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Augmented Reality-Based Learning Media to Increase Islamic Financial Literacy

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ABSTRAK

Pembelajaran literasi keuangan syariah sejak dini penting dilakukan agar terakumulasi hingga dewasa. Penerapan pembelajaran literasi keuangan syariah perlu didukung dengan media pembelajaran yang sesuai dengan preferensi gaya belajar peserta didik. Tujuan penelitian yang akan dilakukan adalah untuk menganalisis efektivitas augmented reality guna meningkatkan literasi keuangan syariah bagi siswa sekolah dasar. Penelitian ini merupakan penelitian eksperimen untuk menguji efektivitas media pembelajaran berbasis augmented reality untuk meningkatkan literasi keuangan syariah dan menganalisis pengalaman peserta didik menggunakan media. Metode yang digunakan adalah kuasi eksperimen dengan menggunakan 2 kelompok yaitu kelompok eksperimen dan dan kelompok kontrol dengan jumlah sampel 30. Teknik pengumpulan data menggunakan instrumen tes dan angket. Analisis data yang digunakan adalah dengan uji paired sample test dan analisis nilai gain. Hasil uji paired sample test menunjukkan pada kelompok eksperimen terdapat perbedaan signifikan nilai pretest dan pottest. Analisis nilai gain pada kelompok eksperimen sebesar 0,7 (Sedang), sedangkan pada kelas kontrol hanya sebesar 0,09 (Rendah). Peserta didik merespon baik terkait pengalaman pengguna media augmented reality dan mayoritas (73%) menyatakan bila AR mudah digunakan dan dipahami, memiliki kejelasan, mengakomodasi keterlibatan pengguna, dan adanya minat untuk menggunakan kembali media tersebut.

ABSTRACT

Learning Islamic financial literacy from an early age is essential so that it accumulates into adulthood. The application of Islamic financial literacy learning needs to be supported by learning media on the preferences of students' learning styles. The purpose of the research is to analyse augmented reality's effectiveness in increasing Islamic financial literacy for elementary school students. This experimental research tests the effectiveness of augmented reality-based learning media in increasing Islamic financial literacy and analyses students' experiences using the media. The method was quasi-experimental, using 2 groups, namely the experimental group and the control group, with a total sample of 30. Data collection techniques used were test instruments and questionnaires. The data analysis used is the paired sample test and gain value analysis. The results of the paired sample test showed that in the experimental group, there was a significant difference in the pretest and posttest values. Analysis of the gain value in the experimental group was 0.7 (Medium), while in the control class, it was only 0.09 (Low). Students responded well to the user experience of augmented reality media, and the majority (73%) stated that AR was easy to use and understand, had clarity, accommodated user involvement, and had an interest in reusing the media.

1. INTRODUCTION

The development of the halal industry in Indonesia, especially the Islamic finance sector, is experiencing a slowdown in growth, partly due to the low level of Islamic financial literacy and awareness of Islamic finance among Muslims in Indonesia (Latif, 2019; Said & Amiruddin, 2017). Based on the National Financial Literacy Survey (SNLK) conducted by the Financial Services Authority, it was noted that the level of financial literacy in Indonesia is still relatively low, namely 8.93% (OJK, 2019). Islamic financial literacy is the ability to understand the concepts of money, debt, savings, expenses, zakat and other sharia- and non-shariah-compliant elements involved in transactions that are prohibited in Islam, including gharar (uncertainty), riba (interest), and maysir (gambling) (Biplob, H. & Abdullah, 2019). Islamic financial literacy is the knowledge, awareness, and skills to understand Islamic financial information and services (Antara et al., 2016; Asyatun, 2018). Islamic financial literacy can influence attitudes toward using Islamic financial products and as a determining factor for people who use financial services in their economic activities (Asyatun, 2018; Jaffar, M.A. & Musa, 2013; Yumna, 2019). In addition, Islamic financial literacy can affect one's financial management ability (Setyowati et al., 2018). Previous research found that Islamic financial literacy can reduce impulsive

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buying behaviour (Salwa et al., 2017). Factors affecting Islamic financial literacy are financial knowledge, financial behaviour, financial attitudes, demographic factors, and personality traits (Khasanah, 2019; Rahman, S.A., Tajudin, A., & Tajuddin, 2018).

Based on interviews conducted at SD Negeri Kramatsari 1, Islamic financial literacy learning has yet to run optimally. A survey conducted on class VI students showed that the level of Islamic financial literacy assessed from the aspects of usury, zakat, gharar, and the mayor was only 35.7% which was included in the low category. Even though it is known that financial literacy is one of the skills that the generation must possess in the 21st century (Halim, 2022; Laksono, 2018; Nugraha & Octavianah, 2020). Financial literacy, including financial literacy, is essential to improve, one of which is financial literacy education (Huston, 2010; Sari et al., 2017). Islamic financial literacy education is a successful transformation of Islamic finance (Olorogun, 2018; Sari et al., 2017). Financial literacy education will affect financial knowledge and attitudes (Liu & Zhang, 2021; Setyowati et al., 2018). Some financial experts agree that financial literacy education can be carried out early to accumulate into adulthood (Sari et al., 2017). Financial literacy education is essential, especially for children to manage finances better for their future (Lahsasna, 2016; Ratna Candra Sari et al., 2022). Islamic financial literacy at elementary school can be applied using the financial socialization method supported by the use of instructional media according to the preferences of students' needs (Sari et al., 2022; Lahsasna, 2016). Learning media supports learning that has attentional, affective, cognitive, and compensatory functions (Sari, & Adi, 2020; Wati, 2016). In addition, learning media can also increase student motivation (Wahyuningtyas & Sulasmono, 2020; Wijayanti & Ghofur, 2021).

On the other hand, the development of information technology is increasing rapidly, affecting many aspects, including education. The development of information technology is part of the environment and requires integration between technology and education (Candra Sari et al., 2022; Fahmi et al., 2021). This development impacts improving the quality of education, especially in the learning process. The use of information technology has reformed the teaching and learning process (Danniels et al., 2020; Ishaq et al., 2020). In addition, information technology also provides advantages, namely, a dynamic teaching and learning process and environment (Shatri, 2020). This development will affect the creation of learning media innovations and need to be used to improve the quality of students (Effendi & Wahidy, 2019; Hanif, 2020; Sarioğlu & GIrgIn, 2020; Suryani, 2016). Classroom learning goes hand in hand with technological developments. The use of technology in education can help students explore complex topics that cannot be achieved with traditional teaching methods (Hamilton et al., 2021). Therefore, the world of education needs to respond to existing technological developments. One technology that is still developing in the world of education is augmented reality technology.

Augmented Reality (AR) can be used as a medium that makes learning easier for students because AR can visualize material and contains cognitive content, especially conceptual domains (Cai et al., 2020; Dinayusadewi & Agustika, 2020; Ismail et al., 2019). AR can complement dynamic learning and engages multiple senses, such as touch, sight, and hearing (Javornik, 2016; Saltan, F., & Arslan, 2017). The two main characteristics of AR are interactivity and augmentation, combining virtual objects with the physical environment (Javornik, 2016). According to multimedia cognitive theory, individuals can learn better if many senses are targeted simultaneously by using AR (Nadia et al., 2019). The results of previous research show that at the elementary school level, augmented reality is more effective than other technological resources, for example, videos, images, traditional learning and pedagogy (Garzón, J., & Acevedo, 2019; Nadia et al., 2019).

AR in education has a positive impact, including increasing the accessibility of educational content, opening up collaborative learning, and turning something abstract into the concrete. In addition, the use of AR is also effective in increasing the motivation and involvement of students in learning among students (Rasalingam et al., 2014). The results of other studies also prove that the use of AR as a learning medium can improve student learning outcomes. It is an opportunity for AR can be utilized for learning Islamic financial literacy at the elementary school level (Han et al., 2015; Huang et al., 2016). Based on the description above, the research aims to analyze augmented reality's effectiveness in increasing Islamic financial literacy for elementary school students. In addition, this study also aims to further analyze students' experiences with augmented reality-based learning media that have been implemented. This research is expected to provide an overview of the benefits of augmented reality-based learning media at the elementary school level, especially in learning Islamic financial literacy.

2. METHOD

This study used a quasi-experimental method with a quantitative approach. This study was designed using two groups, the experimental group and the control group, to be given a pretest, treatment, and posttest. The subjects of this study were 30 grade VI students at SD Negeri Kramatsari 1. The data collection technique used was test instruments and student response questionnaires. The test instrument is used to determine the increase in Islamic financial literacy before and after using augmented reality-based learning media, which

consists of 4 indicators. The questionnaire was used to determine students' responses to measure the experience of using augmented reality-based learning media. Students fill out a questionnaire on a scale of 1-4; score 1 means strongly disagree, score 2 means disagree, score 3 means agree, and score 4 means strongly agree. Experts carried out instrument validation as proof of the validity of the contents of the research instrument. The grids are presented in Table 1 and Table 2.

Table 1. Test Instrument Grids

Aspect	Indicator	Question number
Riba	Know the concept of usury, history, and types	1-5
Gharar	Know the concepts and examples of gharar behavior	6-10
Maisyir	Know the concept of *Maisyir*	11-13
Dzalim	Knowing *Dzalim* behavior	14-18

(Antara et al., 2016)

Table 2. User Experience Response Questionnaire Grid

Aspect	Indicator	Question number
User Experience	Convenience	1-2
	Clarity	3-6
	User Engagement	7-10
	Attitude	11-12
	Intentions/Interests	13-15

(Hadi et al., 2022)

The data analysis used was a paired sample test for each group using the SPSS application to determine the effect of using augmented reality-based learning media on increasing students' Islamic financial literacy. Data were analyzed by paired sample test and calculating the gain value. The results of the gain values are grouped into three categories, namely $g > 0.7$ (high), $0.7 < g < 0.3$ (moderate), $G < 0.3$ (low) (Hake, 2012).

3. RESULTS AND DISCUSSION

Results

The research results are described by the research objectives, namely knowing the effect of using augmented reality learning media on increasing students' Islamic financial literacy and knowing students' responses regarding the experience of using media. Research using pretest and posttest two groups. Statistical descriptive data are presented in Table 3.

Table 3. Descriptive Statistics

Group	Maximum skor		Min skor		Average		Standard deviation	
	Pretest	Posttest	Pretest	Posttest	Pretest	Posttest	Pretest	Posttest
Experiment	83	94	22	72	60.33	83.87	16.127	8.175
Control	83	89	39	39	61.47	64.53	12.206	14.696

Table 3 describes the descriptive analysis regarding the maximum value, minimum value, average, and standard deviation of the pretest and posttest components of the experimental and control groups. A summary of the comparative statistics of the experimental group's pretest and posttest shows that the average pretest score of students in the experimental group was 60.33 with a standard deviation of 16.127 while the average posttest score was 83.87 with a standard deviation of 8.175. While the pretest and posttest of the control group showed that the average pretest score of students in the experimental group was 61.47 with a standard deviation of 12.206, while the average posttest score was 64.53 with a standard deviation of 14.969. Normality and Homogeneity Tests are presented in Table 4.

Table 4. Uji Normalitas dan Homogenitas

Test type	Sig. Value Normality test	Sig. Value Homogeneity Test
Experiment	0.149	0.666
Control	0.143	0.166

Table 4. is the result of normality and homogeneity tests which are analysis prerequisite tests. It was concluded that the significance value of the normality and homogeneity tests was more than 0.05. Therefore it can be concluded that the data is normal and homogeneous. The results of the Paired Sample Test are presented in Table 5.

Table 5. Test Paired Sample Test

Group	Average difference	Significance	Category
Experiment	23.533	0.000	Significant
Control	3.067	0.402	Not significant

Table 5 shows the results of the paired sample test for each group. In the experimental group, it can be seen that there is an increase in the average score of students' pretest and posttest of 23.54. Based on the results above, it is known that the significance value is 0.00 or less than 0.05. This significance level indicates a significant difference between the pretest and posttest scores of the experimental group students. In the control group, there was an increase in the average score of students' pretest and posttest of 3.06. Based on the results above, it is known that the significance value is 0.402, more than 0.05, so it can be concluded that there is no significant difference between the pretest and posttest scores in the experimental group students. The gain value was analysed to determine the criteria for increasing the average pretest and posttest scores of the two groups. From the results of the data analysis, it can be seen that the gain value of the experimental group is 0.70 while the control group is 0.09. The criterion for the experimental class gain is included in the "Medium" category, while the control group is in the "Low" category.

Experimental group students were given a response questionnaire using augmented reality-based learning media to see user experience. The first indicator of convenience consists of two questions, 11 students strongly agree, and 4 agree that augmented reality media is easy to use. For the second question regarding the ease of learning media, 10 students agreed strongly, and 5 chose to agree. The second indicator is about clarity which consists of 4 questions. A total of 11 students chose to agree, while 4 other students chose to agree strongly. Furthermore, on the user involvement indicator, as many as 12 students agreed strongly, and only 3 chose to agree. The fourth indicator is the intention indicator, 10 students choose to agree strongly, and five students choose to agree. From the range of values 1-4, the average value obtained from students is presented in Figure 1.

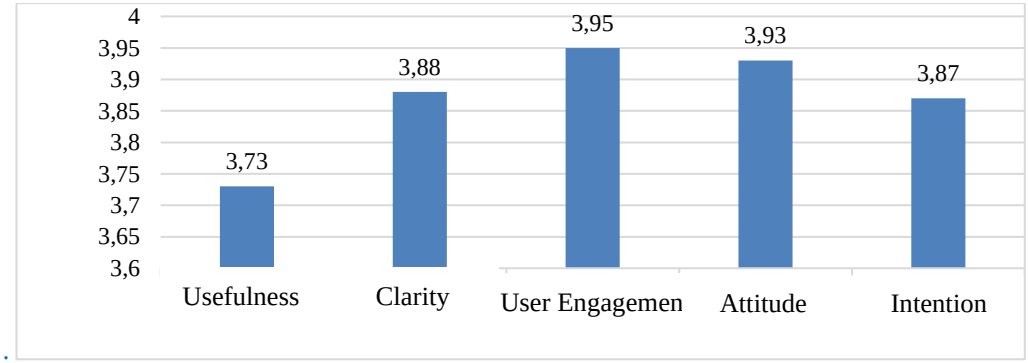

Figure 1. Average student response

Discussion

Financial literacy is one of the basic literacy skills that individuals must possess in the 21st century (Halim, 2022; Laksono, 2018; Nugraha & Octavianah, 2020). One of its unique components is Islamic financial literacy. Islamic financial literacy provides an understanding of Islamic financial practices and manages the risk of sharia non-compliance (Bhatti, 2020; Sari et al., 2017). Efforts to increase Islamic financial literacy for students at the elementary school level can be carried out by learning Islamic financial literacy, which can be done from an early age (Sari et al., 2017). It is because creating a generation that understands finance is essential to empower economic prosperity. The study found that the increase in Islamic financial literacy in the experimental group that used learning media was higher than in the control class that did not use learning media. This study shows that increasing Islamic financial literacy cannot be separated from the influence of the learning media applied, namely learning media based on augmented reality. Augmented reality-based learning media has proven to increase Islamic financial literacy in maysir, gharar, usury, and wrongdoing. This increase aligns with previous research that AR technology can improve student learning outcomes (Ningsih, 2020; Weng et al.,

2019). The use of AR technology is in line with the preferences of students' learning styles, from verbal and visual to virtual (Ratna Candra Sari et al., 2022). According to this study's results, students can imagine when using AR. It is in accordance with the research that AR can be used and implemented as a learning innovation because learning becomes exciting and interactive (Gün & Atasoy, 2017).

The results of this study also show that students respond well in terms of user experience when using AR learning media. Most students agree that augmented reality is easy to use and understand. Research results state that AR has the advantage of being easy to use or operate (Chen & Chan, 2019; Mustaqim, 2017). On the clarity indicator, students also gave a good response. It is in line with previous research that AR is a medium used because it is clear and can concretely describe objects or materials. It shows that AR can visualize 3D objects from abstract concepts to real ones (Hendriyani et al., 2019; Jamhari et al., 2018; Liono et al., 2021). AR has components that can help students understand learning content to achieve learning objectives (Puspitasari et al., 2020; Yoon, 2012). The results of previous research align with this study's results, namely, showing that AR allows users to interact with real and virtual objects and can support learning activities (Kim dan Kim, 2018).

It also supports previous research that AR can increase students' learning activities (Nurdiyanti et al., 2017). The next indicator is user involvement which allows students to be directly involved with the learning process through the media used. AR media is, by Theory, Interactive Media Effect (TIME), which provides an immersive experience for users and influences affective, cognitive, and behavioural aspects (Sundar et al., 2017; Sundar, 2015). Student interactions with AR media are closely related to their learning outcomes scores (Safar et al., 2016; Syawaludin et al., 2019). In addition, students agreed that they intended to use augmented reality-based media again. In accordance with previous research, augmented reality can influence students' motivation or interest (Bakri et al., 2019; Prasetya & Anistyasari, 2020). Of the four indicators above, none of the students chose to disagree or disagree. Islamic financial literacy education with suitable media will increase students' knowledge of Islamic finance (Sari et al., 2022). It is one of the efforts that can support increasing financial inclusion, especially in Islamic financial services (Sari et al., 2022; Ginanjar & Kassim, 2020).

From the results of this study, it can be seen that learning Islamic financial literacy is essential, accompanied by the application of appropriate learning (Aisyah & Saepuloh, 2019). The results of this study show practical implications. Namely, augmented reality can be used for Islamic financial literacy learning at the elementary school level. Analyzed from the student response results, AR can also attract students' attention to make learning more effective because objects look real. AR can provide practical experience for students to learn Islamic financial literacy. The results of this study prove that there is significant potential in using AR as a learning medium for elementary school students, especially for learning Islamic financial literacy. The limitations of this research are that it has only been carried out in one school, so the benefits or effectiveness of augmented reality-based learning media have yet to be discovered when applied to other schools. It is hoped that similar research can be carried out in other schools to impact learning Islamic financial literacy positively, especially those carried out from an early age.

4. CONCLUSION

This study shows the potential for implementing augmented reality-based media for learning Islamic financial literacy for elementary school students. Augmented reality-based learning media is a solution and affects learning Islamic financial literacy in elementary school students. Learning media based on augmented reality can increase knowledge of Islamic financial literacy. Augmented reality is used effectively because it suits learning style preferences, affects cognitive aspects, and makes learning more interesting.

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