The Impact of Virtual Islamic Learning Spaces on Student Engagement and Academic Performance in Indonesia

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Article Info

ABSTRACT

This study examines the impact of virtual Islamic learning spaces on student engagement and academic achievement in Indonesia. As digital education becomes increasingly integrated into religious instruction, understanding its effectiveness is essential. A quantitative research method was employed, involving 150 respondents who participated in virtual Islamic learning programs. Data were collected using a Likert-scale questionnaire (1–5) and analyzed using SPSS version 25. The results revealed a significant positive relationship between the use of virtual learning platforms and both student engagement and academic achievement. Multiple linear regression analysis showed that student engagement plays a mediating role, with a stronger influence on academic outcomes compared to direct platform use. These findings highlight the importance of well-structured and interactive virtual Islamic learning environments in enhancing educational outcomes. The study contributes valuable insights for educators, policymakers, and digital content developers aiming to strengthen Islamic education in the digital era.

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1. INTRODUCTION

The rapid development of information and communication technologies (ICT) has significantly reshaped global education, including religious education. In Indonesia—the country with the largest Muslim population—the integration of digital platforms into Islamic education has expanded rapidly, particularly during the COVID-19 pandemic, which accelerated the shift toward online learning. Virtual Islamic learning spaces have emerged as a key alternative to traditional methods, offering greater accessibility and flexibility for students. This transformation has also redefined pedagogical approaches, with the pandemic serving as a catalyst for the widespread adoption of ICT in Islamic institutions, enhancing the quality and reach of religious education [1]. These online environments rely on both synchronous platforms—such as Jitsi Meet, Google Meet, Zoom, and Microsoft Teams—for real-time engagement [2], and asynchronous tools like Google Classroom, Edmodo, and YouTube for self-paced learning, fostering creativity and innovation [3]. Students have generally responded positively, valuing the flexibility and accessibility of online learning [4].

Despite these benefits, challenges remain, including unequal access to devices, poor internet infrastructure, and financial limitations faced by some students' families [2]. Even so, this digital shift has introduced greater efficiency and a richer array of tools into Islamic education [5].

Virtual learning environments (VLEs) hold great promise for improving student engagement and academic achievement in Islamic education by integrating interactive multimedia and personalized learning. These platforms offer access to diverse resources and enable real-time discussions, which are vital for understanding Islamic teachings. IT-based audiovisual media have shown significant impact, with a large effect size of 0.959 on learning outcomes [6], and discussion-based methods further enhance comprehension [7]. E-learning also supports accessibility and personalization, especially for digitally native Generation Z learners [8], [9]. However, VLE effectiveness relies on authentic content, strong teacher-student interaction, and sustained engagement beyond traditional settings. Key challenges include maintaining content accuracy [10], bridging the digital divide [10], and ensuring adequate resources and training for educators [9].

This study aims to fill the existing research gap by examining the impact of virtual Islamic learning spaces on student engagement and academic achievement in Indonesia. Using a quantitative approach, the study seeks to analyze whether and to what extent the adoption of virtual learning platforms in Islamic education correlates with students' active participation and their academic performance. The findings are expected to offer valuable insights for educators, institutions, and policymakers in improving the design and implementation of digital religious education programs across the country.

2. LITERATURE REVIEW

2.1 Virtual Learning in Islamic Education

Virtual Islamic learning spaces have become increasingly popular, particularly in Muslim-majority countries, for expanding access to religious education beyond geographical limits. These platforms utilize digital tools like video conferencing, e-learning modules, and mobile apps to deliver content on the Qur'an, Hadith, and Islamic values. Their success hinges on content quality, user interface, teacher interaction, and student motivation. Accurate and credible content aligned with Islamic teachings builds user trust [11], while intuitive interfaces enhance engagement [12]. Effective teacher interaction requires adequate training in digital pedagogy [12]. and interactive features such as videos and forums boost student motivation [13]. Key challenges include limited access to technology, low digital literacy, and ensuring religious content accuracy, demanding collaboration among educators and stakeholders [11]. Still, these platforms present opportunities to complement traditional learning by offering greater flexibility and reach [14].

2.2 Student Engagement in Virtual Learning

Student engagement in virtual learning environments is a multidimensional concept encompassing behavioral, emotional, and cognitive aspects, which is especially vital in Islamic learning due to the moral and spiritual nature of its content. Effective online platforms can foster engagement through interactive content, timely feedback, and active teacher involvement. Strategies to enhance engagement include integrating interactive elements and prompt feedback to simulate face-to-face interaction [15], ensuring strong teacher presence and professionalism to build a supportive environment [16], and promoting peer collaboration to strengthen social and emotional connections [17]. Several key factors also influence engagement: intrinsic motivation plays a central role, particularly in religious learning where internal values drive participation [16], content relevance to students' daily lives increases perceived value and

involvement [16], and educator credibility fosters trust, which is critical for meaningful engagement in virtual Islamic education [16].

2.3 Academic Achievement in Online Education

The integration of digital platforms in education has demonstrated strong potential to enhance academic achievement, including in Islamic education, particularly when supported by robust technological infrastructure, effective instructional design, and learner autonomy. Success in digital learning environments depends on reliable network connectivity and device accessibility, which allow students to fully engage with content and participate in learning activities [18], while proper technological support can further improve academic outcomes by facilitating resource access and enabling interactive experiences [19]. Instructional design that employs active teaching strategies and structured content is essential, especially in Islamic education where it aids memorization and comprehension of religious texts [18], and technologies that offer immediate feedback help students identify and correct errors to enhance learning [20]. Additionally, digital platforms encourage learner autonomy by providing access to varied sources of information beyond traditional teacher-centered instruction [20], and student engagement—closely linked to satisfaction and involvement—has been shown to correlate positively with academic performance in virtual learning settings [21].

2.4 Research Gap

While there is growing literature on online learning and digital education in Indonesia, empirical studies specifically focusing on virtual Islamic learning spaces and their impact on student engagement and academic performance remain limited. Most existing studies focus either on general e-learning platforms or on traditional Islamic education without examining their intersection in the digital realm. This study seeks to address this gap by providing empirical evidence on how virtual Islamic learning platforms affect student engagement and academic achievement in Indonesia.

3. RESEARCH METHODS

This study employs a descriptive and correlational design to explore current trends and examine the relationship between virtual learning, student engagement, and academic achievement. It aims to determine how virtual Islamic learning platforms influence educational outcomes. The population includes students across Indonesia who actively engage in such platforms. Using a non-probability purposive sampling technique, 150 respondents with relevant experience were selected—an adequate sample size for SPSS-based quantitative analysis. Data were gathered via an online questionnaire distributed through Google Forms, comprising three sections: demographics; virtual Islamic learning spaces (e.g., accessibility, interactivity, teacher responsiveness); and student engagement and academic achievement (e.g., participation, attentiveness, understanding). Responses were measured using a five-point Likert scale from 1 (Strongly Disagree) to 5 (Strongly Agree).

The independent variable in this study is Virtual Islamic Learning Spaces, assessed through indicators like access to materials, content quality, teacher interaction, and platform usability. Dependent variables include Student Engagement—measured by participation, attention, and emotional involvement—and Academic Achievement—measured by self-reported learning improvement and understanding of Islamic teachings. Content validity was evaluated by experts in Islamic education and digital learning, while reliability was tested using Cronbach's Alpha, with ≥ 0.70 as the acceptable threshold. Data analysis was conducted using SPSS version 25, applying descriptive statistics, reliability testing, Pearson correlation to examine relationships,

and linear regression to assess the impact of virtual learning on student engagement and academic performance.

4. RESULTS AND DISCUSSION

4.1 Descriptive Statistics

Descriptive statistics were used to present the respondents' profiles and summarize the central tendencies of key variables. Of the 150 respondents, 58% were female and 42% male, with the majority being undergraduate students (65%), followed by senior high school (20%) and graduate students (15%). Most had used virtual Islamic learning platforms for over six months (70%). In terms of Virtual Islamic Learning Spaces, respondents expressed high satisfaction with access to materials (Mean = 4.12, SD = 0.68) and teacher interaction (Mean = 4.08, SD = 0.70). Student engagement was also high, with strong participation in online discussions (Mean = 4.10, SD = 0.66) and attentiveness during lessons (Mean = 4.05, SD = 0.71). Regarding academic achievement, students reported improved understanding of Islamic teachings (Mean = 4.07, SD = 0.65) and enhanced academic performance (Mean = 4.02, SD = 0.69).

4.2 Validity and Reliability Testing

To assess the internal consistency and validity of the questionnaire, Cronbach's Alpha was calculated for each variable, with all constructs exceeding the minimum reliability threshold of 0.70, indicating strong reliability. The Virtual Islamic Learning variable (5 items) had a Cronbach's Alpha of 0.831, Student Engagement (5 items) scored 0.853, and Academic Achievement (5 items) achieved 0.817.

4.3 Correlation Analysis

Pearson correlation analysis revealed strong and statistically significant positive relationships among virtual learning spaces, student engagement, and academic achievement. The correlation between virtual learning and student engagement was $r = 0.631$ ($p < 0.01$), between virtual learning and academic achievement was $r = 0.588$ ($p < 0.01$), and between student engagement and academic achievement was $r = 0.654$ ($p < 0.01$). These results indicate that students who were more engaged in virtual Islamic learning platforms also tended to report better academic outcomes.

4.4 Regression Analysis

A multiple linear regression analysis was conducted to examine the influence of virtual Islamic learning spaces and student engagement on academic achievement. The model showed a strong overall fit, with an R value of 0.703 and an R^2 of 0.494, indicating that approximately 49.4% of the variance in academic achievement could be explained by the two predictors. The adjusted R^2 value of 0.487 confirms the model's robustness, while the F-statistic of 71.564 ($p < 0.001$) indicates that the model is statistically significant and provides a reliable prediction of academic outcomes based on virtual learning and student engagement.

Table 1. Multiple Regression Analysis

Variable	Beta (β)	t-value	Sig. (p-value)
Virtual Learning	0.312	4.217	0.000
Student Engagement	0.478	6.187	0.000

The results of the linear regression analysis indicate that both virtual learning and student engagement significantly predict academic achievement, with virtual learning showing a standardized beta coefficient (β) of 0.312 and a t-value of 4.217 ($p = 0.000$), and student engagement demonstrating a stronger effect with a β of 0.478 and a t-value of 6.187 ($p = 0.000$). These findings confirm that both variables have a significant positive

influence on academic outcomes, with student engagement emerging as the more dominant predictor. This suggests that student engagement not only directly contributes to academic success but also serves as a mediating factor in the relationship between virtual Islamic learning environments and academic performance, underscoring the importance of designing interactive and motivating virtual platforms in Islamic education.

4.5 Discussion

The findings confirm that virtual Islamic learning spaces have a positive influence on both student engagement and academic achievement. Correlation and regression analyses reveal that students who perceive their online Islamic education platforms as accessible, interactive, and well-structured tend to engage more deeply in learning activities and demonstrate better academic performance. This is consistent with prior studies emphasizing the importance of well-designed digital environments in fostering positive learning outcomes. In particular, interactive content and responsive platforms appear to be key contributors to these outcomes.

Student engagement can be understood through its cognitive, emotional, and behavioral dimensions. Cognitive engagement involves students' intellectual investment in mastering complex material and is closely associated with perceived learning and academic achievement, especially in online contexts where self-regulation and interaction are crucial [22], [23]. Emotional engagement, reflected in students' affective responses, mediates the relationship between teacher interaction and learning outcomes, highlighting its essential role in sustaining motivation and satisfaction [24]. Behavioral engagement, such as consistent participation in academic tasks, also supports achievement, though its effect on perceived learning may be less significant compared to cognitive and emotional factors [22].

Interaction and usability within virtual platforms are central to supporting engagement. Effective learning design that includes collaborative and interactive components has been shown to enhance both satisfaction and performance by strengthening cognitive engagement [23]. Additionally, platform usability—clarity of navigation, accessibility of content, and responsiveness—plays a critical role in maintaining engagement in online settings, where the lack of physical presence can otherwise hinder participation [23]. This reinforces the insights of Martin and Bolliger, as well as [25], who emphasized that engagement in all its dimensions is integral to academic success in virtual learning environments.

In the context of Islamic education, virtual learning adds a distinct layer, as students engage not only with academic material but also with spiritual and moral content. This dual emphasis may foster greater intrinsic motivation, thereby enhancing both engagement and achievement. In Indonesia, where digital education is being increasingly supported by both government and private sectors, this study underscores the potential of virtual Islamic learning when platforms are effectively designed and implemented. Nevertheless, persistent challenges such as unequal access to technology and the need for enhanced teacher training in digital pedagogy must be addressed to ensure equitable and effective outcomes for all learners.

5. CONCLUSION

The results of this study clearly demonstrate that virtual Islamic learning spaces have a significant and positive impact on student engagement and academic achievement in Indonesia. Students who perceive digital platforms as accessible,

interactive, and well-supported by instructors tend to show higher levels of engagement and better academic performance. Notably, student engagement serves as a crucial mediating factor between virtual learning environments and academic outcomes, emphasizing the importance of designing platforms that actively involve learners across cognitive, emotional, and behavioral dimensions.

These findings suggest that the effectiveness of virtual Islamic education hinges not only on the technological availability of platforms but also on their ability to foster meaningful engagement. As Indonesia continues to expand its digital education initiatives, it is vital that policymakers, educators, and developers collaborate to create inclusive, engaging, and pedagogically sound virtual environments supported by well-trained instructors. Additionally, this study lays a strong foundation for further research in digital religious education and informs future policy aimed at integrating technology in ways that support both academic achievement and the spiritual development of students.

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