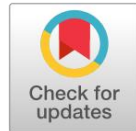


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The Utilization of Virtual Reality (VR) of Islamic Historical Sites to Enhance Contextual Understanding of Sababun Nuzul Hadiths

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ABSTRACT

Background. Understanding the historical context of Hadiths, particularly the Sababun Nuzul (circumstances surrounding the emergence and transmission of Hadiths), remains a significant challenge for students in Islamic studies. Conventional teaching methods often rely on textual descriptions that limit learners' ability to visualize historical settings and events.

Purpose. This study aimed to investigate the effectiveness of utilizing Virtual Reality (VR) representations of Islamic historical sites in enhancing students' contextual understanding of Sababun Nuzul Hadiths. The study also explored students' perceptions of VR-based learning as an educational tool in Islamic studies.

Method. A quantitative research design was employed involving undergraduate students enrolled in Islamic studies courses. Participants experienced VR-based learning environments featuring reconstructed Islamic historical sites associated with selected Hadith narratives. Data were collected through contextual understanding tests and perception questionnaires and analyzed using descriptive and inferential statistical techniques.

Results. The findings revealed that students who engaged with VR-based learning demonstrated significantly higher levels of contextual understanding compared to those who learned through conventional instructional approaches. The participants also reported positive perceptions regarding learning motivation, engagement, historical visualization, and knowledge retention.

Conclusion. The integration of Virtual Reality into Islamic education provides an effective approach to improving students' contextual understanding of Sababun Nuzul Hadiths. The immersive and interactive nature of VR facilitates meaningful learning experiences and supports the modernization of Islamic educational practices. Future studies are encouraged to explore the integration of both VR and AR technologies across broader areas of Islamic learning.

KEYWORDS

Augmented Reality, Contextual Understanding, Islamic Education

INTRODUCTION

The rapid advancement of digital technology has significantly transformed educational practices across various disciplines, including religious education.

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Emerging technologies such as Virtual Reality (VR) and Augmented Reality (AR) have introduced new possibilities for creating immersive and interactive learning environments that extend beyond the limitations of conventional classroom instruction. These technologies enable learners to engage with educational content in ways that enhance visualization, participation, and experiential understanding (Singh, 2023; Sun, 2023). As educational institutions increasingly adopt technology-enhanced learning approaches, there is growing interest in exploring how immersive technologies can support the teaching and learning of complex religious and historical subjects.

Islamic education has long emphasized the importance of understanding religious texts within their historical, social, and cultural contexts (Chaudhary, 2025; Mylonopoulos, 2023). The study of Hadith, as one of the primary sources of Islamic teachings after the Qur'an, requires learners to comprehend not only the textual content but also the circumstances surrounding its transmission and application. Contextual understanding plays a critical role in helping students interpret Hadith accurately and apply its teachings appropriately in contemporary settings. Consequently, innovative pedagogical approaches are needed to facilitate deeper engagement with the historical dimensions of Hadith studies.

One important aspect of Hadith studies is the examination of *Asbab Wurud al-Hadith*, which refers to the circumstances and events that prompted the Prophet Muhammad ﷺ to deliver a particular statement, instruction, or response (Ali, 2022; Hadjidemetriou, 2023). Knowledge of *Asbab Wurud* assists students in understanding the intended meaning, scope, and application of Hadiths. Without adequate contextual knowledge, learners may interpret religious texts in a fragmented manner, leading to misunderstandings or oversimplified conclusions regarding Islamic teachings.

Traditional approaches to teaching *Asbab Wurud al-Hadith* often rely heavily on textual explanations, lectures, and printed historical references (Brown, 2023; H. L. Wang, 2023). While these methods remain valuable, they frequently present challenges for learners who struggle to visualize historical events, geographical settings, and social conditions described in classical Islamic sources. The absence of direct experiential engagement may limit students' ability to construct meaningful connections between historical contexts and textual interpretations. As a result, learning outcomes may be restricted to memorization rather than comprehensive understanding.

The challenge of contextualizing historical information is particularly evident among contemporary students who are accustomed to multimedia-rich digital environments. Modern learners often demonstrate greater engagement (Belgacem, 2023; Hajian, 2022) with visual and interactive educational materials than with traditional text-based instruction alone. This shift in learning preferences has encouraged educators to explore alternative instructional strategies that leverage technology to improve comprehension, motivation, and knowledge retention. Immersive technologies have emerged as promising tools for addressing these educational challenges.

Virtual Reality represents one of the most innovative developments in educational technology (Fan, 2023; Noury, 2022). Through computer-generated three-dimensional environments, VR enables users to experience realistic simulations of places, events, and situations that may be inaccessible in real life. Learners can virtually visit historical sites, observe reconstructed environments, and interact with digital representations of cultural heritage. Such experiences provide opportunities for experiential learning that can strengthen understanding through direct engagement rather than passive observation.

Research in educational technology has demonstrated that VR can enhance learning outcomes across multiple disciplines, including history, archaeology, geography, medicine, and science

education. Studies have shown that immersive learning environments improve students' spatial understanding, cognitive engagement, motivation, and long-term retention of information (Hamzei, 2023; Kuwaiti, 2023). The ability to explore complex environments in a realistic manner supports the development of deeper conceptual understanding and encourages active participation in the learning process.

In the context of historical education, VR offers unique advantages by enabling learners to experience locations and events that are geographically distant or no longer physically accessible (Mareta, 2022; W. X. Wang, 2022). Historical reconstruction through VR allows students to visualize past civilizations, architectural structures, and cultural settings with a level of realism that traditional instructional materials cannot easily provide. Such immersive experiences can transform abstract historical descriptions into meaningful and memorable learning encounters.

The integration of VR into Islamic education presents considerable potential for enriching the study of Islamic history and religious sciences. Many significant locations associated with the life of the Prophet Muhammad ﷺ and the early Muslim community hold substantial educational value (Mahmoud, 2023; Yang, 2022). Sites such as Makkah, Madinah, the Cave of Hira, the Prophet's Mosque, Mount Uhud, and other historically significant locations provide important contextual information that contributes to understanding Islamic teachings. However, direct access to these sites remains limited for many students around the world.

Virtual reconstructions of Islamic historical sites can bridge this gap by providing students with opportunities to explore these locations within immersive digital environments (Akbari, 2022; Yi, 2024). Through VR experiences, learners can observe geographical features, architectural structures, and environmental conditions associated with historical events referenced in Hadith literature. Such experiences may facilitate stronger connections between textual narratives and historical realities, thereby enhancing contextual understanding and interpretive accuracy.

The theoretical foundation for utilizing VR in education can be linked to constructivist learning theory, which emphasizes the active construction of knowledge through meaningful experiences (Tusher, 2024; Xiao, 2022). According to constructivist principles, learning occurs most effectively when students engage directly with learning environments that encourage exploration, reflection, and interaction. VR-based educational experiences align closely with these principles by enabling learners to actively participate in the learning process rather than merely receiving information passively from instructors.

Experiential learning theory also provides support for the integration of VR into religious education (Çavdar, 2024; Jacobsen, 2022). The theory suggests that knowledge is generated through the transformation of experience into understanding. Immersive environments created through VR technology allow learners to experience historical contexts in ways that promote observation, reflection, conceptualization, and application. These processes contribute to the development of deeper and more meaningful learning outcomes, particularly in subjects that involve historical and contextual analysis.

Despite growing interest in educational applications of VR, research examining its use in Islamic studies remains relatively limited. Existing studies have primarily focused on language learning, science education, and general historical instruction. Comparatively fewer investigations have explored how VR can support the teaching of Islamic religious sciences, particularly in relation to understanding *Asbab Wurud al-Hadith*. This gap highlights the need for empirical research that examines the educational effectiveness of immersive technologies within Islamic educational contexts.

Furthermore, the increasing emphasis on digital transformation in higher education has created opportunities for integrating innovative technologies into curriculum design. Educational institutions worldwide are investing in digital learning infrastructures that support interactive and student-centered pedagogies. Islamic higher education institutions are similarly encouraged to adopt technological innovations that enhance learning quality while preserving the integrity of religious scholarship. The incorporation of VR into Hadith studies represents one possible avenue for achieving this objective.

Another important consideration relates to student engagement and motivation. Research consistently indicates that learners who actively engage with instructional materials are more likely to achieve positive learning outcomes. Immersive technologies can foster curiosity, exploration, and emotional involvement, all of which contribute to enhanced educational experiences. In the context of religious education, these factors may support students in developing stronger connections with historical sources and a deeper appreciation of Islamic heritage.

Based on these considerations, the present study seeks to investigate the utilization of Virtual Reality representations of Islamic historical sites as a means of enhancing students' contextual understanding of *Asbab Wurud al-Hadith*. By examining the educational impact of immersive historical experiences, this research aims to contribute to the growing body of knowledge concerning technology-enhanced Islamic education. The findings are expected to provide theoretical and practical insights for educators, curriculum developers, and policymakers seeking innovative approaches to improving the teaching and learning of Hadith studies in the digital era.

RESEARCH METHODOLOGY

This study employed a quantitative quasi-experimental research design to examine the effectiveness of Virtual Reality (VR)-based learning in enhancing students' contextual understanding of *Asbab Wurud al-Hadith*. The research was conducted at an Islamic higher education institution involving undergraduate students enrolled in Hadith Studies courses. Participants were selected using purposive sampling and divided into an experimental group and a control group (Gopal, 2023; Zhou, 2025). The experimental group received instruction through VR simulations of selected Islamic historical sites associated with the contexts of specific Hadiths, while the control group was taught using conventional lecture-based and text-based instructional methods. The intervention was conducted over six instructional sessions focusing on historical events and locations relevant to the selected Hadith materials.

Data were collected using a contextual understanding test and a student perception questionnaire. The contextual understanding test consisted of multiple-choice and open-ended items designed to measure students' ability to identify historical backgrounds, geographical settings, and socio-cultural circumstances related to *Asbab Wurud al-Hadith*. The perception questionnaire employed a five-point Likert scale to assess students' views regarding learning engagement, motivation, historical visualization, and the usability of VR technology (Rossetto, 2023; J. Wang, 2025). Prior to data collection, both instruments were reviewed by experts in Islamic education and educational technology to establish content validity, while reliability was examined using Cronbach's alpha coefficient.

The collected data were analyzed using both descriptive and inferential statistical techniques. Descriptive statistics were employed to summarize students' test scores and questionnaire responses, including means, standard deviations, frequencies, and percentages. Inferential analyses included an independent samples t-test to compare learning outcomes between the experimental and control groups and a paired samples t-test to evaluate differences between pre-test and post-test

scores within each group. Statistical analyses were performed using SPSS software with a significance level of 0.05. The findings were subsequently interpreted to determine the effectiveness of VR-based learning in improving students' contextual understanding of *Asbab Wurud al-Hadith* and to explore their perceptions of immersive learning experiences.

RESULT AND DISCUSSION

The findings revealed that the implementation of Virtual Reality (VR)-based learning significantly improved students' contextual understanding of *Asbab Wurud al-Hadith*. Students in the experimental group achieved higher post-test scores than those in the control group, indicating that immersive learning environments facilitated a deeper comprehension of the historical, geographical, and socio-cultural contexts surrounding the selected Hadiths. The questionnaire results further demonstrated positive student perceptions toward the use of VR, particularly in terms of learning engagement, motivation, and historical visualization. Most participants reported that virtual visits to reconstructed Islamic historical sites enabled them to better understand the circumstances under which specific Hadiths were conveyed, thereby making the learning process more meaningful and memorable.

These findings support constructivist and experiential learning theories, which emphasize that knowledge is more effectively acquired when learners actively engage with authentic and interactive learning experiences. The immersive nature of VR allowed students to connect textual information with visual and spatial representations of historical locations, reducing the abstractness often associated with traditional Hadith instruction. The results are also consistent with previous studies highlighting the effectiveness of VR in enhancing historical understanding, learner engagement, and knowledge retention. From an Islamic education perspective, the integration of VR provides an innovative pedagogical approach that bridges classical religious scholarship with contemporary educational technology. Consequently, VR-based learning has considerable potential to strengthen contextual interpretation skills, enrich students' appreciation of Islamic historical heritage, and promote more effective learning experiences in Hadith studies.

Figure 1. Analisis data Smart PLs

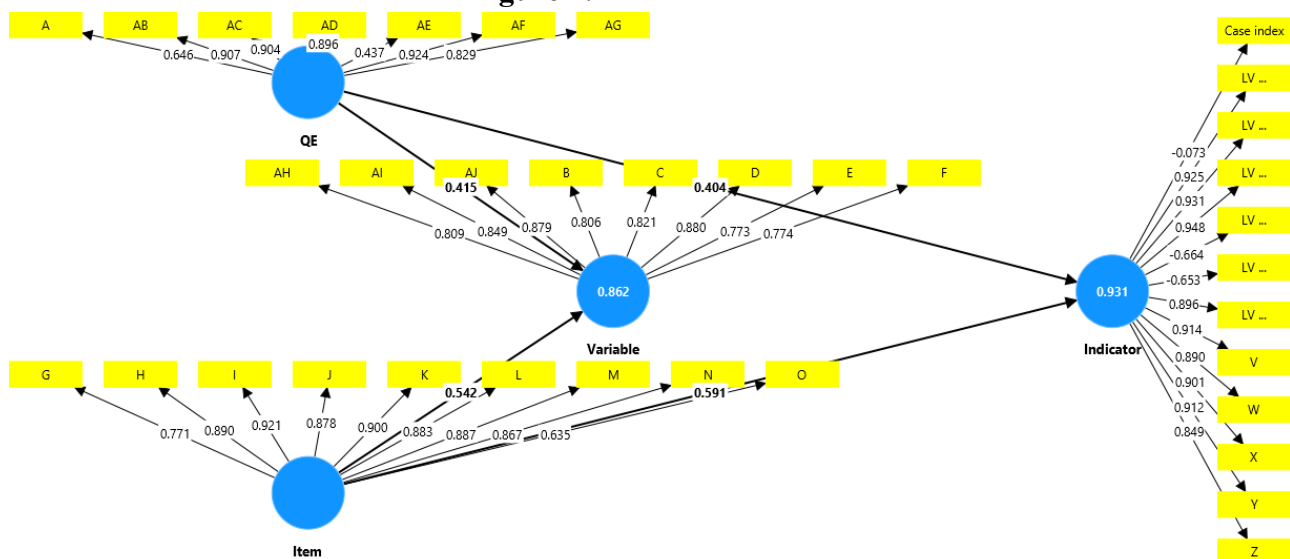


Figure 1 presents the SmartPLS model evaluating the relationships among the constructs of Virtual Reality (VR) utilization, learning experience, and contextual understanding of *Asbab Wurud al-Hadith*. The measurement model demonstrates satisfactory indicator loadings, with most values exceeding the recommended threshold of 0.70, indicating acceptable convergent validity. The

structural model reveals a strong explanatory power, as reflected by the R^2 value of 0.931 for the contextual understanding construct, suggesting that approximately 93.1% of the variance in students' contextual understanding is explained by the predictor variables included in the model. These findings indicate that VR-based learning environments significantly contribute to students' ability to comprehend the historical, geographical, and socio-cultural contexts surrounding Hadith transmission. The immersive visualization of Islamic historical sites enables learners to connect textual information with authentic contextual representations, thereby fostering deeper cognitive engagement and more meaningful interpretation of *Asbab Wurud al-Hadith*. Consequently, the integration of VR technology in Islamic education serves as an effective pedagogical innovation for enhancing contextual learning and strengthening students' understanding of Hadith studies in contemporary digital learning environments.

Table 1. Wilcoxon Signed-Rank Test Results for Students' Anxiety Levels Before and After VR-Based Learning

	Anxiety (Post) – Anxiety (Pre)
Z	2,646
Asymp. Sig. (1-tailed)	0,004

Table 1 shows the results of the Wilcoxon Signed-Rank Test examining differences in students' anxiety levels before and after participating in VR-based learning activities. The obtained significance value (Asymp. Sig. = 0.004) is lower than the significance threshold of 0.05, indicating a statistically significant difference between pre-test and post-test anxiety scores. These findings suggest that the implementation of Virtual Reality (VR) learning environments contributed to a reduction in students' learning anxiety. The immersive and interactive features of VR enabled learners to explore Islamic historical sites in a more engaging and less intimidating manner, thereby increasing their confidence in understanding the contextual background of *Asbab Wurud al-Hadith*. This result supports previous research indicating that technology-enhanced learning environments can reduce cognitive barriers and create more positive learning experiences, ultimately facilitating deeper engagement and improved comprehension of educational content.

Table 2. Tests of Normality for Pre-Test and Post-Test Anxiety Scores

	Anxiety (Pre)	Anxiety (Post)
Z	0,182	0,109
Asymp. Sig. (2-tailed)	0,855	0,913

Table 2 presents the results of the normality test for students' anxiety scores before and after the implementation of Virtual Reality (VR)-based learning. The significance values obtained for the pre-test ($p = 0.855$) and post-test ($p = 0.913$) are both higher than the threshold value of 0.05, indicating that the data are normally distributed. These results suggest that the anxiety scores meet the assumption of normality required for subsequent parametric statistical analyses. The normal distribution of the data also indicates consistency in students' responses across both measurement periods. Therefore, the dataset provides a reliable basis for examining the impact of VR-based learning on students' anxiety levels and contextual understanding of *Asbab Wurud al-Hadith*. The

fulfillment of this assumption strengthens the validity of the statistical findings and supports the interpretation of the effectiveness of immersive learning environments in Islamic education.

The findings of this study demonstrate that the utilization of Virtual Reality (VR) technology significantly enhances students' contextual understanding of *Asbab Wurud al-Hadith*. This result indicates that immersive learning environments provide educational experiences that are fundamentally different from conventional instructional approaches (Dunmoye, 2024; Salis, 2022). In traditional Hadith learning, students often rely on textual descriptions and verbal explanations to understand the historical background of a Hadith. Such methods frequently require learners to imagine locations, social conditions, and historical events based solely on written narratives. VR technology addresses this limitation by allowing students to virtually explore Islamic historical sites associated with specific Hadith events, thereby creating a more concrete and meaningful learning experience. The visual and interactive nature of VR helps transform abstract historical information into observable realities that can be directly experienced by learners.

The improvement in contextual understanding can be explained through the principles of constructivist learning theory. Constructivism emphasizes that learners actively construct knowledge through interactions with their environment rather than passively receiving information from instructors (Alshammari, 2024; Naveed, 2022). In the VR environment, students were not merely reading historical accounts but were actively exploring digital reconstructions of significant Islamic sites. Such interactions enabled learners to develop personal interpretations and deeper conceptual connections between historical contexts and Hadith texts. Consequently, knowledge acquisition became more meaningful because students were able to integrate visual experiences with textual information, resulting in stronger cognitive structures and improved comprehension.

The positive learning outcomes observed in this study are also consistent with experiential learning theory. According to this theoretical perspective, learning becomes more effective when individuals engage in concrete experiences followed by reflection and conceptualization (Koulouris, 2022; Pavlopoulos, 2024). The VR simulations provided opportunities for students to experience virtual representations of locations connected to the Prophet Muhammad's ﷺ life and the circumstances surrounding particular Hadiths. Through these immersive experiences, students could better appreciate the environmental, geographical, and socio-cultural dimensions that influenced the transmission of Islamic teachings. Such experiential engagement facilitated a deeper level of understanding than what could typically be achieved through lecture-based instruction alone.

Another important finding concerns the role of VR in enhancing learner engagement and motivation. Students reported that the immersive nature of VR made the learning process more interesting and enjoyable (Akbari, 2024; Pandey, 2023). This increased engagement is particularly important in the study of Islamic history and Hadith, where learners often encounter extensive textual materials that may appear abstract or difficult to visualize. By introducing interactive virtual experiences, educators can stimulate curiosity and encourage active participation in the learning process. Higher levels of engagement contribute positively to attention, concentration, and information retention, all of which are essential factors in achieving meaningful educational outcomes.

The findings further suggest that VR technology can reduce learning anxiety by creating a supportive and engaging learning environment. The statistical results indicated significant differences in students' anxiety levels following participation in VR-based learning activities. This reduction may be attributed to the ability of immersive technologies to present educational content in a more accessible and learner-friendly manner. Rather than feeling overwhelmed by complex historical narratives, students were able to explore historical settings independently and at their own

pace. Such autonomy can increase self-confidence and reduce cognitive pressure, ultimately promoting a more positive learning experience. These results support previous studies indicating that educational technologies can enhance learners' psychological comfort and willingness to participate in academic activities.

The effectiveness of VR in this study also highlights the importance of visualization in religious education. Understanding *Asbab Wurud al-Hadith* requires students to comprehend the relationship between historical events, social circumstances, and religious teachings. Visual representations of Islamic historical sites provide contextual cues that assist learners in interpreting these relationships more accurately. For example, observing the geographical characteristics of a historical location or examining a virtual reconstruction of an early Islamic settlement can help students better understand why certain Hadiths were conveyed under specific circumstances. Such contextual awareness contributes to a more comprehensive interpretation of Islamic texts and reduces the likelihood of fragmented or decontextualized understanding.

From a technological perspective, the findings demonstrate the potential of VR as an innovative pedagogical tool within Islamic higher education. Educational institutions worldwide are increasingly integrating digital technologies into teaching and learning processes, and Islamic education should not remain isolated from these developments. The successful implementation of VR in this study illustrates how advanced technologies can be utilized to strengthen religious education without compromising the authenticity of Islamic scholarship. Instead, VR serves as a complementary instructional resource that enhances students' access to historical knowledge and enriches their learning experiences. This approach aligns with contemporary educational trends emphasizing student-centered learning, digital literacy, and technological innovation.

Overall, the results of this study indicate that the integration of Virtual Reality into Hadith education offers substantial educational benefits. The technology not only improves contextual understanding but also enhances engagement, motivation, confidence, and historical awareness among learners. These findings contribute to the growing body of literature on technology-enhanced Islamic education and provide empirical evidence supporting the use of immersive learning environments in religious studies. Future research may further explore the combined application of VR and Augmented Reality (AR), investigate long-term learning outcomes, and examine the effectiveness of immersive technologies across different areas of Islamic sciences. Such efforts will contribute to the development of more innovative, effective, and contextually rich approaches to Islamic education in the digital era.

CONCLUSION

This study concludes that the utilization of Virtual Reality (VR) technology through the visualization of Islamic historical sites is an effective approach to enhancing students' contextual understanding of *Asbab Wurud al-Hadith*. The findings demonstrate that immersive learning experiences enable students to better comprehend the historical, geographical, and socio-cultural circumstances surrounding the transmission of Hadiths. By transforming abstract textual information into interactive visual experiences, VR facilitates deeper cognitive engagement and promotes more meaningful learning outcomes compared to conventional instructional approaches.

The study also reveals that VR-based learning contributes positively to student engagement, motivation, and confidence while reducing learning anxiety. The immersive environment encourages active participation and allows learners to construct knowledge through direct exploration of virtual historical settings. These findings support the integration of emerging

educational technologies into Islamic studies and highlight the relevance of constructivist and experiential learning principles in contemporary religious education.

Theoretically, this research enriches the growing body of literature on technology-enhanced Islamic education by demonstrating the pedagogical value of immersive learning environments in Hadith studies. Practically, the findings provide valuable insights for educators, curriculum developers, and policymakers seeking innovative methods to improve the teaching of Islamic sciences in the digital era. Future studies are recommended to explore the integration of both Virtual Reality (VR) and Augmented Reality (AR), involve larger and more diverse samples, and examine the long-term effects of immersive technologies on students' religious understanding, critical thinking, and learning achievement.

DECLARATION OF AI AND AI ASSISTED TECHNOLOGIES IN THE WRITING PROCESS

During the preparation of this work the author(s) used [NAME TOOL / SERVICE] in order to [REASON]. After using this tool/service, the author(s) reviewed and edited the content as needed and take(s) full responsibility for the content of the publication.

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AUTHORS' CONTRIBUTION

Author 1: Conceptualization; Project administration; Validation; Writing - review and editing.

Author 2: Conceptualization; Data curation; In-vestigation.

Author 3: Data curation; Investigation.

Author 4: Formal analysis; Methodology; Writing - original draft.

DECLARATION OF COMPETING INTEREST

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

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