FUN-BASED LEARNING FOR ISLAMIC EDUCATION IN MALAYSIAN PRIMARY SCHOOL: AN EMPIRICAL INSIGHTS FROM METAVERSE SPATIAL.IO

Fitri Zahir[1]
Miftachul Huda[2*]

[1]Faculty of Human Sciences, Sultan Idris Education University, Tanjung Malim, Malaysia
(Email: m20241000371@siswa.upsi.edu.my)
[2]Faculty of Human Sciences, Sultan Idris Education University, Tanjung Malim, Malaysia
(Email: miftachul@fsk.upsi.edu.my)
*Corresponding author: miftachul@fsk.upsi.edu.my

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Abstract: *This review article explores the potential of integrating fun-based learning within Metaverse Spatial. io to enhance interactive engagement and comprehension in Islamic education for Malaysian primary schools. Technology has made learning significantly more engaging. In Malaysia, Islamic education presents challenges in making lessons engaging while preserving their spiritual significance. The Metaverse, particularly Spatial.io, which develops 3D educational environments, may help tackle this problem, yet its educational facets within the Islamic context have not been extensively researched. The databases Scopus, Web of Science, ERIC, and Google Scholar were systematically examined for publications concerning the years 2021 to 2026. Terms searched included "fun-based learning," "Metaverse," "Spatial. io," and "Islamic education." A systematic review of research was performed to highlight educational benefits, obstacles, and prospective avenues. Spatial. interact with one another and meaningfully deepen our understanding of our deen together. However, challenges vary from inadequate infrastructure and untrained educators to ethical concerns and limited empirical data. Spatial. io) seems encouraging for rejuvenating Islamic education through interactive and values-oriented teaching methods. The authors suggest that upcoming research should develop culturally sensitive models and assess the lasting educational and spiritual effects of these results.*

Keywords: *Fun-based learning, Metaverse, Spatial.io, Islamic education, Malaysia, immersive learning*

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Introduction
In the last few years digital innovations have been integrated into education and are changing the traditional model of education by providing opportunities for immersive and interactive learning experiences (Ardani and Huda, 2025; Kye et al., 2021). The developing digital education environment is also creating opportunities for fun based learning which has emerged as a highly effective and creative pedagogical method to increase students' motivation and retainment (Daud, Huda and Zakaria, 2025; Seddighi-Khavidak et al., 2025). Educators working in Islamic education in Malaysia's primary school settings are facing an ongoing challenge of making religious education both meaningful from a spiritual perspective and interesting from a pedagogical standpoint for their younger learners. The emergence of Metaverse technology specifically spatial.io platforms offer possibilities to create virtual learning environments that combine faith-based content with interactive three dimensional learning experiences (Mystakidis, 2022; Lampropoulos & Kinshuk, 2024). As the Metaverse continues to attract increased global attention there is little research focused on the pedagogical applications of the Metaverse in relation to Islamic education, including its capacity to provide fun based learning and values-based instruction (Mohamad Fitri & Miftachul, 2025; Hamzah et al., 2025).

Integrating fun-based learning through the metaverse platform Spatial.io in Islamic Education for Malaysian primary schools is important because it addresses declining student engagement caused by traditional, teacher-centred approaches that may not align with the learning preferences of digitally native children (Ibrahim et al., 2026; Ismail and Huda, 2025; Jaafar et al., 2025). Fun-based and immersive learning environments support experiential and meaningful learning, which are consistent with Islamic educational principles that emphasise holistic development of knowledge, values, and character. This integration also aligns with Malaysia's digital education and IR4.0 agenda, ensuring that Islamic Education remains relevant and future-ready while responsibly utilising technology to uphold Islamic values. Moreover, metaverse-based learning offers enhanced interaction and social presence, addressing limitations of conventional online learning, particularly in post-pandemic educational contexts (Muhamad, Huda and Hashim, 2025; Musolin et al.,2025a). Given the limited scholarly focus on metaverse applications in primary-level Islamic Education in Malaysia, this topic is timely and significant in contributing conceptual insights, pedagogical innovation, and practical guidance for educators and curriculum developers.

This narrative review will examine the potential use of spatial.io to facilitate fun based and values-based learning experiences that are meaningful, enjoyable and immersive to students studying within the Islamic education curriculum in Malaysia's primary schools. Specifically, it will examine current trends, theoretical frameworks, the pedagogical implications and challenges of implementing this technology. The aim of this review is to synthesize the available literature and provide insight into the potential benefits of using Metaverse based learning to enhance Islamic teaching practices and to address the digital divide and contribute to informing future policy and research initiatives related to education in Malaysia's digital education environment.

Methods
The aim of this narrative review was to re view the literature from current research in the integration of fun-based learning supported by Metaverse platform Spatial. io in the Islamic education of Malaysian primary schools (Sukhera, 2022). The conduct of the review was shaped

by a structured but flexible method suitable for a narrative review and emphasised efforts to find, analyse, and synthesise core common findings while working with diverse sources.

A systematic search of electronic databases (Scopus, Web of Science, ERIC [Education Resources Information Center], Google Scholar) was conducted to identify relevant peer-reviewed journal articles, conference papers, dissertations and policy reports published in the period 2021-2025. Further manual searches took place by screening reference lists of key articles to identify seminal or foundational papers missed by the database searches.

The search strategy used a combination of Boolean operators combined with keyword variations, for example *"fun-based learning", "gamified education", "Metaverse"* and *"Spatial. io", "Virtual learning environments", "Islamic education",* and *"Malaysia".* Filters were used to restrict the search results to studies published in English and those regarding education. Articles that described noneducational or non-Islamic settings only were also removed.

Studies were eligible if they (1) investigated fun-based or gamified pedagogies, (2) focused on virtual or Metaverse platforms, e.g. Spatial. io, (3) focused on Islamic education or similar moral-religious teaching, and (4) were about children in primary school ages. Removed studies with no theoretical or empirical basis, duplicate papers and works not about educational innovation or use of technology. This equitable representation guaranteed both variety and theoretical/conceptual relevance to the Malaysian Islamic education landscape.

Result

Virtual Islamic Learning Environments in Spatial (Figure 1) and Metaverse for Scholars to Engage with the Prophet s Stories Figure 2 depicts two immersive virtual Islamic learning environments designed in the Metaverse platform, Spatial. io, an online platform that promotes the learning of Islamic education through fun-based and experiential approach. Figure 1 presents a 3D simulation space of the Kaaba that can be used for students to experience some aspects as well as interact within an environment surrounding significant Islam-centric landmarks, and engage in discussions or role-play activities associated with Hajj and Umrah. Students are able to explore the virtual environment, read facts about these sites that are posted in Arabic and learn more about what makes these holy places so crucial to history and spirituality – all with an interactive experience. Figure 2 Digital reconstruction of surau (virtual prayer room) as the virtual Islamic classroom. With realistic architectural elements and Arabic signage, it fosters an environment that is familiar through culture, spiritually grounded and a place where students can congregate, do VR prayers together or work in groups. Combined, these virtual environments facilitate experiential, participatory and community-oriented learning, consistent with Islamic educational principles of *jama'ah* as well as showing us how the Metaverse can turn abstract religious instruction into rich digital experiences.

Figure 1: Virtual Learning Environment in Spatial.io (Kaaba Simulation Area)

Figure 2: Virtual Prayer Room Learning Space (Surau)

An example is portrayed in Figure 3 of a digital instructional poster inside the Metaverse classroom that teaches male prayer. How the learner avatar is positioned alongside the visual guide Spatial. io which support multimodal learning with visual aids, avatars and spatial interaction. This structure enables students to play/practice praying pray (prayer) in a fun game analogy. The addition of manipulative materials reinforces kinesthetic and visual learning which helps them better internalize the religious activities.

Figure 3. Interactive Learning Poster on Prayer Movements

Overall, Figures 1 to 3 illustrate how a fun-oriented and immersive Islamic education in the Metaverse can turn theoretical religious learning into meaningful experiences for Malaysian primary students.

Discussion

Synthesis Analysis

Definition and Conceptual Framework

Fun-based learning (FBL), an instructional strategy that uses enjoyment, play and interactive engagement to motivate students and increase their academic success (Tsai, 2023) is based on the constructivist learning theory. Constructivist theory states that students create knowledge through direct involvement in their environment and experiences (Tsai, 2023). FBL in Islamic education fosters both cognitive and affective engagement; enabling students to develop a connection to religious beliefs/ values in a manner that is both enjoyable, relevant and emotionally meaningful. The Metaverse, a three dimensional, digital space, combines the concepts of Augmented Reality (AR) and Virtual Reality (VR) and provides teachers with new methods to implement fun-based learning through immersion (Sripan & Jeerapattanatorn, 2025). Platforms such as Spatial.io provide teachers with the ability to create virtual classroom spaces, mosques, or historical settings to allow students to learn about Islamic principles in an interactive format. FBL in Islamic education aligns with the Malaysian National Education Blueprint's focus on utilizing digital transformation and student-centered pedagogy, and the potential of the Metaverse to modernize Islamic education while maintaining its spiritual significance (Zunic et al., 2025). The metaverse enables experiential learning through virtual simulations, storytelling, collaborative spaces, and role-play, which align with constructivist and experiential learning theories. By situating Islamic concepts—such as adab, ibadah, sirah, and akhlak—within interactive virtual environments, students can learn through experience rather than passive reception (Musolin, Serour and Huda, 2025; Musolin, Serour and Huda, 2026; Musolin et al., 2025b). This approach supports deeper understanding and retention, making Islamic learning more relatable and impactful for young learners.

Potential of Pedagogy in Islamic Education through the Metaverse

Research demonstrates that the Metaverse has significant potential for Islamic education in terms of providing immersive, multi-sensory learning environments that result in greater learner engagement (Mystakidis, 2022). Research concerning virtual learning platforms have shown that 3D interactivity creates better spatial understanding, increases collaborative learning and increases the emotional attachment to content which are all important aspects of faith-based education (Radianti et al., 2021). Examples include, students being able to virtually "travel" to the Ka'ba, to virtually explore the history of the Qur'an or to engage in simulated moral dilemmas to make abstract concepts more tangible. FBL strategies such as gamifying quizzes, using avatars to role-play, and developing interactive stories through Spatial.io increase student's curiosity and motivate them intrinsically. Researchers also noted that there were many obstacles to integrating the Metaverse into Islamic education including technological disparities, teacher preparedness and the need to align the pedagogy to Islamic values and practices (Dwivedi et al., 2022). Proponents of the Metaverse believe that it can humanize digital instruction by focusing on creativity and collaboration while opponents believe that too much gaming could dilute the serious nature of religion and therefore successful implementation requires finding a balance between interactivity and spiritual depth (Othman and Huda, 2025; Rahman and Huda, 2026; Sahmat, Zamri and Huda, 2025). By using a controlled and purposeful metaverse environment such as Spatial.io, educators can design learning spaces that promote positive values, ethical behaviour, collaboration, respect, and discipline in accordance with Islamic teachings. This integration demonstrates how digital innovation can be Islamically guided, ethically grounded, and pedagogically sound, contributing to balanced character development (insan seimbang).

Advantages and Possibilities

There are numerous pedagogical advantages to incorporating fun-based Metaverse learning through the use of the Metaverse in Islamic education. First, through the Metaverse allows for personalized learning so that students can progress at their own rate and explore topics based upon their interests. Second, FBL through the Metaverse increases engagement and retention since the learning environment stimulates dopamine driven motivation and prolonged attention (Khaldi et al., 2023). Third, Spatial.io supports collaborative and experiential learning by fostering teamwork, empathy and social skills which are all considered important Islamic values. Fourth, it helps bridge the gap between traditional instruction and digital literacy to prepare students for the demands of a technologically dominated world (Kye et al., 2021). From a policy standpoint, this method of integration aligns with Malaysia's Education 4.0 initiative which aims to improve the quality and effectiveness of religious education through innovation and inclusiveness (Ministry of Education Malaysia, 2024). Additionally, teachers will receive the freedom to be creative in terms of their autonomy to create their own content and tailor the content to various Quranic themes and moral lessons through Spatial.io. In summary, the FBL-Metaverse model is a means to support the *Maqasid Al-Shariah* (Objectives of Islamic Law) by promoting holistic development (spiritual, intellectual and emotional) through modernized educational methods. This approach supports deeper understanding and retention, making Islamic learning more relatable and impactful for young learners (Serour et al., 2026; Serour et al., 2025a; Serour et al., 2025b).

Limitations and Challenges

However, several obstacles exist to its widespread use. There is a lack of infrastructure, especially in rural Malaysian schools that hampers access to high-speed internet and devices for participating within the Metaverse (OECD, 2022). Teacher competence is still a worry;

many Islamic teachers do not have the digital literacy or expertise to organize and hold virtual classes (Asrori et al. 2026; Karakose et al., 2021). Then there are the moral and theological arguments over the portrayal of sacred spaces or religious figures in a digital world. Cognitive overload has also been pointed out as a potential limitation where learners' attention may be distracted by the technologies novelty compared to contemplation of God (Mustapha and Huda, 2026; Nurapriani et al., 2026; Radianti et al., 2021). It's also likely that the costs to build and maintain Metaverse worlds might not pencil out for public schools. Last but not least, there is little empirical investigation into the indelible contribution of Metaverse-based Islamic education on student virtues, insight, and moral conduct; this thus indicates a research void (Serour, Musolin and Huda, 2026; Sihabudin et al., 2025). Despite the growing global interest in metaverse applications in education, there is a noticeable lack of scholarly literature focusing on its integration within Islamic Education, particularly at the primary school level in Malaysia. This narrative review is therefore important in synthesising existing knowledge, identifying conceptual frameworks, pedagogical opportunities, and ethical considerations specific to Islamic Education (Taisin et al., 2025; Zamri, Huda, 2025; Nor et al., 2026). It fills a significant research gap and provides a foundation for future empirical studies, curriculum development, and policy formulation.

Gaps, Future Directions, and Research Implications
The existing work on Metaverse learning in Islamic education is still divided and initial; emphasizing more on technical feasibility than pedagogical impact (Dwivedi et al., 2022). In particular, studies to date have indicated the requirement for more systematic and empirical explorations of how immersive, scenario-based digital pedagogy could support Islamic teaching and learning in a way that is relevant to ibadah and morals education (Mohamad Fitri & Miftachul, 2025). Circles GamificationNext, engagement and knowledge retention levels as well as spiritual development among students in immersion environments should be studied in future. There is also a call for context relevant frameworks based on Islamic Epistemology and digital pedagogy that maintain cultural and theological fidelity (Mystakidis, 2022). Muslim scholar, educators and technologists are working together to develop faith focused curriculum in the "Metaverse." Longitudinal research is recommended to determine whether continuing exposure to fun-based, immersion in Islamic learning influences children's moral reasoning and faith identity. Policy targeted programs might also consider teacher training arrangements and investments in digital infrastructure for national scale-up (OECD, 2022). In this aspect, future research will contribute to accommodating technological inventions that would not alter the spiritual or ethical underpinnings of Islamic education in Malaysia. Understanding how fun-based learning can be effectively implemented through Spatial.io equips educators with alternative pedagogical tools that cater to diverse learning styles, especially visual and kinesthetic learners (Othman et al., 2026; Rahim et al., 2026). The findings of this narrative review can guide teacher training, instructional design, and the development of interactive Islamic learning modules suitable for young learners.

Summary of Key Insights
The synthesis demonstrates adding a fun-based learning through Spatial. io is highly potential to revolutionize the Islamic education in Malaysian primary school (De Witte et al., 2026). It helps in engaging the class, encouraging creativity and updating teaching methods with an emphasis on Islamic core values. Yet achieving genuine outcomes from ICT also requires a more considered approach to pedagogical design, school ethos and resource allocation (UNESCO, 2023). A fusion of Islamic pedagogy and Metaverse technology signals not a mere

digital trend, but an epochal change in how young Muslims learn, experience and internalize their faith in the digital age.

Limitations

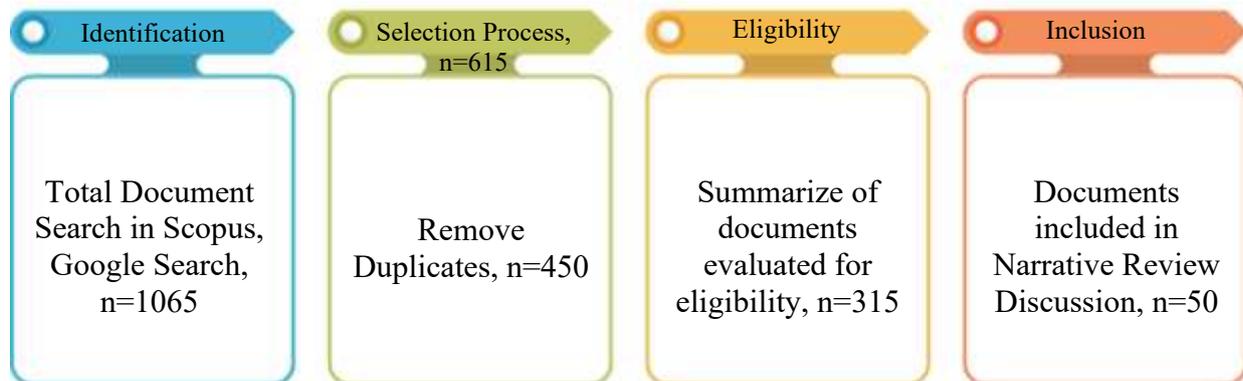| Identification	Selection Process, n=615	Eligibility	Inclusion
Total Document Search in Scopus, Google Search, n=1065	Remove Duplicates, n=450	Summarize of documents evaluated for eligibility, n=315	Documents included in Narrative Review Discussion, n=50

Figure 4. PRISMA-based Flow Diagram of Document Selection Process for Narrative Review

In total, 8 separate search domains were employed covering core concepts, platform-specific use cases, issues faced, cross-discipline learnings and near neighbours. Although this is a narrative review, it does the task of inferring learning from play with regard to the Metaverse Spatial. io in the Islamic education system of Malaysian primary schools, we need to consider several limitations.

The review was narrative in nature, rather than being systematic which, while providing flexibility and interpretative depth, potentially introduces the possibility of selection bias inherent to source identification. The literature survey was predominantly based on electronic databases such as Scopus and Google Scholar and though we made every effort to retrieve all potential sources, some included studies (notably unpublished or region specific reports) might be missed. Moreover, as presented in the document selection flow (n=1,065 identified; n=50 included), there is a possibility that important works may have been missed out during this process because of restricted accessibility or relevance filters.

One major limitation is the lack of empirical research focusing explicitly on Metaverse or Spatial use. io in Islamic education. Most of the evidence is either theoretical or drawn from more general digital learning environments, limiting the ability to generalize findings. Additionally, the majority of the studies included were Western or secular in nature and may need to be interpreted with caution when being applied to Malaysia's religious and cultural environment.

Due to the interdisciplinary nature of the issues around educational technology, Islamic pedagogy and cognitive psychology, it was found that synthesizing relevant literature revealed conceptual and terminological discrepancies between sources. The assimilation of technology centred and faith based educational literature required interpretive judgement, which may also have introduced researcher bias.

In the future, a systematic narrative hybrid approach might be possible for reviews with transparent inclusion criteria and, when applicable, the use of meta synthesis to increase evidence credibility. Empirical studies investigating classroom-based use of Spatial. io,

prospective effects on spiritual learning outcomes, and training programs for teachers in Malaysia are also needed. Such deeper collaboration among Islamic scholars, technologists, and educators may help develop methodological rigor and contextual relevance in future studies.

Conclusion

This narrative review demonstrates how integrating fun-based learning through the Metaverse platform Spatial.io may enhance students' engagement, motivation, and meaningful learning within the scope of Islamic education for primary schools in Malaysia. Drawing from the integration of recent research, the review emphasizes that Metaverse-oriented environments can seamlessly merge spiritual values with an interactive, learner-centered pedagogical approach, presenting an innovative proposition that resonates with Malaysia's Education 4.0 goals. The analysis indicates that, while Spatial.io provides virtual experiences such as exploring the Quran collaboratively and moral learning through diverse roles, its effectiveness is dependent on educator readiness, access to infrastructure, and awareness of theological issues. Although there are promising possibilities, the review underscores persistent research and practice gaps, including a lack of empirical studies, challenges with teachers' digital literacies, and a scarcity of suitable Islamic pedagogical frameworks for online education. To overcome these limitations, we suggest enhancing systematic narrative hybrid approaches for upcoming instructional design, conducting longitudinal classroom experiments, and creating faith-based digital teaching models in collaboration with Islamic scholars and educational technologists. Such initiatives would not only affirm the teaching effectiveness of Spatial.io but also its ethical and cultural compatibility, thereby facilitating a more comprehensive, inclusive, and spiritually aligned approach to digital Islamic education in Malaysia's swiftly evolving educational environment.

Acknowledgements

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