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Design Development of Arabic-Roman Transliteration Module with Virtual Reality Concept (eTARRiM) to Improve Primary School Students' Arabic Reading Skills: Needs Analysis



Abstract: - This study discusses the development of the Arabic-Roman Transliteration Module with Virtual Reality Concept (eTARRiM) as an innovation in improving Arabic reading skills among primary school students. Needs analysis was conducted to solve the main issues in learning Arabic and develop a module that can overcome these challenges. A comprehensive literature review on Arabic language learning approaches, the concept of Arabic-Roman transliteration, and the application of virtual reality technology may form the basis of the development of this module. With the importance of reading skills, this study gives special emphasis to Malay-speaking students who face challenges in understanding the structure of Arabic writing. eTARRiM module is designed to meet the needs of students by integrating Arabic-Roman transliteration as a bridge to recognize Arabic characters. Virtual reality technology is used to create an engaging and interactive learning environment. A needs analysis was conducted based on the needs of the concept of transliteration, the use of technology, and how this module supports the needs of students in primary school. By understanding the critical issues in learning Arabic, this study offers a holistic view of relevant and effective development this module. The results of the study are expected to contribute to the development of a more dynamic Arabic language learning resources, especially at primary school level. Practical implications and recommendations for future research are also discussed to improve the quality of teaching and learning Arabic among primary school students.

Keywords: Arabic Reading Skills, Virtual Reality, Transliteration, Primary School

I. INTRODUCTION

Arabic language education in Malaysia is important because its relation to Islam, the Quran, and religious rituals as it is the major religion of the nation. The Malaysian Ministry of Education is committed to the transformation of education through the 2017 Arabic language Revised Primary Curriculum (KSSR), with a focus on the mastery of language skills through a modular approach (Borhanuddin Ali, M, 2014). The importance of reading Arabic words is highlighted as well as the use of teaching aids, reading exercises, and technology in teaching and learning (Ministry of Education Malaysia, 2020). The transliteration method of Arabic writing into roman is used as a learning strategy (Mohamed, A. R, 2018), with an emphasis on learning real Arabic writing.

The Digital Education Policy is an important initiative for the digitally literate generation (Rohaiza Idris & Zanariah Abd Mutalib, 2021). The development of technology, e-learning, and Virtual Reality play a role in the industrial revolution 4.0 (Laudante, 2017). Arabic language education should emphasize five student-centered skills, with digital learning strategies through Web 2.0, Open Source Sites, Cloud Computing, and Virtual Reality becoming relevant (Puncreobutr, 2016).

In Malaysia, Arabic is considered on par with English as a foreign language. Its use in religious institutions and schools becomes official because of its use in religious texts. The Malaysian Ministry of Education has included the study of Arabic language in primary schools. It involves four main skills: listening, speaking, writing, and reading. Arabic is crucial in globalization and the era of Industry 4.0, requiring innovative and constantly evolving teaching, this includes Arabic-Roman transliteration methods with the use of virtual reality. Arabic language education needs to adapt to the digital age, integrating innovative strategies such as gamification and virtual reality technology. Further studies and monitoring are needed to ensure the effectiveness of this approach (Abd Rahman,

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M. F., & Yusof, Y. M. (2019).

II. PROBLEM STATEMENT

Teaching Arabic in Malaysia is becoming increasingly important, especially among non-native Arabic speakers. Traditional methods that are still dominant, such as rote learning and textbooks, are becoming less relevant for the students. The application of technology, such as the Arabic-Roman transliteration method and virtual reality, becomes important in increasing the effectiveness of learning. Although the use of virtual reality is increasing, specific studies on Arabic language education are still limited. Arabic reading skills among primary school students, especially non-Muslim speakers, is still a concern. The art of learning Arabic can be improved through innovations such as the eTARRiM module that employs the use of virtual reality. It is also necessary to pay attention to the unmotivated students and teachers who lack Information and Communication Technology (ICT) skills. The selection of interesting and effective teaching aids and the implementation of self-learning, especially during online learning, can help overcome this challenge. Therefore, reforms in the teaching approach and the use of technology must continue to improve the quality of Arabic language education in Malaysia (Irfan Naufal & Hasan, 2015).

III. RESEARCH OBJECTIVE AND QUESTION

The objective of this study are as follows:

Analyzing the needs of Arabic teachers to develop an Arabic-Roman Transliteration Module based on Virtual Reality (eTARRiM) to improve the reading skills of elementary school students in Arabic.

Below is the research question constructed to achieve the objective:

What are the requirements of Arabic teachers to develop an Arabic-Romani Transliteration Module with a Virtual Reality concept (eTARRiM) to improve the reading skills of elementary school students in Arabic?

IV. LITERATURE REVIEW

A. Arabic Education in Malaysia

Education of the Arabic Language in Malaysia has witnessed significant development in all education levels, spanning from preschool to university. Muhammad Sabri (2015) highlights this progress, stating that Arabic language lessons are no longer limited to religious school students, opening opportunities to strengthen the Arabic language education system. The j-QAF program emphasizes reading, writing, speaking, and listening skills through the Communicative Arabic Language Model, now renamed the Arabic Language only. Arabic language holds a special place in the context of spreading Islam and religious activities among Muslims in Malaysia (Muhammad Sabri, 2015).

However, there are several challenges in Arabic language instruction in Malaysia, including issues related to teaching approaches, lack of additional reading materials, insufficient activities, as well as motivation and communication shortcomings. Teachers are acknowledged as a key factor in enhancing the effectiveness of Arabic language teaching and learning. Emphasizing creative and innovative teachers, integrating technology, and using engaging teaching aids can enhance the excellence of Arabic language teaching (Muhammad Sabri, 2015).

In addressing these challenges, appropriate training and the effective role of teachers can help improve the quality of Arabic language teaching and learning in Malaysia.

B. Literacy Reading Skills

Based on an article on the literacy of Arabic reading skills in Malaysia, there are several factors that affect the reading skills of primary school students. These factors include the quality of teaching and learning Arabic, students' Arabic language competencies, learning environment, understanding of Arabic grammar, and the use of

appropriate teaching methods. The use of the Arabic-Roman transliteration method is also recognized to help students who are not fluent in Arabic writing. Despite this, the teaching and learning of Arabic in Malaysia faces challenges such as teachers' Arabic language skills, teaching methods that need to be adapted to students' lives, textbooks that are not in line with local tastes, and an environment that is less friendly (Abd Rahman et al., 2017).

C. *Integration of Virtual Reality Technology as a Teaching Aid*

Information & Communication Technology (ICT) and the Concept of Virtual Reality (VR) have great potential in education. in teaching Arabic. The study shows that modules and learning methods based on TMK provide positive results, especially in understanding the Quran. The importance of updating and diversifying ICT-based learning materials is emphasized to improve the quality of Arabic language teaching. On the other hand, the concept of Virtual Reality (VR) as a powerful computer interface offers great potential in the context of education with an emphasis on improving student understanding, especially in the visual spatial field. The development of VR applications in education in Malaysia shows the effectiveness in improving the learning experience of teachers and students. Although there are significant advantages, more research is still needed to investigate the full potential and effectiveness of this technology, especially in the context of music education. There is confidence that the use of ICT and VR in education can stimulate student interest, improve understanding, and bring teaching to a more interactive level, but more research needs to be done to overcome uncertainty about the effectiveness of this technology (Said & Umar, 2015).

D. *Arabic-Roman Transliteration Method in Arabic language education.*

In his article, Azman Che Mat highlights the still new introduction to the transliteration method in the teaching of Arabic at the Malaysian Institute of Higher Education. Although the tradition of teaching began with Arabic writing, he emphasized the need for reform to attract the interest of various levels of society, including non-Muslims. This article reflects a positive view on the use of transliteration methods, especially in the development of oral and written skills according to the respondents. Azman Che Mat encourages further research to evaluate the effectiveness of this method in improving Arabic proficiency. The author also emphasized the need to maintain the transliteration method, especially for Arabic words that are considered difficult, as a learning tool. However, it also proposes to reduce the use of this method as students progress and transition to the use of textbooks at an advanced level (Aainaa Muhammad & Mistima Maat. 2020).

V. METHODOLOGY

In this study, a needs analysis is carried out with the aim of identifying the requirements for constructing a research model by designing a questionnaire that is distributed to Arabic Language Teachers (GBA). The study utilizes the questionnaire to assess the practices of teaching the Arabic language in reading skills and to evaluate the needs of GBA regarding the Transliteration Module of Arabic-Roman based on Virtual Reality (eTARRiM). The results from this needs analysis phase will serve as the foundation for the subsequent phase, which aims to determine the design of the development module by considering the content of the Transliteration Module of Arabic-Roman based on Virtual Reality (eTARRiM) that aligns with the needs of the target group.

A. *Research Sample*

The study focuses on a sample of 100 Arabic language teachers in primary schools across Selangor, chosen through purposive sampling for its representative nature. This approach, also known as judgment sampling, relies on the researchers' judgment and knowledge to select participants. The selection of Arabic language teachers is justified due to their exclusive ability to provide accurate insights into teaching activities and needs for the development of Arabic-Roman Transliteration Module based on Virtual Reality (eTARRiM). The criteria for sample selection includes representation from various backgrounds, urban and rural settings, indigenous schools, as well as schools with varying student populations, ensuring diversity and a comprehensive understanding. The

rationale emphasizes easy accessibility and uniformity of information, given the consistent application of the Arabic language curriculum (KSSR 2017 Revision) across all primary schools in Malaysia.

B. Research Instrument

The study employed a specifically designed questionnaire as its primary instrument. Survey was chosen for its efficiency in terms of cost, time, and energy in gathering data for research purposes (Noraini, 2010). The questionnaire's development for the needs analysis phase was informed by a literature review, adapting questions from previous studies by Clarke (2014), Hall (2018), and Asmawati et al. (2018). The questionnaire underwent content and face validity testing by field experts. It was structured, drawing inspiration from Amani Dahaman's (2014) work on m-Arabic Language Learning modules, Ahmad Sobri's (2010) study on m-Learning in secondary schools, and Taufik Ghani's (2021) research on gamification.

Comprising of four sections, the questionnaire delves into respondent backgrounds (Section A), proficiency in Arabic language KSSR Semakan 2017 content, pedagogy, and assessment (Section B), the need for digital teaching aids related to the Arabic-Roman Transliteration Module based on Virtual Reality (Section C), and the use of technology in the eTARRiM module (Section D). Responses are measured on a Likert scale from (1) strongly disagree to (5) strongly agree, assessing needs for the development of the Arabic-Roman Transliteration Module based on Virtual Reality (eTARRiM) design and the integration of theory in the eTARRiM module.

C. Research Instrument

The data collection procedure for the needs analysis phase involved using a 5-point Likert scale questionnaire. Prior to administering the questionnaire, its validity was assessed by three experts in Arabic language education curriculum and facilitation (PdPc). These experts are lecturers and outstanding Arabic language teachers with expertise in Arabic language curriculum and educational technology, from Universiti Pendidikan Sultan Idris, Universiti Kebangsaan Malaysia, and Sekolah Kebangsaan Taman Rinting 2. Expert feedbacks were taken into consideration for making necessary adjustments to the questionnaire items.

Subsequently, a pilot study was conducted with 30 randomly selected Arabic language teachers (GBA) from primary schools in Selangor in November 2023. After obtaining approval from the Educational Policy and Research Division (BPPDP), Ministry of Education Malaysia (KPM), and the Research and Innovation Management Centre (PPPI), Universiti Pendidikan Sultan Idris (UPSI), the online questionnaire was distributed to the selected respondents. Following the collection of data related to the needs analysis of Arabic language teachers regarding the development of the eTARRiM module, data analysis was performed using IBM SPSS software version 27.0.

E. Data Analysis

The obtained data was analyzed descriptively, employing percentages, means, and standard deviations. Descriptive statistics is a statistical method used to present summarized data based on populations and small samples (Ghazali & Sufean, 2018). The analysis was utilized to report the overall agreement level among Arabic language teachers (GBA) regarding the queried items. In addressing the needs analysis phase, the respondents' agreement level was considered to determine suitable teaching activities for Arabic language teachers in the Arabic-Roman Transliteration Module based on Virtual Reality (eTARRiM). Additionally, the analysis aimed to understand the needs of Arabic language teachers for the development of the eTARRiM module in primary school Arabic education. For this purpose, the study findings were categorized into three minimum levels.

VI. FINDINGS

A. Respondent Demographics

One hundred Arabic language teachers (GBA) from primary schools in the state of Selangor participated as respondents in the needs analysis phase of this study. The demographic information of the respondents, including gender, age, academic qualifications, teaching experience, and experience with students facing challenges in reading Arabic words.

The demographic analysis of 100 Arabic language teachers (GBA) in Selangor's primary schools for the needs analysis phase revealed a majority of female GBAs (79.0%) actively participating compared to their male counterparts (21.0%). Among the age groups, those aged 34 to 44 years constituted the largest segment (50.0%), followed by the 45 to 55 age group (36.0%). Respondents aged 23 to 33 years and 56 years and above represented 13.0% and 1.0%, respectively.

In terms of academic qualifications, the majority held a Bachelor's Degree (84.0%), while Master's Degree holders comprised 14.0%, and Diploma holders were only 2.0%. Teaching experience analysis indicated that GBAs with 11 to 15 years of experience were the highest (33.0%), followed by those with 6 to 10 years (32.0%) and 16 to 20 years (25.0%). Those with 1 to 5 years of experience were 8.0%, while those with 21 years and above were 2.0%. All responses for each questionnaire item totaled 100.0%.

Furthermore, unanimous agreement (100%) was observed among respondents acknowledging the existence of reading difficulties among their students in learning Arabic words. In conclusion, the majority of participants were experienced, female GBAs aged 34 to 44 years, holding a Bachelor's Degree, all identifying challenges in their students' Arabic language reading abilities.

B. The need for Arabic Language Teachers (GBA) to develop the Arabic-Roman Transliteration Module based on Virtual Reality (eTARRiM).

This section will provide an explanation of the research findings based on the following research question:

Question: What are the needs of Arabic Language Teachers in developing the Arabic-Roman Transliteration Module based on Virtual Reality (eTARRiM) to enhance the reading skills of elementary school students in Arabic?

The information on data analysis is reported in terms of minimum scores, standard deviation, and score interpretation. The minimum scores are categorized into three levels: high (between 3.68 and 5.00), moderate (2.34 to 3.67), and low (1.00 to 2.33).

Based on item A2, "I need technology-based teaching materials in Arabic language teaching to enhance students' proficiency in speaking and listening to Arabic," recorded the highest mean ($M= 4.53$, $SD= 0.51$). Meanwhile, other items also fall into the high category, such as item A6, "I need audio, animation, and visual elements for the development of teaching materials to help students overcome difficulties in reading Arabic words" ($M= 4.52$, $SD= 0.61$), item A3, "I need technology-based teaching materials in Arabic language teaching because it can capture students' interest in learning" ($M= 4.52$, $SD= 0.63$), Item A1, "I need multimedia elements such as audio, graphics, visuals, videos, images, and animations for the development of teaching materials to assist in teaching reading and Arabic language" ($M= 4.51$, $SD= 0.66$), Item A8, "I need visual or graphic elements for the development of teaching materials to assist students' memory" ($M= 4.50$, $SD= 0.62$), Item A4, "I need visual or graphic elements for the development of teaching materials to assist students' memory" ($M= 4.49$, $SD= 0.64$), Item A5, "I need technology-based teaching materials in Arabic language teaching to enhance students' language skills, especially in reading skills" ($M= 4.49$, $SD= 0.66$), and Item A7, "I need audio, animation, and visual elements, and the

Arabic-Roman transliteration method for the development of teaching materials to help students read Arabic words correctly" ($M= 4.45$, $SD= 0.67$). The overall mean for the technology usage requirement in eTARRiM module is also at a high level ($M= 4.50$, $SD= 0.58$).

In conclusion, all items in this needs analysis construct indicate a high level. Therefore, it is evident that all respondents strongly require the development of the eTARRiM module. Indeed, as a whole, addresses the research question during the needs analysis phase. The initial question revolves around the necessity for Arabic language teachers to develop the Arabic-Roman Transliteration Module based on Virtual Reality (eTARRiM) to enhance the reading skills of elementary school students in Arabic. The research findings, based on descriptive statistical analysis involving percentages, means, and standard deviations, indicate a high standard deviation among 100 Arabic language teachers in Selangor. All respondents agree that they face challenges related to their students' reading of Arabic words, and there is unanimous agreement on the necessity and significance of developing the eTARRiM module. The overall Cronbach's Alpha value for all items is accepted at 0.97.

VII. CONTRIBUTION

This study provides a significant contribution to the field of Arabic language education, particularly in the context of utilizing technology and innovative learning approaches. By identifying the needs of Arabic language teachers and students in developing Arabic-Roman Transliteration Module based on Virtual Reality (eTARRiM), the study lays the groundwork for the development of more effective and relevant learning resources.

Key contributions of this study include:

Introduction to eTARRiM Module: The study paves the way for the development and utilization of the Arabic-Roman Transliteration Module based on Virtual Reality (eTARRiM) in the teaching of Arabic language in primary schools. This enriches the repertoire of Arabic language learning resources by leveraging relevant technology.

Understanding the Importance of Technology: By highlighting the Arabic language teachers' need for technology use in teaching, the study underscores the importance of integrating technology in Arabic language education to enhance engagement and effectiveness of learning.

Construction of Effective Modules: The findings of this study can serve as a guide in designing and developing learning modules that cater to the needs of teachers and students. This helps improve the quality of Arabic language teaching and learning at the primary school level.

Emphasis on Innovative Learning: By emphasizing multimedia elements, audio, visual aids, and the Arabic-Roman transliteration method, the study encourages innovative and enjoyable learning approaches to enhance students' interest and understanding of the Arabic language.

Thus, this study makes a significant contribution in integrating technology and Arabic language education to enhance students' learning experiences and strengthen Arabic language skills among primary school students.

VIII. CONCLUSION

This conclusion outlines that the development of Arabic-Roman Transliteration Module based on Virtual Reality (eTARRiM) is important in improving Arabic language reading skills among primary school students, based on the recognized needs of Arabic language teachers (GBA). With the use of technology and multimedia elements, eTARRiM module is expected to make a significant contribution to improving students' reading performance. Relevant and up-to-date references regarding the effectiveness of technology use in Arabic language learning can provide additional support to this conclusion.

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