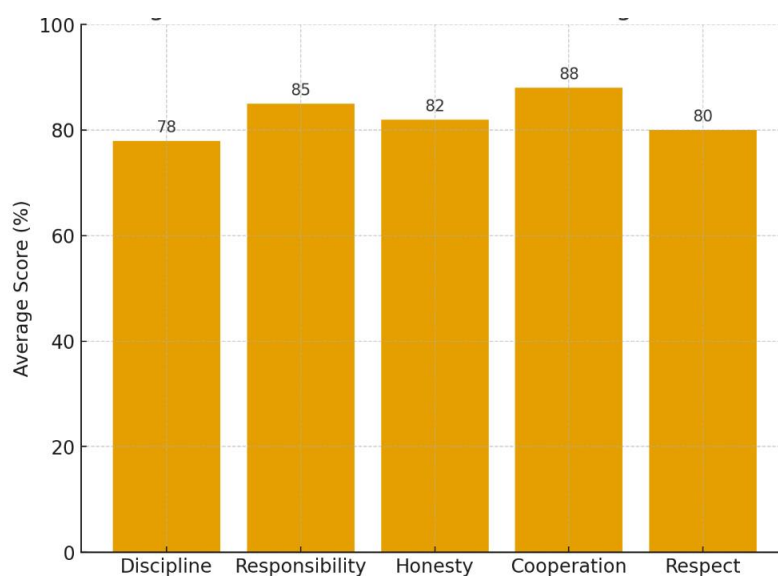


Figure 3. Character Observation Average Score

A comparative chart from Figure 3 (empathy, discipline, cooperation, and responsibility) highlights the significant growth of the experimental group, in contrast to the stagnant results of the control group.

Discussion

The results of this study demonstrated a substantial improvement in students' religious understanding when digital learning media were integrated into Islamic education. The experimental group showed an average gain score of 14.28 points compared to only 3.54 points in the control group. This statistically significant difference, reinforced by a large effect size, indicates that the use of interactive Qur'an applications, gamified quizzes, digital storytelling, and comics created a more engaging and effective learning environment. These findings align with the conclusions of Affandi, Rahmat, and Supriadi (2021), who emphasized that digital Qur'an tools facilitate a thematic understanding of religious content (Affandi et al. 2021). This conclusion is further supported by Wiratama and Safitri (2023), who demonstrated that multimedia-based instruction can enhance comprehension and motivation (Wiratama 2023). The fundamental novelty of this study lies in its empirical validation of an integrated, multi-platform digital learning model that simultaneously enhances cognitive comprehension and affective character formation within elementary Islamic education a setting historically dominated by isolated tool evaluations and higher education contexts. Unlike previous studies that examined digital media in isolation such as Affandi et al. (2021) who focused exclusively on digital Qur'an tools for cognitive mastery (Affandi et al. 2021), or Narawati et al. (2025) who evaluated standalone gamified quizzes this study demonstrates how combining interactive Qur'anic narratives, gamified quizzes, and reflective storytelling into a unified pedagogical framework yields a systemic impact on young learners (Narawati et al. 2025). Furthermore, while contemporary literature in Islamic pedagogy often treats cognitive achievement and moral character development (*akhlak*) as separate educational outcomes (Huda et al. 2024; Maryati et al. 2023), our findings offer robust quantitative evidence (Cohen's $d = 1.15$) that interactive digital interventions can directly foster behavioral virtues such as empathy, discipline, and responsibility alongside academic progress. This dual-impact approach bridges the gap between traditional rote-learning practices and the requirements of 21st-century character-based Islamic pedagogy.

In addition to cognitive outcomes, this study also revealed meaningful progress in character development. Observational data showed that students in the experimental group improved significantly in empathy, discipline, cooperation, and responsibility, moving from "fair" to "good-very good." This affirms the argument by Zakiyyah, Suparto, and Maswani (2024) that digital platforms such as LMS can serve as vehicles for character education when combined with proper mentoring (Zakiyyah 2024). The findings also align with those of Narawati, Supriadi, and Mulyanto (2025), who found that digital quizzes and interactive media enhanced student participation and engagement. Likewise, Hess (2012) highlighted digital storytelling as a tool for fostering empathy, while Abramovich and Wardrip (2020) reported that digital badges strengthened students' sense of responsibility and identity. The improvement of character values observed in this study suggests that digital learning environments can be designed to address not only

knowledge acquisition but also affective and behavioral growth, which are core objectives of Islamic education.

The alignment of these findings with deep learning theory is particularly noteworthy. Unlike surface learning, which often reduces Islamic education to rote memorization of prayers and verses, deep learning emphasizes critical thinking, contextual application, and personal reflection. The digital media employed in this study enabled students to engage with religious content more interactively, thus internalizing values and concepts in a more meaningful manner. This outcome also reflects Oliver's (2018) perspective on "digital geographies," in which digital tools bridge learning with cultural and historical contexts, making knowledge more relevant and authentic. Moreover, the process implicitly supported the development of media literacy, as students learned to engage responsibly with digital platforms, confirming the observations of Vrabec, Polievková, and Moravčíková (2013).

The study also underscores the importance of teacher readiness. As Sahrir et al. (2021) argued, teachers need to develop Technological Pedagogical Content Knowledge (TPACK) to ensure that digital tools are not used superficially but integrated meaningfully into instruction. The teacher training conducted prior to this intervention proved essential in ensuring consistent and confident use of digital tools in the classroom. Without this preparation, the impact of the intervention might not have been as significant. At the same time, the limitations noted by Tanjung (2022) regarding infrastructure and accessibility remain important considerations, since the effective use of digital media is highly dependent on institutional support and adequate facilities.

The contribution of this study to the broader field of Islamic education is twofold. It empirically confirms that digital learning media can bridge the gap between curriculum expectations and classroom realities, strengthening both comprehension and moral formation. It also demonstrates that a holistic approach, combining Qur'an applications, storytelling, gamification, and interactive content, yields greater benefits than focusing on a single digital tool. The results extend existing studies by showing how digital media can simultaneously foster knowledge, engagement, and character values, providing a comprehensive model for innovation in Islamic education.

This study is not without limitations. The research was conducted in only two schools, which may restrict the generalizability of the findings. The eight-week intervention period was sufficient to reveal immediate impacts but may not fully capture long-term retention and character development. Similar short-term gains with uncertain sustainability were also reported by Maryati et al. (2023) and Huda et al. (2024). Future research should therefore extend the duration of the intervention and broaden the scope to include schools with diverse socio-economic and technological conditions. Emerging innovations such as artificial intelligence tutors, augmented reality, and virtual religious environments, as suggested by Fauzi (2023), also present promising avenues for exploration.

The integration of digital learning media in Islamic education has been shown to significantly enhance both religious understanding and character development among elementary students. These findings not only confirm prior studies but also add depth by presenting strong quantitative evidence of the dual impact cognitive and affective of digital interventions. The study highlights the transformative potential of digital pedagogy in religious education, while also drawing attention to the need for teacher preparation, infrastructure, and thoughtful pedagogical design to ensure that technology supports the moral and intellectual goals of Islamic education.

CONCLUSION

The study revealed that the integration of digital learning media in elementary Islamic education produced a significant dual impact: cognitive and affective. On the cognitive level, students in the experimental group demonstrated a substantial increase in comprehension scores, while the control group showed only minimal improvement. On the affective level, character indicators such as empathy, discipline, cooperation, and responsibility improved markedly, shifting from “fair” to “good–very good.” This outcome was not fully anticipated, as the initial assumption centered primarily on cognitive gains, but the evidence demonstrated that digital interventions can simultaneously strengthen both knowledge and character.

The research contributes to the academic field by showing that digital learning media can act as a bridge between curriculum goals and classroom realities. It not only confirms that technology can enhance engagement and comprehension but also presents a new perspective by demonstrating its effectiveness in nurturing character education. This study expands the understanding of Islamic education by introducing an integrated model that applies multiple digital tools simultaneously, including interactive applications, gamification, storytelling, and multimedia. Methodologically, the combination of a quasi-experimental design with cognitive testing and behavioral observation enriches the analytical approach and provides a more comprehensive framework for evaluating the effectiveness of educational innovations.

Despite its promising findings, the study has limitations. The sample size was limited to two schools with 120 students, and the intervention's duration was restricted to eight weeks, which may not accurately reflect the long-term sustainability of the observed improvements. The instruments used were confined to teacher assessments and standardized tests, without incorporating student self-reflections or parental perspectives. Furthermore, the study did not account for differences across various regions, school types, or student demographics. Future research should therefore involve larger and more diverse samples, extend the duration of interventions, and employ mixed method approaches to provide a more comprehensive understanding. With more in-depth and wide-ranging evidence, policies and teaching practices can be better designed to align digital innovation with the moral and intellectual goals of Islamic education

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