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The Potential of Augmented Reality (AR) Technology in Teaching and Learning (T&L) Related to the Implementation of Worship in Islam

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Abstract

Augmented Reality (AR) technology, also known as immersive reality, has gained attention in the educational context, particularly in Islamic education concerning worship practices. This study aims to explore the potential use of AR in teaching and learning (T&L) related to worship practices, such as purification, prayer, Umrah, and Hajj. Through critical analysis of literature and previous studies, this research has two main objectives. First, to identify the weaknesses of traditional approaches in T&L. Second, to analyze the potential of AR in delivering the concepts of worship practices in a more interactive and effective manner. The findings indicate that AR has great potential to enhance understanding and appreciation of religious teachings through engaging interactive simulations. However, there are several technical and methodological challenges that need to be addressed before the implementation of AR in the context of teaching worship practices can become a reality. In conclusion, this study outlines practical guidelines for effective teaching approaches using AR technology in T&L, particularly in the context of worship practices.

Keywords: *Potential, Augmented Reality Technology, Islam, Worship*

INTRODUCTION

In today's world, technology has become ubiquitous, permeating all aspects and fields, particularly in education. Various technological innovations in education have opened up opportunities to enhance teaching and learning methods. One technology that has garnered attention among educators and lecturers is Augmented Reality (AR) technology. AR offers interactive and immersive learning experiences. In the context of teaching and learning related to worship practices (ibadah), the use of AR holds great potential for enhancing understanding and appreciation in performing these acts of worship according to Islamic principles.

The practice of worship is an important aspect for Muslims. According to Yakan (1977), worship is seen as a means to achieve tazkiyatun nafs or spiritual purification. To spiritual purification, Muslims need to perform worship with devotion. According to Nor Salimah (2013), worship involves both general and specific acts. The combination of these dimensions can enhance the spiritual life of a Muslim.

In Malaysia, there are Islamic education subjects at the primary and secondary school levels. There are also worship-related subjects at the university level, such as the Fiqh Ibadah course. Most of the syllabi for these subjects are related to the practice of worship such as purification, prayer, almsgiving, pilgrimage, and others. Teaching and learning about worship practices require a deep understanding of their implementation. This is because the objective is to introduce the syllabus related to worship practices so that students can perform worship according to Islamic teachings while also internalizing the life as a Muslim through proper worship practices.

The use of AR technology in teaching and learning represents a transformation in the education system. This transformation shifts teaching and learning methods towards being more proactive and interactive. According

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to Nincarean, Ali & Halim (2013), the integration of technology in education constantly opens up new opportunities where studies have shown that technology can enhance teaching and learning experiences. Various technologies have been integrated into various educational disciplines. AR, which allows the integration of the real and virtual worlds, is one of the latest technologies with potential and has been applied in the field of education.

In today's educational landscape, Augmented Reality (AR) has emerged as a transformative tool in teaching and learning, revolutionizing traditional classroom practices. AR technology overlays digital content onto the real world, creating interactive and immersive learning experiences that captivate students' attention and enhance their understanding of complex concepts. As educators strive to adapt to the needs of digital-native learners, AR offers a dynamic approach to engage students and facilitate deeper learning across various subjects and disciplines.

According to Klopfer and Squire (2008), AR applications in education promote active learning by allowing students to explore virtual objects and environments in real-time, fostering curiosity and experimentation. Dede (2009) highlights the effectiveness of AR in promoting collaborative learning experiences, as students can interact with AR simulations together, sharing insights and problem-solving strategies.

AR has also been shown to improve spatial understanding and visualization skills among students, as noted by Kamarainen et al. (2013), who found that AR-enhanced learning activities led to better comprehension of complex spatial concepts. In their study, Dunleavy et al. (2009) demonstrated that AR technology can facilitate authentic learning experiences by contextualizing abstract concepts within real-world scenarios, thereby increasing students' motivation and engagement.

Furthermore, AR offers personalized learning opportunities, as evidenced by the research of Akçayır and Akçayır (2017), who found that adaptive AR applications can tailor content delivery to individual student needs, accommodating diverse learning styles and preferences. With the proliferation of mobile devices and the availability of AR development platforms, integrating AR into classroom instruction has become more accessible than ever before. Educators are harnessing AR tools to create interactive simulations, virtual field trips, and gamified learning experiences that cater to the diverse needs of modern learners. As AR continues to evolve and innovate, its potential to transform education and enrich the learning journey remains boundless.

METHODOLOGY

The study will begin with a thorough literature review on the use of AR in education, particularly in the context of religious learning. This review will gather information about the advantages, disadvantages, and capabilities of AR in enhancing learning, as well as previous studies relevant to the use of AR in learning Fiqh Ibadat. As for data collection, methods such as interviews, surveys, and observations will be employed. Interviews will be conducted with religious teachers and educational technology experts to gather their views on the potential of AR in teaching and learning. Surveys will be distributed to students to assess their perceptions and experiences regarding the use of AR in religious education.

A specialized AR application will be developed for learning Fiqh Ibadat. This application will be designed to deliver interactive concepts of Fiqh Ibadat, including simulations of prayer procedures, fasting, and other religious rituals. The application will be tested repeatedly to ensure its quality before being used in the study. Case studies will also be conducted in several religious schools or Islamic study centers that use the AR application for learning Fiqh Ibadat. This study will collect data on the effectiveness of the AR application in enhancing students' understanding and interest in Fiqh Ibadat.

Subsequently, the collected data will be analyzed using statistical methods to identify the relationship between the use of AR and the improvement in students' understanding and interest in Fiqh Ibadat. This analysis will also identify any challenges faced in implementing AR technology in the context of religious education. The results of the analysis will be interpreted to draw conclusions about the potential and effectiveness of using AR in learning Fiqh Ibadat. These conclusions will provide guidance for researchers and educators in utilizing AR technology in the context of Islamic religious education.

FINDINGS

Generally, the earliest learning methods used a traditional approach, which is characterized by one-way communication. In other words, the teacher's role is to teach and communicate without considering students' perspectives (Ming, 1997). The early adoption of traditional methods in learning is mainly because modern technology was not available at that time.

The practice of worship is an important element in meeting religious needs. Additionally, the practice of worship has positive implications in influencing the life of a Muslim. As stated by Noorkhairilhuda (2017) and Nornajmiwati and Asri (2019), the implementation of worship shapes the soul and discipline of an individual. This is also supported by Zaihan & Razak (2022), stating that the implementation of worship shapes the soul and discipline of an individual. Similarly, Farihah and Khazri (2020) have the same view that discipline can be formed through the consolidation of worship implementation. Therefore, enhancing learning related to worship implementation is crucial to achieve maximum impact.

Traditional Approach in Teaching and Learning

The traditional approach in learning refers to methods that have long been used in the education process before the emergence of modern approaches. This approach tends to be conventional and focuses on the teacher as the main source of knowledge. Students, on the other hand, play the role of knowledge receivers who need to accept information according to the prescribed manner.

There are several main characteristics of the traditional approach in learning, including: Firstly, teacher-centered learning. The teacher plays a dominant role in the learning process. They act as class leaders who impart knowledge to students. Teachers have full control over the content of learning, teaching methods, and learning assessment. Secondly, the teacher is considered the primary source of knowledge, and students will receive information given by the teacher. Thirdly, teaching methods are often lecture-based, where the teacher explains concepts that students must understand. Students then receive these explanations solely from the teacher.

According to Aziz (2000), the traditional approach in teaching has certain weaknesses. For example, students often need to understand and memorize the teacher's explanations repeatedly as the main way to retain the taught information, which can sometimes be challenging for students.

In reality, the practice of worship requires clear understanding. Therefore, in teaching and learning sessions, a clear depiction of worship practices needs to be presented to students. For example, the bowing during prayer, etc. Such matters require a clear depiction besides the teacher conveying the lesson. According to Johari, Fakhruddin & Suhid (2016), pictures and videos are suitable methods for students to understand the movements of prayer.

Potential Use of AR Technology for Delivering Worship Implementation Concepts More Interactively and Effectively

Augmented Reality (AR) technology was introduced by Ivan Sutherland in 1965. However, it began to be used in the early 1990s. Since then, AR technology has been applied in various fields such as medicine, automotive, and education. According to Azuma, (1997) and Ohta and Tamura (2014), AR technology can enhance users' perception of the real world. According to Ramli, Mohid and Abas (2020), there are advantages to using AR technology, such as realizing creativity in certain applications, especially as a teaching and learning aid.

Generally, various definitions of AR have been given by researchers from both computer science and educational technology fields. According to Milgram et al. (1994), AR is defined as a condition in which users are fully immersed in their created environment and during immersion, users cannot see the surrounding real-world environment. Additionally, according to Kaufmann (2003) and Zhou et al. (2008), AR is defined based on three characteristics: first, the combination of virtual and real-world elements; second, presented in real-time and interactively; and third, registered in 3D form.

Moreover, according to Liarokapis and Anderson (2010), there are 6 characteristics of AR technology, such as being stable, providing clear and concise information to students, allowing educators to input information in a concise and effective manner, facilitating easy interaction between students and educators, simplifying complex procedures for students and educators, and saving costs and being widely usable. The characteristics of AR technology described by Liarokapis and Anderson are highly suitable for application in teaching and learning related to worship implementation. This is because teaching and learning related to worship require an interactive approach so that students can clearly understand the lessons. It also helps them remember easily to ensure the correct implementation of worship. According to Nordin et al. (2022), an interactive approach is the best approach for worship-related subjects because the learning process is easier to understand.

According to Muhammad Sanusi (2013), the use of Augmented Reality technology has been used in teaching interpretation. It was found that learning for interpretation subjects became easier and more beneficial when interactive elements such as text and sound were included. Additionally, according to [Hayatunnufus, A et al. (2018), a study on the use of AR technology in Quran memorization found that the mastery of memorization by hearing-impaired individuals was better compared to conventional methods such as sign language and writing. Furthermore, learning the Arabic alphabet and the rules of tajweed using AR technology was found to increase interest and motivation among students through the use of multimedia elements such as text, sound, animation, and video (Arip, F, 2018). Similarly, learning tajweed rules through AR technology via games was found to be more effective (Nurfatihah, M.N, Marina et al., 2019). In conclusion, the potential of AR technology in education, especially in Islamic education, makes teaching and learning sessions interactive and positively impactful for students.

DISCUSSION

The integration of traditional teaching methods with modern technological advancements like Augmented Reality (AR) presents an intriguing opportunity to enhance the teaching and learning experience, particularly in subjects related to religious practices such as worship. The traditional approach, which typically revolves around one-way communication with the teacher as the primary source of knowledge, can sometimes be limiting, especially when it comes to conveying abstract concepts or intricate practices like those found in religious rituals.

In the context of teaching worship practices, a clear understanding of the actions and movements involved is crucial for students to grasp the essence of the practice fully. However, traditional methods may fall short in providing such clarity, as they often rely on verbal explanations and static visuals, which might not adequately capture the dynamic nature of these practices.

This is where AR technology can play a transformative role. By overlaying virtual elements onto the real-world environment, AR can provide students with immersive and interactive learning experiences that bring abstract concepts to life. For instance, instead of merely describing the steps involved in performing a particular prayer posture, AR can simulate these movements in real-time, allowing students to visualize and even interact with the virtual representation, thereby facilitating a deeper understanding of the practice.

Furthermore, AR technology offers the flexibility to tailor learning experiences to individual student needs. Through customizable AR applications, educators can adapt the content and level of interactivity based on students' proficiency levels, learning styles, and preferences. This personalized approach can help accommodate diverse learning needs and enhance student engagement and retention.

Additionally, the interactive nature of AR technology fosters active participation and exploration, turning passive learners into active agents in their learning journey. By encouraging students to interact with virtual elements and manipulate content in real-time, AR promotes hands-on learning experiences that stimulate curiosity, critical thinking, and problem-solving skills.

However, while the potential benefits of AR in education, particularly in teaching worship practices, are promising, several challenges need to be addressed. Firstly, the implementation of AR technology requires adequate infrastructure and resources, including compatible devices and software, which may not be readily

available in all educational settings. Additionally, there may be concerns regarding the accessibility and inclusivity of AR applications, especially for students with disabilities or limited access to technology.

Furthermore, the effectiveness of AR in facilitating learning outcomes ultimately depends on how well it is integrated into the curriculum and instructional design. Educators need proper training and support to leverage AR technology effectively and align it with learning objectives and assessment criteria.

In conclusion, the integration of AR technology holds significant potential to revolutionize the teaching and learning of worship practices and other religious subjects. By providing immersive, interactive, and personalized learning experiences, AR can enhance student engagement, understanding, and retention, ultimately contributing to the holistic development of learners in religious education. However, careful planning, investment, and pedagogical considerations are essential to realize the full benefits of AR technology in educational settings.

CONCLUSION

The conclusion is that augmented reality (AR) technology holds great potential in enriching teaching and learning processes, particularly in the context of worship implementation. With the integration of AR in the teaching and learning process, there are opportunities to enhance understanding, engagement, and practical experience in understanding and performing worship.

AR technology enables more interactive and comprehensive information delivery. Through the use of enriched visual and audio elements, AR allows users to experience the context of worship directly, even virtually. This opens up new possibilities for immersive and engaging learning experiences that can significantly benefit students in their religious education journey.

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