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RESEARCH ARTICLE

KNOWLEDGE READINESS TO USE AUGMENTED REALITY IN TEACHING ARABIC AMONG PRIMARY SCHOOL TEACHERS IN MALAYSIA

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Abstract

In this booming era of the Industrial Revolution 4.0, the issue of teachers' willingness to use information technology in teaching Arabic is often debated. The emergence of new technologies, such as augmented reality technology applied in the education system, has had a positive effect on teaching. However, there is still a lack of research in the context of teaching a foreign language. Therefore, this study discusses the readiness of teachers from the aspect of their knowledge towards the use of augmented reality technology in teaching Arabic in primary schools. In addition, this study uses a quantitative study in the form of a survey method involving a total of 36 Arabic language teachers who were used as respondents in this study. The use of a set of questionnaires as a research instrument is the basis for data collection to identify their level of knowledge readiness. The data from this study were processed using the Statistical Package for the Social Science version 26 (SPSS). The results of the study show that the level of readiness of teachers from the aspect of knowledge towards the use of augmented reality technology in the teaching of Arabic in Malaysia is at a moderate level. Therefore, it is hoped that this study will be used as a guide and benefit those responsible for ensuring that the process of teaching and learning Arabic based on augmented reality technology can be implemented in a meaningful way, thereby improving the performance of students in mastering the Arabic language.

Introduction:-

The practice of teaching and learning in Arabic at school has become the main element of education in Malaysia that will lead to the preparation of students in order for them to become knowledgeable and skilled human capital who are capable of mastering foreign languages and meeting the needs of the current market. Global competitiveness and diversity of needs have urged some transformation in the field of education. The presence of the Industrial Revolution 4.0 has changed the school curriculum system with the development of technology that goes hand in hand with the development of the field of education. According to Muna Hamzan (2016) and Kaseh et al. (2010), the use of technology in education is seen as a driving factor that plays a role in putting Malaysia's education system on par with other developed countries.

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The advancement of information technology is not only an intermediate material that is seen as having the potential to facilitate daily work, but it is also effective in making the teaching and learning environment more successful (Mohd. Hamzah & Attan, 2012). The use of technology, such as Information Communication Technologies (ICT) as teaching media, has great potential to facilitate teachers as a teaching aid and is able to help students to understand better or master a topic taught by teachers. This coincides with the recommendations issued by the Malaysian Ministry of Education regarding the use of ICT as the main teaching medium and for teachers to act as facilitators starting in 2010 (Norabeerah, Halimah Badioze & Azlina, 2012).

In an effort to fulfil the wishes of the Malaysian Ministry of Education to empower the advancement of information technology in education, the role of teachers is very important because they are responsible as educators and facilitators to their students (Muna Hamzan, 2016). The quality of education depends a lot on the quality of a teacher. This is because teachers must have good knowledge, skills, abilities and attitudes inside and outside the classroom in an effort to improve the quality of learning outcomes further. Teachers who meet the criteria have the potential to produce interesting and effective lessons for their students (Nor Mazidah, 2012).

Problem Statement:-

Malaysia is now a developing country with an economy that is very competitive among developing countries. This has led to the presence of the Industrial Revolution 4.0, which emphasises the construction of virtual reality technology without much use of human energy, which has an impact on various aspects of life. In order to face the challenges of the Industrial Revolution 4.0 in the era of national education, especially in the teaching and learning of the Arabic language, it is necessary to get out of the comfort zone.

The issue of teachers' problems in teaching Arabic is often debated. Many past studies have discussed the issues faced by teachers in delivering Arabic lessons to students in Malaysia. According to Abdul Razif Zaini (2017), there are various problems faced by Arabic language teachers in Malaysia in delivering their lessons. Among the problems often faced by teachers are ability, pedagogy, motivation, teaching aids, environment and lack of exposure related to information technology.

In addition, the researcher found that the level of teachers' readiness for information technology platforms is still at a less than satisfactory level. This has been supported by the study of Mohd Noh et al. (2016), who found that 39 per cent of teachers in Malaysian schools have a weak level of knowledge about the use of computers and smartphones in the teaching and learning process. Next, this matter will cause more problems if the teachers do not want to master the knowledge and skills. Therefore, this study aims to identify the readiness of teachers from the aspect of knowledge toward the use of augmented reality technology in the teaching of Arabic in Malaysia.

Literature Review:-

The development of technological currents in the Industrial Revolution 4.0 goes hand in hand with the development of the field of education, especially in the teaching of Arabic in Malaysia. This is very noticeable with the change in the school curriculum structure, which needs to meet the requirements of current developments so that the education system in Malaysia does not lag behind when compared to other countries. Therefore, the development of the Industrial Revolution 4.0 is seen as a catalytic factor that plays an important role in efforts to strengthen the quality of Arabic language teaching and learning methods in Malaysia.

In addition, the progress of the Industrial Revolution 4.0 is no longer something foreign in Malaysia because it promises great potential and opportunities, especially in education that can change the way a person learns, acquires information, adapts each piece of information and so on (Muna Hamzan, 2016). The development of technology in the Industrial Revolution 4.0 has caused the use of ICT technology or information and communication technology to be practised in the teaching and learning system of Arabic in schools in Malaysia, especially after the world was hit by the Covid-19 pandemic. This has caused the structure of learning and teaching in the field of education, especially in the teaching of Arabic, which was previously centred on teachers and students directly, to change to using online learning methods based on the use of ICT (Rohani Ab Ghani, 2021).

The spread of the Covid-19 infection in Malaysia has caused the traditional teaching and learning method of Arabic to change to the teaching and learning method at home (PdPR). This new norm has opened up the space for learning Arabic through virtual learning methods. This has brought about a big change in the widespread use of digital

platforms and ICT (Jafar et al., 2020). The use of this platform is also seen as the best option as an alternative to the physical PdP that teachers and students had to abandon during the Movement Control Order (MCO) period. Teachers have switched to using digital devices and technology applications that use the ICT approach as the main teaching medium (Rohani Ab Ghani, 2021).

Meanwhile, according to the study by Hilmi, Mohd Zakaria & Nur Fuad (2020), the use of technology in education, especially in the teaching of Arabic, is highly encouraged to improve the effectiveness of the teaching and learning process of Arabic. The method of the teaching and learning process through the Flipped Class method is a form of teaching that uses technology and is student-centred, which is a learning method that gives students the opportunity and freedom to review learning at home while the learning time at school will be implemented by carrying out reinforcement activities such as quizzes, discussions, games and so on (Yap & Liaw, 2013). This study shows that the Flipped Class method has many positive effects in increasing students' interest in learning Arabic, but most Arabic teachers still use traditional methods in their teaching, causing the learning atmosphere to become passive and boring.

Next, Norhayati Che Hat, Shaferul Hafes Sha'ari & Mohd Fauzi Abdul Hamid (2014), in their study which focused on the implementation of animation in the teaching and learning of the Arabic language, stated that animation is one of the multimedia elements that is very interesting to apply in the teaching process of the Arabic language today because this element is able to manifest a human fantasy into reality. In their study, Arabic language teaching materials consisting of three conversational texts were modified into animation elements and three forms of exercises. All the content is presented in the form of animation. As a result, all students gave good feedback, and it can be stated that the use of animation as a teaching aid in learning Arabic is able to increase the high achievement of students regardless of their background Arabic proficiency.

In addition, Nisak et al. (2015) stated that virtual learning or e-learning has now become a preferred learning style. In the era of the Industrial Revolution 4.0 technological advances, the medium of the internet is seen as a mediator, and the concept of self-directed learning, characterised by multimedia and user-friendly options, makes it increasingly popular. Therefore, Universiti Sultan Zainal Abidin (UniSZA) has developed KeLiP, which is an e-learning project for the convenience of lecturers and students in the process of teaching and learning Arabic. KeLiP was developed with very practical features and made students more interested in using it compared to traditional teaching and learning (Nisak et al., 2015).

In addition, the Industrial Revolution 4.0 provides a variety of more interesting technology platforms that allow users to take full advantage of the power of this technology in designing a more creative and innovative learning process. Among the elements of the Industrial Revolution 4.0 are augmented reality technologies that combine real situations and computer-based images to convey information that is directly related to the real world. Artificial Intelligence is the ability of computers or robots to perform tasks associated with human intellectual processes, such as the ability to make judgments, find meaning, make generalisations and learn from past experiences. In addition, robotics is one of the disciplines of engineering and science that includes mechanical engineering, electronic engineering, computer science and others. Next, cyber-physical systems, which are industrial automation systems that enable innovative functionality through networking and access to the cyber world, can significantly change our daily lives. Cloud computing is an information technology paradigm that allows access to information, without time and place limitations, through the Internet. Also mentioned is virtual reality technology or VR, which refers to an artificial environment that is built and experienced through sensory stimulation such as sight and sound. While 3D printing is a technology that transforms rolls of plastic wire into desired objects.

Therefore, it can be concluded that the Industrial Revolution 4.0 that was introduced has led to progress in human civilisation, especially in the world of education (Salleh, 2018). This development has made the teaching method of the Arabic language undergo a very rapid transformation, and it has even become a necessity to help speed up the learning process. Therefore, careful preparation must be made for educators to face this challenge. Educators need awareness and knowledge of the Industrial Revolution 4.0 so that they are more open and prepared for the upcoming changes in meeting the challenges of the Industrial Revolution 4.0 (Che Roseliza Abdullah & Zulnaidi Yaacob, 2019).

Methodology:-

In this study, the researcher aims to get teachers' views on their knowledge of the use of augmented reality technology in teaching Arabic in Malaysia. This study was conducted throughout Malaysia, involving several primary schools were selected as study locations. The respondents involved in this study were 36 teachers chosen only by using a simple random sampling method. The teachers who were selected to be the respondents of the study consisted of Arabic language teachers who teach at the primary schools in question.

This study is a survey study. The instrument used in this study is a questionnaire to measure the level of teachers' knowledge of the use of augmented reality technology in the teaching of Arabic in Malaysia. The picture of knowledge about the use of augmented reality technology in the teaching of Arabic in Malaysia can be seen through the level of statement and agreement given using 4 levels of the Likert scale, namely 4 (Strongly agree), 3 (Agree), 2 (Disagree) and 1 (Strongly disagree). A high score will give an impression of a positive level of readiness towards a certain criterion and vice versa. Questionnaires were distributed to respondents through Google Forms to obtain information about the constructs that had been identified through literature and expert studies. The data was then analysed using the Statistical Package for the Social Sciences (SPSS) version 26 software which involved descriptive statistics such as frequency, percentage, mean and standard deviation.

Research Findings:-

This study has used descriptive statistical analysis, referred to as descriptive statistics, to describe the characteristics of a variable by using indicators of mean, standard deviation, frequency, or percentage, and then drawn conclusions based on the numerical data (Ghazali Darusalam & Sufean Hussin 2016). For the data obtained from the questionnaire, this study has used the interpretation value of the mean score level outlined by Oxford (1990), which is that 1.0 to 2.4 carries a low level interpretation, while a mean score between 2.5 to 3.4 is at a medium level, and 3.5 to 5.0 is at a high level.

Table 1 shows the analysis results for the frequency, percentage, mean, standard deviation and interpretation of the level of readiness from the aspect of teachers' knowledge towards the use of augmented reality technology in the teaching of Arabic in Malaysia in descending order. The overall mean for all statements related to the level of readiness from the aspect of teachers' knowledge towards the use of augmented reality technology in the teaching of Arabic in Malaysia is 2.55, which is a moderate level of interpretation. This also shows that the majority of teachers who teach Arabic at the primary school level are at a moderate level in terms of teachers' knowledge of the use of augmented reality technology in teaching Arabic in Malaysia.

The findings show that there are 3 items out of 6 items in the simple interpretation. This explains that teachers who teach Arabic know the meaning of augmented reality technology and have seen augmented reality technology displays and heard the words augmented reality technology.

Table 1 also explains that the highest mean score for the level of readiness from the aspect of teachers' knowledge towards the use of augmented reality technology in teaching Arabic in Malaysia is the statement that refers to, "I know the meaning of augmented reality technology" (Mean = 2.75, SP = 0.73). The findings of the study show that 25 teachers (69.4%) agree and strongly agree that they know the meaning of augmented reality technology. However, there are 11 teachers (30.6%) who do not know the meaning of augmented reality technology.

In addition, the statement that refers to, "I have seen the display of augmented reality technology" recorded the second highest mean score (Mean = 2.72, SP = 0.78) with a frequency of agreeing and strongly agreeing of 25 people (69.4%), while disagreeing and strongly disagreeing had a total of 11 people (30.6%). This was followed by the statement, "I have heard the word augmented reality technology" (Mean = 2.67, SP = 0.83) had a frequency of agreeing and strongly agreeing of 20 people (55.6%), while disagreeing and strongly disagreeing had a total of 16 people (44.5%). The statement, "I always follow the development and information about augmented reality technology" (Mean = 2.67, SP = 0.83) had a frequency of agreeing and strongly agreeing of 20 people (55.6%), while disagreeing and strongly disagreeing had a total of 16 people (44.5%).

Next, the findings also show that 3 items out of 6 related to the level of readiness from the aspect of teachers' knowledge towards the use of augmented reality technology in the teaching of Arabic in Malaysia are at a low level of interpretation. The item stating, "I am proficient in using applications based on augmented reality technology"

recorded the lowest mean score (Mean = 2.28, SP = 0.78) with a frequency of agreeing and strongly agreeing of 13 people (36.2%), while disagreeing and strongly disagreeing had a total of 23 people (63.9%). This was followed by the statement, "I have used an application based on augmented reality technology" (Mean = 2.44, SP = 0.74) with a frequency of 17 people agreeing and strongly agreeing (47.3%), while disagreeing and strongly disagreeing had 19 people (52.7%). The statement, "I always follow the development and information about augmented reality technology" (Mean = 2.47, SP = 0.81) had a frequency of agreeing and strongly agreeing of 18 people (50%), while disagreeing and strongly disagreeing had 18 people (50%).

Table 1:- Frequency, percentage, mean, standard deviation and interpretation of teachers' knowledge level regarding the use of augmented reality technology in teaching Arabic in Malaysia.

Statement	**Frequency**				**Mean**	**S.D**	**Interpretation**
	SD	**D**	**A**	**SA**			
I know what augmented reality technology means.	2 5.6%	9 25%	21 58.3%	4 11.1%	2.75	0.73	Moderate
I have seen a display of augmented reality technology.	3 8.3%	8 22.2%	21 58.3%	4 11.1%	2.72	0.78	Moderate
I have heard the word augmented reality technology.	2 5.6%	14 38.9%	14 38.9%	6 16.7%	2.67	0.83	Moderate
I am always following developments and information about augmented reality technology.	4 11.1%	14 38.9%	15 41.7%	3 8.3%	2.47	0.81	Low
I have used an application based on augmented reality technology.	3 8.3%	16 44.4%	15 41.7%	2 5.6%	2.44	0.74	Low
I am proficient in using applications based on augmented reality technology.	5 13.9%	18 50%	11 30.6%	2 5.6%	2.28	0.78	Low
Overall Mean					**2.55**		**Moderate**

Overall, the findings to answer this question explain that teachers who teach Arabic in Malaysia have a moderate level of knowledge related to augmented reality technology. This may be due to the fact that this technology is relatively foreign or less popular and is not widely used, especially in the field of education. Augmented reality technology is a new type of information and communication technology that is capable of enabling virtual information that is visual, i.e. pictures, animations or videos, to be superimposed on physical reality through computer devices. Therefore, it is not surprising that teachers are less skilled in using this technology because this technology is still new and has not been widely introduced in Malaysia.

Discussion:-

This discussion is based on research questions that have been set beforehand. Therefore, the findings of the study show that the level of teachers' knowledge of the use of augmented reality technology in the teaching of Arabic in Malaysia is at a moderate level. The findings of this study are supported by Sharifah Nor Puteh's study (2011), which also shows that the level of readiness of teachers towards the use of ICT and physical facilities is also at a moderate level. The findings of his study noted that Preschool teachers in the Gombak district are ready to implement teaching using ICT approaches, and there is a strong relationship between the teacher's work results and the behaviour of the respondents.

In this study, some teachers think they do not know the meaning of augmented reality technology, have never heard the word augmented reality technology or even seen the display of augmented reality technology, especially in the education arena in Malaysia. The findings of the study coincide with the study conducted by Norabeerah, Halimah Badioze & Azlina (2012), which is related to future teaching using augmented reality technology in Malay language education: the level of teacher awareness. Their study found that the majority of teachers who teach Malay have never known or seen augmented reality technology anywhere. This finding is the same as the survey that was

conducted in a previous study at Expo Teknologi Malaysia 2009, which involved a small-scale case study consisting of students, teachers and individuals from the industry, where the level of awareness of the sample involved in the study was still very low, and the majority of them did not know about or realise the presence of this technology (Desi Dwistratanti & Dayang Rohaya, 2010).

In many cases, this may be due to the presence of a new technology that is only considered an amplifier to existing traditional learning approaches (Robert M. Gagne, Walter W. Wager, Katharine C. Golas, John M. Keller, 2002; O' Shea, 2011). In addition, the presence of new technology, such as augmented reality technology, needs to identify the potential that allows it to really benefit education, and also needs to identify the appropriate form or content (filling) where it becomes more meaningful to education (Norabeerah, Halimah Badioze & Azlina, 2012).

In the booming era of the Industrial Revolution 4.0, it is important for teachers to equip themselves with knowledge and also prepare to practice appropriate and effective teaching techniques that involve the use of technology, especially augmented reality technology. Aspects of current developments and changing times also need to be taken into account to ensure that Arabic language teaching remains relevant and achieves the vision set by the Malaysian Ministry of Education (Maimun Aqsha, Wan Nurul Syuhada', 2017). This is also in line with the statement of Abdul Halim and Zawawi (2016) that teachers should prepare themselves with a noble personality, skills and competencies such as management, communication, and ICT, which are important elements in determining the quality and excellence of a teacher in this day and age. This is because the ability of teachers to use information and communication technology becomes an effective approach in line with the interests of the current generation, who are familiar with gadgets and communication tools.

Although some of the teachers in this study think they know the meaning of augmented reality technology, have heard the word augmented reality technology or have seen displays of augmented reality technology, they do not deny that the technical skill factor is an obstacle for them in applying augmented reality technology in their teaching methods. This is because they admit that they are not skilled at using applications based on augmented reality technology. Similarly, they think that they do not always keep up with the latest information related to augmented reality technology. As the research done by Norabeerah, Halimah Badioze & Azlina (2012) found, the application of augmented reality technology is difficult to handle by teachers who do not have the skills and knowledge related to information technology.

This may also be caused by the technical skill factor, which is a prerequisite in the use and development of augmented reality applications (Hampshire et al. 2006). Teachers find it difficult to produce augmented reality applications themselves in their teaching process and need the help of active augmented reality application developers in Malaysia (Norabeerah, Halimah Badioze & Azlina, 2012). The use of augmented reality applications requires many more studies to improve this technology so that it becomes easy, user-friendly and less technical so that it can be used by many teachers from various backgrounds and fields to enable augmented reality technology to be optimally used in education in Malaysia (Hampshire et al. 2006) & (Norabeerah Saforrudin, 2011).

According to Nor Azilah and Zarina (1997), teachers' knowledge of information technology, especially in augmented reality technology, must reach the same level or exceed general knowledge so that they have the skills to apply technology in handling creative and effective teaching. This is due to the willingness of teachers to accept or adapt to changes that occur in the education system, which will determine the success or failure of the teaching process.

The statement above is also in line with the findings of a study by Suhai (2011) and Hasnuddin et al. (2015), who found that the factors of knowledge, skills of teachers in ICT, as well as the provision of complete tools in schools, greatly influences the effectiveness of the use of ICT in teaching, especially to produce a teaching quality that is among the best when compared to other developed countries around the world.

Conclusion:-

Overall, the majority of teachers showed a moderate level of knowledge about the use of augmented reality technology. It is hoped that this study can be used as a guide for the authorities to find out the extent of readiness from the aspect of teachers' knowledge towards augmented reality technology. This study has some limitations by using only respondents from teachers who teach Arabic in primary schools under the Malaysian Ministry of Education. Therefore, it is suggested that future studies be expanded to the scope of private schools in Malaysia or

even a comparison with other countries. The respondents of this study also consisted of teachers who teach in primary schools only. Therefore, the scope of the study can be expanded to Arabic language teachers in secondary schools to describe their level of readiness for augmented reality technology as a whole.

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