Augmented Reality (AR) as Interactive Education in Islamic Education to Improve Religious Understanding

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Abstract. Islamic education faces the challenge of using traditional methods that are less relevant in the digital era. Augmented reality (AR) technology offers a solution by presenting interactive learning that can increase student engagement, digital literacy and critical thinking. AR provides real visualisation that facilitates students' understanding of religious concepts more deeply. This research uses the phenomenological method of several Islamic educational institutions that have implemented AR. The study will evaluate the effectiveness of AR in complementing or replacing traditional teaching methods as well as its impact on student understanding. The expected result is that AR can improve the quality of religious learning, help students understand religious teachings better, and minimise the spread of misinformation.
Keywords. Augmented Reality; Islamic Education; Digital Literacy; Inclusive Learning

A. INTRODUCTION

Islamic religious education and learning in Indonesia is a crucial aspect in shaping the character and spiritual understanding of students. Various Islamic institutions try to integrate theory and practice in religious education, with the aim not only to teach the teachings of Islam, but also to form a faithful and pious generation (Syirly, 2022). In this context, the role of educators is very important, because they not only convey material, but also become role models in daily religious practices. Educators need to provide appropriate examples and role models to students so that they can provide education in accordance with Islamic teachings. Educators are also required to use methods that are relevant to the needs of students in the digital era.

In the provision of Islamic learning, there are various learning methods, such as lectures, questions and answers, and discussions, but many students find these methods monotonous and less interesting (Ahyat, 2017; Amaliah, 2014). This is because these learning methods are not in accordance with the rapid development of technology. Learners in the digital era are accustomed to the use of technology in their daily lives so they need things that are aligned in the aspect of religious learning. Diversity in the way learners learn often leads to uneven understanding, where some students find it difficult to understand Islamic teaching material in depth. In today's digital era, this challenge is increasingly urgent to overcome so that Islamic religious education remains relevant and effective. In addition, it is to attract the attention of students to be more interactive in Islamic learning.

This research aims to explore the application of Augmented Reality (AR) technology in Islamic religious learning and its impact on students' understanding and engagement (Sari, 2024). In the growing context of education, the use of AR is expected to not only create a more interactive learning experience, but also be able to fulfil the diverse needs of learners' learning styles. By utilising AR, the learning process can become more interesting and fun, reducing the boredom that often arises in conventional teaching methods. For example, students can see worship practices, such as how to perform ablutions or prayer procedures, in a clear and realistic simulation. This not only helps them understand the theory, but also provides a more immersive practical experience. Augmented

Reality (AR) as an innovation from technology is expected to create a new compound in the world of Islamic education that is more adaptive and responsive to the times. In addition, the use of AR also has the potential to increase student motivation and participation in Islamic learning.

The advancement of technology and digitalisation in learners' lives makes it necessary for educators to adopt innovative learning methods. AR offers an approach that combines real and virtual elements, thus creating an engaging and fun learning experience for students. The use of AR in Islamic religious education can be a solution to increase student engagement and better understand the context of religious teachings (Indahsari, 2023). By utilising this technology, students are expected to be able to interact more easily with learning materials. In addition, AR can fulfil the various needs of different learning styles, so that each individual can gain a deeper understanding. This approach also allows students to learn independently and actively, fuelling their curiosity and exploration of Islamic teachings. Through this innovation, Islamic religious education can evolve to become more relevant to the ever-changing digital era.

Although there has been research on technology in education, studies that specifically examine the effectiveness of AR in the context of Islamic learning are limited. Some previous studies have shown that digital technology can improve student engagement and understanding, but the challenges in the implementation of AR in Islamic education institutions still need to be further researched. This research seeks to bridge the gap by highlighting the benefits and challenges of using AR in Islamic education. The integration of technology with religious learning will have a positive influence on students in terms of improving their understanding and applying correct religious practices.

The scope of this research includes analysing the literature on educational institutions that have implemented AR and its impact on students' critical thinking skills and religious understanding. Thus, it is hoped that this research can provide deeper insights into the implementation of AR in Islamic religious education in Indonesia.

B. METHODS

This study uses a qualitative phenomenological approach to explore students' and teachers' experiences and understanding of the application of Augmented Reality (AR) in Islamic learning. The phenomenological approach was chosen to explore the in-depth perceptions of individuals directly involved in the use of AR, focusing on how this technology affects students' understanding of religious concepts and their engagement in the teaching and learning process. Data in this study were collected through semi-structured interviews with teachers and students in several Islamic educational institutions that have used AR as part of their teaching methods. The selection of participants was purposive, with the criteria of participants who have direct experience in using AR in learning. The number of participants was determined based on the principle of data saturation, where data collection was stopped when the information provided by participants had begun to repeat and did not provide new variations. The data collection process was carried out through observation of the application of AR in Islamic education institutions. Data analysis followed the thematic analysis method, with steps including: (1) initial coding to identify main themes, (2) grouping themes based on similarity of experience patterns, and (3) interpretation of themes to understand the deep meaning of participants' experiences related to the application of AR in learning. To ensure data validity, triangulation of data sources was used, where the results of interviews were confirmed through field observations related to the implementation of AR in each institution. Through this phenomenological approach, the research seeks to provide a comprehensive understanding of the contribution of AR in increasing student engagement and deepening their understanding of Islamic teachings, as well as the pedagogical implications that arise from the use of such technology.

C. RESULT & DISCUSSION

A. Augmented Reality Technology Innovation in Islamic Education

In the era of society 5.0, technology is growing rapidly as a support for human life that helps and facilitates the process of life. One of them is Augmented Reality (AR) technology. Augmented

Reality is a technological innovation that can project a virtual world object into a real object in real time (Sari, 2023). Augmented reality technology provides a real picture of objects in order to provide a comprehensive understanding of a matter including in the context of Islamic learning. Augmented Reality has the advantage of being able to bring up an object at the same time when the user accesses the object without the help of difficult tools such as Virtual Reality (VR) technology which is required to use special assistance tools. The innovation of Augmented Reality technology that is easy and accessible without difficult intermediaries is an idea or innovation that can help the Islamic learning process become more interactive and conducive.

Augmented reality is a technology that plays a central role in the history of education. Augmented reality helps the process of providing Islamic teaching and education in all aspects, both in the form of theory and religious practice. The convenience provided by the technology allows students to more quickly understand the things that are conveyed and shown through Augmented Reality technology. The method commonly used by educators in providing Islamic education and religious learning is by using the lecture method (Hidayat, 2018). The lecture method is given by educators either in conveying theory or modelling religious practices. This method is considered ineffective when applied to Islamic learning in today's digital era. There is a need for renewal in teaching methods carried out by educators. The lecture method delivered will be more effective if accompanied by media as a visualisation so that students can more easily understand Islamic learning. The AR will help the learning methods carried out by educators to be more directed and structured so that the delivery of religious learning can be comprehensively understood by all students.

The integration of Augmented Reality technology in Islamic education will help students align the integral parts of life simultaneously. The integral part of life is general knowledge in schools such as mathematics, science and so on and Islamic knowledge as a guide to life in the world and the hereafter which becomes character education for students. AR has been applied and projected in learning mathematics and other subjects that have proven effective as digital-based learning media (Rinaldi, 2024). 3D learning media offered by Augmented Reality can enrich the learning style of students which allows reducing the number of ignorance and mental disruption of students due to lack of understanding from theoretical methods alone (Oviensy, 2022).

AR media can be a solution to students' lack of understanding of the learning delivered due to differences in effective methods to be applied to each diverse student. AR media combines several methods that can be combined into one learning that will provide a comprehensive understanding of all students who have different ways of learning. Islamic worship practices displayed through Augmented Reality are also a form of optimising technological sophistication as a form of digital literacy that can increase the devotion and worship of students. The practice of worship that is difficult for students to understand through oral educational direction, can be absorbed and understood well through technological innovation Augmented Reality because it displays objects as supporting media to help improve understanding of religious learning.

The problems of Islamic educational institutions often occur in the lack of adequate infrastructure and pre-equipment that does not support the teaching and learning process (Fuwa, 2024). Augmented reality is an adequate solution because it is able to face the challenges of Islamic education and increase the readiness of educators and students to technological developments. Muslim communities consisting of educators and learners are required to be able to utilise technology effectively in the context of Islamic education so that the process of providing learning can run optimally and increase students' understanding. Interaction between educators and learners will be more conducive and interactive from the learning process with 3D media provided by Augmented Reality technology innovation. Augmented Reality also improves the digital literacy skills of educators and learners to utilise technology in a positive and useful direction. The development of digital literacy through AR will prepare students to become individuals who can compete with other students in the aspect of technological development according to the needs of the times, but still uphold the religious values conveyed so that AR innovation in Islamic learning can provide comprehensive and significant benefits.

B. Implementation of Augmented Reality (AR) in Islamic Learning

The application of Augmented Reality in the teaching and learning process in Islamic education encourages a collaborative and interactive attitude between educators and students or fellow students to exchange opinions about lessons shown through visualisations displayed on 3D media (Nisa, Amanda etc. 2023). the application of Augmented Reality is a process of combining physical and virtual elements that encourage the optimisation of student learning in understanding religious material in depth. 3D media displayed by Augmented Reality technology spurs sensitivity and critical thinking of students due to clear visualisation that makes students more quickly understand religious learning, especially in worship practices due to real examples.

Augmented Reality is a technology that provides convenience in the Islamic learning process because AR provides practical learning media. AR can be accessed through gadgets owned by every educator and learner through available applications that have been designed with a special system to be able to display real elements virtually. The 3D objects displayed can be specially designed by educators according to the needs of the Islamic learning process. Materials in Islamic learning that require media to be able to explain in detail related to the theory to be conveyed can be helped through objects that are displayed in real time through AR. The implementation of AR in Islamic learning is also a form of preventing the dichotomy of knowledge. The separation between religious knowledge and other sciences will be avoided because the integration between the two provides guidelines and provisions for students to balance the life of the world and the hereafter.

The application of Augmented Reality provides religious understanding with a wider range of learners in various levels due to the convenience offered. Augmented Reality is also effective in providing religious lessons to children who are slow in understanding. AR can be an alternative media in some children have different levels of understanding and different learning methods in the aspect of capturing an Islamic learning. From this, Augmented Reality is an effective method in spreading Islamic education comprehensively to students (Isti'ana, 2024). This is because AR involves a combination of methods that can be done by educators, namely through the lecture method of the explanation delivered by combining AR technology as a supporting tool to display objects more clearly to get a clear picture of what is being conveyed.

Learning about Islam cannot be explained theoretically or through oral explanation without practical examples. This is because some religious learning delivered by educators will be applied by students in life to become a servant who believes and fears Allah SWT. One example of the practice of Islamic worship that must be known by all people is the correct procedure for practising ablution and tayammum in accordance with Islamic law. Students get explanations and methods regarding these religious practices through explanations made by educators in Islamic educational institutions and generally the method used is using the lecture method so that not all students can understand the practice of ablution and tayammum in accordance with Islamic law. Therefore, it is necessary to have a picture given as a real example so that students have a reference that can be used as an example in carrying out religious practices in life.

The delivery of material regarding religious practices is generally explained to students at the secondary school level (Haming, 2024). However, the use of Augmented Reality technology that provides a different concept with attractive 3D media will help the process of providing education and teaching these religious practices to students from an early age (Kisno, 2023). The implementation of AR technology in learners at an early age can be conditioned and designed by educators with customised animations so that the process of providing Islamic learning can be conveyed properly and interestingly.

The implementation of Augmented Reality not only helps students in increasing worship through a deep understanding of religious practices, but also facilitates the introduction of students to previous Islamic history by displaying various historical objects that will increase the faith of students through education from the media. Historical objects in Islam will look more real and a clearer picture because the 3D media described by AR displays the object from all sides. This is different from the use of images that only display from one side. The education delivered by educators through Augmented Reality is able to be well received by students with higher enthusiasm because it uses a more fun learning method. The responsiveness of students who are stable and excited about the learning delivered can make students able to digest Islamic learning effectively

with the help of Augmented Reality which provides a fun learning media. This is due to the influence of mentally healthy students due to the lack of pressure because AR minimises students' lack of understanding of the religious learning delivered.

The critical thinking process of learners can also be stimulated through learning by utilising Augmented Reality technology. Clear and real visualisation will encourage high sensitivity from students so that it can lead to various points of view that can make students explore and exchange ideas so that they can study Islam more deeply (Indahsari, Sumirat, 2023). 3D media in AR makes students see objects from 3 sides so as to stimulate ideas and views that can grow from observations made by these students. AR encourages critical thinking to be able to explore religious information more deeply which will increase the knowledge and faith of the learners. The reciprocity from learners to educators through questions that arise from critical thinking will enrich Islamic knowledge and encourage interactive learning.

The application of Augmented Reality can also be designed according to the needs of students of various levels. Educators can conceptualise Augmented Reality by providing 3-dimensional media in accordance with the level of learners who will receive the Islamic education. For example, Augmented Reality can be designed with various attractive and striking colours to attract the attention of early learners because it is identical that can attract the attention of these learners to be more enthusiastic in learning about Islam (Gunawan, 2020). Learners with various subsequent levels are also implemented with the same strategy with appropriate and conducive concepts according to the needs and levels of learners.

The implementation of Augmented Reality covers all fields and the entire scope. Visualisation that combines the virtual world and the real world makes it easier for students to learn many fields of learning such as science, Islamic science and so on. Augmented Reality is also a medium that can collaborate various sciences to be understood effectively by students (Aditama, Adnyana, 2019). Collaboration and integration between the science of Islam and other sciences such as science, social and other sciences can build the characteristics of learners who can balance the knowledge of the world and the hereafter. The collaboration also reflects the attachment between each other between the science of Islam and science so that integration between the two is needed to achieve the ideal of life balance for students.

C. The Impact of Augmented Reality (AR) Technology on Religious Understanding

The use of Augmented Reality technology that can reach learning comprehensively has a significant impact. This technological innovation provides a change in the method of learning Islam. Some Islamic educational institutions that have implemented religious learning methods by utilising Augmented Reality have felt various benefits. Augmented Reality makes the learning atmosphere more active and vibrant because it provides interesting visual content and provides education clearly and easily understood by students (Sohah, Sakban, 2024). In contrast to conventional methods, Augmented Reality provides a new compound for students to be more interactive and quickly understand religious lessons that can make students more quickly practice religious worship correctly.

Diverse learning experiences can also make learners more focused so as to reduce the potential for misunderstanding or misunderstanding or misinterpretation of Islamic religious practices (Sugiarso, 2024). Misinterpretation of the Islamic learning delivered will have a significant negative effect. This is because Islamic learning is the basis of religious practices that will be carried out. The lack of understanding is due to the lack of focus of students on the learning delivered. Learners who are less focused will not understand the religious context to the fullest which will affect the worship performed by these learners which allows religious practices to be carried out not in accordance with the provisions of Islamic law. The visual content provided by Augmented Reality can reduce this potential because it provides a clearer understanding that can increase the focus of learners who will increase their knowledge of Islamic learning so that the practices carried out are in accordance with the Qur'an and Hadith and these learners can become obedient and faithful servants.

The use of Augmented Reality can also reach students as a whole from various levels. The visual media content offered by Augmented Reality can provide Islamic teaching education to

students from an early age (Jumarlis, 2018). Educators can conceptualise 3D media according to Islamic learning that will be delivered and adjusted to the needs and levels of students so that students can learn effectively and emersively. Augmented reality that has been conceptualised and adjusted to the needs of students to spread Islamic education can help the teaching and learning process become more conducive. The impact of AR as a technology utilised in Islamic learning has multifunctions that can increase the existence of Islamic education. Mapping according to the level is also an effective solution so that the process of learning methods provided can increase understanding because AR media can be adjusted and conditioned according to the needs of students.

The use of Augmented Reality technology also provides benefits to multicultural learners from various backgrounds. All individuals can access Augmented Reality because its use only requires the camera feature in adequate smartphone specifications (Yusup, Hidayanti, 2023). Smartphones, which are the primary needs of the community, can be a tool that is an integral part of the application of Augmented Reality in the dissemination and teaching of Islamic religious practices. Unlike Virtual Reality (VR), which requires special supporting tools that not all individuals can access these tools. Learners who have different backgrounds that affect the effective learning methods applied can be united through AR media. This is because AR provides a practical way that can be understood by everyone without the need for special assistance tools.

Augmented Reality also encourages students' critical thinking skills towards religious learning. The teaching and learning process that tends to be monotonous and less innovative affects students' interest in learning which affects the lack of in-depth criticism of a religious topic (Andriani, Ramadani, 2022). Augmented Reality encourages learners to explore more Islamic religious knowledge that can improve the quality of faith and worship of Allah SWT. The more visualisations that are displayed and practised about religious sciences, the more students will be honed to know deeply and comprehensively about a religious topic. This will enrich the learners' knowledge in religious aspects that will form the Islamic character of the learners. Islamic characters that are in line with Islamic law will increase learners' worship which will form a person who is devoted and believes in Allah SWT.

Augmented Reality technology that provides an accurate understanding of Islamic religious practices can help students increase devotion to Allah and spread the teachings of Islam to a wider realm without worrying about misrepresentation because it is clearly stated about religious methods and practices through explanations using AR (Rita, Guspatni, 2024). This can minimise and stop the spread of religious theories that are hoaxes and not in accordance with the teachings of Islamic law. Technology, which is one of the tools for spreading hoax religious practices, can be prevented by utilising the technology correctly and effectively. AR is one proof of the effective use of technology that will minimise hoax religious information because AR provides a real visualisation of the delivery of educators who will provide a clear picture to students. The clear picture increases understanding so that they do not easily believe in any religious information that spreads through technology.

In addition, Augmented Reality technology can also foster digital literacy for students (Mooduto, 2023). Digital literacy is the main capital in learning about religious aspects in order to avoid the issues of lies and hoax news that spread on social media. Learners with qualified digital literacy can filter information effectively to find out religious information that is in accordance with Islamic law. Augmented Reality provides clear learning so that students can avoid beliefs in religious practices that are wrong and not in accordance with what has been stated in the Qur'an and hadith. The integration between digital literacy and character education through Islamic learning will form students who are ready to face the challenges of life and have sufficient provisions in living life in the world and the hereafter.

Augmented reality can also provide Islamic learning online or online to students (Taufik, Ashari, 2023). This brings great benefits so that educators can reach a wider range of students in order to further spread the true teachings of Islam in accordance with the Qur'an and Hadith. Online learning is also a concrete solution if the offline teaching and learning process cannot be carried out due to various unfavourable factors. Augmented Reality becomes an integral solution so that the process of teaching and learning and providing education to students can continue to be carried out without being hindered by obstacles both offline and online. Applications that become AR spaces can

be accessed from different places by students so that the Islamic learning process can also be carried out online.

Augmented reality has brought various benefits in Islamic learning that can increase the piety of students because of a deep understanding of religious practices in accordance with Islamic law. However, there are some challenges that need to be considered because the use of Augmented Reality has not been comprehensively implemented by every Islamic educational institution in Indonesia. There needs to be an in-depth introduction and education on the importance of implementing Augmented Reality as a beneficial method in disseminating and teaching Islamic religious theories and practices in accordance with the guidelines of the Qur'an and hadith.

D. CONCLUSION

This research reveals that the application of Augmented Reality (AR) technology in Islamic religious learning can significantly improve students' understanding and engagement. The main results show that AR not only makes the learning process more interactive, but it is also able to cater for various learning styles of learners, so that they can better understand the context of religious teachings more effectively. This result is in line with previous studies that show that the use of digital technology such as AR in education can increase student engagement and learning effectiveness, while overcoming the shortcomings of conventional methods that are often considered monotonous. The findings of this study also show that AR can be a solution to bring more varied and in-depth learning in Islamic religious education, which was previously underutilised by traditional teaching methods. This result is consistent with the literature that states that visual and interactive-based technologies, such as AR, can help students understand learning materials better. This research adds a new understanding of how AR can be applied in the context of religious education to facilitate a more comprehensive learning experience.

Theoretically, this research confirms the potential of AR as an innovative tool that can be used in Islamic religious education. Practically, AR offers a solution to increase students' engagement and understanding of Islamic materials. The policy implications of this research encourage educational institutions to consider the integration of AR technology in the curriculum, especially in the field of religious education, as a step to improve the quality of education that is relevant to the digital era. This study has several limitations, including the relatively limited number of institutions studied, and its focus only on the context of Islamic education in Indonesia. This limits the generalisation of the research results to a wider context, both on a national and international scale. In addition, this study has not explored the long-term impact of AR use on students' academic achievement as a whole. For future research, it is recommended that studies on the application of AR in Islamic education be conducted in various educational contexts and in different countries to broaden the generalisation of findings. In addition, further research can also focus on the long-term impact of using AR on improving student achievement, as well as exploring the potential of combining AR with other learning methods to achieve more optimal results.

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