Implementation of Augmented Reality (AR) in Malaysian Education System

Ahmad Syafiq Yusof[1], Muhammad Talhah Ajmain @ Jima'ain[1], Sakinah Ab. Rahim[1], Hassan Abuhassna[2]

[1]Academy of Islamic Civilization, Faculty of Social Sciences and Humanities, Universiti Teknologi Malaysia, 81310 Skudai, Johor, Malaysia, [2]Faculty of Social Sciences & Humanities, School of Education, Universiti Teknologi Malaysia, 81310, UTM Skudai, Johor, Malaysia.
Corresponding Author Email: mahassan@utm.my

Abstract
The post-globalization world is witnessing the rapid development of technology. Revolution of industry 4.0 that hit the world encourages the use of various technologies and gadgets by all sectors or industries including education. Education system all around the globe excited to implement new technologies with the aims of enhancing students' focus, interest and comprehension throughout the teaching and learning sessions. Recently, the Augmented Reality (AR) technology attracts more intention and increasingly mastered by the educators to use the technology during teaching and learning sessions. AR innovation optimized the sophistication of social medias as an effective teaching medium. The use of this technology indicates great potential to produce more creative, innovative and competitive generation.
Keywords: Augmented Reality (AR), Industry 4.0, Innovation, Malaysian Education System.

Introduction
        Each county has a unique education system depending on the government policy. For example, the education system in the United Kingdom that is subjected to their own respective government in England, Scotland, Ireland and Wales where basically, there are five levels or educational levels which are preschool (early), primary (primary), secondary (secondary), upper secondary (further education) and higher (higher). In Malaysia, the education system that is practiced obliges every child to attend school from the age of 7 to 17 years old. Parents who fail to register their child for school may be subjected to legal action under the Education Act 1996 Section 29A (2) which provides for a fine not exceeding RM5000 or imprisonment not exceeding six months or both (Azura, 2019). The implementation of this act is not intended to punish but rather to avoid children being left out. In addition, to face the increasingly developed and fast- growing world, the younger generation needs to be equipped with knowledge and skills so that they are better prepared and experienced to compete in the outside world.
        The Malaysian education system is under the Ministry of Education (MOE) portfolio. The Government Educational Institution consists of (i) preschool education (for children aged

4 to 6 years old), (ii) primary education (consisting of national schools and national type schools), (iii) secondary education (including primary and upper secondary; comprising academic, technical and vocational schools as well as religious national schools), (iv) boarding schools are entrusted to the Boarding School Unit of the School Division, (v) special education schools (under the responsibility of the Department of Special Education), (vi) sports schools (under the responsibility of the Sports Division) as well as (vii) higher education that are managed by the Ministry of Higher Education (MOE, 2022).

Through the education system, Malaysia aims to achieve one hundred percent literacy rate among people, with an average reading time per week exceeding ten hours thus establishing Malaysia as a reading country by 2030 (Maszlee, 2018). In 2017, the literacy rate among Malaysians approached ninety-five percent with a reading rate of fifteen to twenty books per year (Maszlee, 2018). As 2022 budget, Malaysia allocated sixteen percent (RM52.6 billion) of state expenditure to MOE which includes RM150 Early School Aid to parents to provide child schooling equipment as well as a one-off Teaching Aid Special Incentive (lump sum) of RM100 to more than four hundred thousand teachers to provide additional teaching materials to students during the implementation of Home-based Teaching and Learning (Bernama, 2021). The large budget distribution, legal provisions as well as the various programs and initiatives made show that the Malaysian government views the issue of education as an important matter; to produce an exquisite generation of prime beings that are knowledgeable and dare to compete in the eyes of the world.

The education system around the globe experiencing massive movement as world's technology rapidly developed. This phenomenon can be observed by the use of computers or gadgets replacing chalk and blackboards. Teachers do not have to go through thick books but instead their teaching material can be loaded in only a flash drive. The use of information and communication technology (ICT) is an aid to help teachers teach and as a way of learning to students (Gagne et al., 2005). The use of technology in the education system has long been applied and it is in the MOE's intention to make ICT the main teaching medium; teachers act as facilitators throughout the teaching and learning process starting in 2010 as announced by the former Minister of Education, Tan Sri Dato' Haji Muhyiddin Bin Yassin (Lim, 2010). However, the use of ICT should be in line with the capabilities, abilities and content of teaching materials (Norabeerah et al., 2011).

In line with the younger generation's ability to handle various applications and gadgets, the use of AR technology in teaching and learning process is an innovation that shows great potential in improving the quality of education system (Saforrudin, 2016). In this regard, this paper discusses the potential for the application of AR technology in improving the quality of the country's education system.

Malaysian Education During the Pandemic
Malaysia is a developing country that strives to compete in the eyes of the world. Various achievements are recorded from the aspects of sports, education, economics, politics, social and so on. Things that were considered impossible long time ago were able to achieve by Malaysia. The field of science and technology are also performing well. More of today's younger generation are involved with invention and innovation; from the construction of daily equipment, motoring and to computer applications. Today's children are also more exposed and familiar to the use of the latest applications and technological gadgets; especially when the world is facing the COVID-19 pandemic.

The world's sweeping pandemic demands more frequent and skilled technology-based skills from each individual regardless of their background. As a result, educational institutions such as schools, colleges and universities were forced to close. The education system around the world has been suffering for a while. However, the future of the younger generation should not be at stake. Their education should not be stopped. Thus, various ICT applications are introduced and implemented to ensure that the younger generation can continue their education despite the current situation which hinders the daily movement of the world. This is due to the fact that education is the main medium for creating the model citizen. The younger generation needs to obtain a precise education so that they can lead Malaysia to develop a country that is formed by their own mould.

In line with the current situation, the MOE took steps to introduce and implement online classes to every student and instructor regardless of rank; neither primary nor secondary schools. The students and instructors conducted a physical face-to-face teaching and learning session instead of just meeting on a computer screen. In order to avoid boredom during the teaching and learning session, various innovative applications are used. AR is a form of innovation that is gaining the attention of students and teachers to use during teaching and learning sessions. The implementation of innovative technology will not only prevent boredom during the teaching and learning process, but will also be seen as having the potential to enhance students' interest, understanding and mastery of the subject (Abdul Rasid, 2012; Saforrudin, 2016). Therefore, the use of AR needs to be expanded and refined in its use of the country's education system in line with the development of science and technology as well as various unforeseen circumstances that hit the world. Thus, the presence of technology such as augmented reality (AR) needs to be identified to potentially benefit education and also needs to be identified for appropriate use or content in which it becomes more meaningful to education, especially for the computer-bases teaching and learning session of Islamic Education in helping teachers attract the attention of pupils so that they have full attention along the teaching and learning session. Previous study identifies that among the factors of the student themselves contributing to the problem of lack of reading skills are because of insufficient practice in reading and writing, the teacher's teaching environment and methods (Abdul Rasid 2012). Thus, with the option of teaching material such as AR, together with interesting teaching methods, it is able to provide an alternative solution to the problem such as reading skills (Saforrudin, 2016).

Technologies and Medias Usage
The use of various forms of media is able to make the teaching and learning process more interesting and effective. The use of various forms of media during the teaching and learning session became an important aspect in improving the educational system. According to Oviensy and Princess (2022), the media in Latin means mediator or introduction. Whereas in Arabic, the media refers to a tool used to transfer messages or messages (Oviensy and Princess, 2022). Air Tanah (2014) added that the media also refers to humans, theories, skills and attitudes. From an educational perspective, the media can be termed as a graphical, photographic or electronic tool for capturing, processing, and rearranging visual and verbal information (Azhar, 1997). While the Association for Education and Communication Technology (AECT, 2022) defines media as all forms used for a process of channelling information. The Education Association (NEA) defines the media as something that can be manipulated, seen, heard, read or talked about along with instruments used for the effectiveness of the learning process (Asnawir and Basyiruddin, 2002). On the other hand,

Oemar (1989) defines learning media as tools, means, and techniques used to enhance the effectiveness of communication and interaction between teachers and pupils throughout the teaching and learning process.

Based on these definitions, learning media can be summed up as everything that is used to convey information throughout the teaching and learning process that is capable of stimulating the cognitive, emotional and behaviour of the students. Thus, the use of media in the educational process is an important aspect in ensuring that the process of information delivery or knowledge transfer can take place effectively and optimally (Oviensy and Putri, 2022). The development of the use of media in the educational system of the country is not new. The use of media power points, movie makers and so on in the teaching and learning process is in line with the development of technology at that time and time. Now, the teaching and learning process can be implemented virtually without having to attend classrooms or lecture halls using various modern software such as Google Meet, Zoom, Webex and so on. The sophistication of technology in the education system is further intensified by the use of augmented reality (AR). Although the use of AR is not fully in the education system, this technological innovation is seen as having the potential to improve the quality and efficiency of the country's education system.

Implementation of Ar in Education System

Jarjih et al (2018) referred AR as latest technological innovations in which the real and virtual worlds are integrated at any one time simultaneously. Or in other words, AR is a technological innovation that incorporates three-dimensional virtual objects from the virtual world into the real world. Chowanda (2011) adapts the definition of Carmigniani defining AR as a technological sophistication that can combine virtual things derived from computers with the real world. Azuma (1997) refers AR to technology that incorporates virtual objects into the world of reality; users can interact with those virtual objects for real. The technology is different from virtual reality technology that 'isolates' users into a virtual new world (Shaffer, 2001). For example, a user who uses the AR application on an adventure to space will 'feel' himself in space (with equipment as an astronaut and able to interact in that atmosphere) despite the fact that the user is in a room or virtual reality laboratory (Saforrudin, 2016). In short, AR is a technological innovation that allows virtual things to be realized. The use of AR is also very simple in which the user can just download the applications (apps) and assemble according to the subject contents or topics. A QR code will be generated to be scanned while enabling the contents of the AR to be displayed (Oviensy and Princess, 2022).

The AR technology is used widely in industries such as manufacturing, defence, education and so on (Jarjih et al., 2018). The used of AR in education system is an innovative and efficient teaching aid which helps the teaching and learning session more effective (Billinghurst, 2002). Studies by Norziha et al (2009) showed the effectiveness of the use of AR in science subjects; astronomy (Soga et al., 2008); as well as English (Liu et al., 2007). These studies have found that the use of AR in the teaching and learning process for hard core subject increases the level of understanding and mastery of the students on the topics. The study of Liu et al (2007) also found out that the use of mobile media improved the ability to speak English. Whereas the development of teaching and learning aids named Letters Alive! by Logical Choice helps preschool students improved their reading skills (Logical Choice, 2011). The findings of this Logical Choice study empirically proved that AR applications increase interest, curiosity and fun for students as they can interact on a real-time basis with

3D virtual objects. Even students can view and move 3D virtual objects in front of them according to their preferred perspective as if holding real object.

In Malaysia, the application of AR in the education system is still new where the instructors have not yet fully mastered the technology. Therefore, studies on the effectiveness of AR in the teaching and learning process in Malaysia are limited. Case studies such as conducted by Hafiza and Halimah (2011) found that the respondents (rehabilitation students for level one Malay language) were able to improve their reading skills in Bahasa Melayu in short of time with the help of AR. Another study by Roslinda and Halimah (2011) also indicates that AR applications help in improving reading skills among primary school students from year one to six who have down-syndrome. The overall implementation of AR in the country's education system has resulted in limited studies. The use of AR in certain subjects such as science and language empirically has been shown to enhance the interest, understanding, mastery and involvement of the students throughout the teaching and learning process. However, the effectiveness of AR in subjects such as Islamic Education and Morale are still limited. When this paper written, we did not found any study about the use or effectiveness of AR on the teaching and learning process for both subjects; Islamic Education and Morale; while these two subjects are vital in Malaysian perspective as they balance the material and non-material development; physical and spiritual; the morals and personality, cognitive and emotionality of each individual (Rofiq, 2010; Umiarso and Zamrani, 2011; Nur, 2013; Sukring, 2013; Wahida and Munawwaroh, 2021; Abuhassna and Awae, 2021; Van et al., 2021; Abuhassna et al., 2022a; Abuhassna et al., 2022b; Abuhassna and Yahya, 2018; Mammana et al., 2017). Therefore, the use of this AR technology should be expanded into the country's education system. This is due to the fact that students are key players who play a role in influencing the use and application of technology in the world of education (UNESCO, 2011). Although AR in education already exists, the percentage is still small in use.
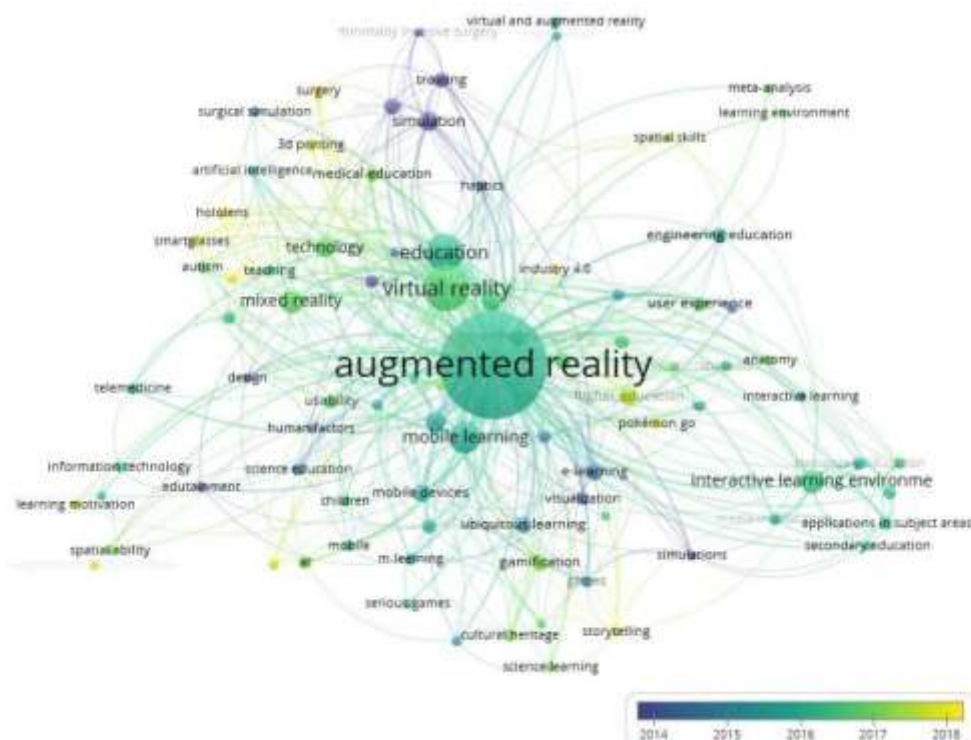

Figure 1: Avila-Garzon et al (2021)

Advantages of AR

The advantages of AR are seen as a factor that drives it to be applied in education. Among the advantages of this technology is that it is able to assist students in cognitive processes especially in the ability to deal with visual issues of space (Scheiter et al., 2009). This is because AR has a feature in which the user can move virtual objects and view them from various angles; it's like seeing and holding a real object (Billinghurst, 2002). This special feature of AR supports seamless interaction between virtual environments and reality by using an interface replacing input devices such as mouse and keyboard. The use of AR can stimulate creative thinking, improve understanding and change the paradigm of students' learning arcs in a subject (Wahida et al., 2010). The use of AR can also increase the motivation of students especially the weak which allows them to master their lesson (Freitas and Campos, 2008). This indirectly shows that the use of AR in the teaching and learning process allows students to gain a more effective learning experience while overcoming the problems of lagging or weak students.

In addition, the use of AR provides fun learning experience (Juan et al., 2008) as well as encouraging students to do self-exploration of the topics (Kaufmann, 2006). In this regard, the use of AR in teaching and learning has the potential to make the sessions more effective, fun and time-saving in the context of the understanding and mastery of knowledge by students. While AR is an alternative to teaching staff as a more interactive, engaging and effective teaching medium (Wahida et al., 2010).The use of AR applications such as AR books (Raphael et al., 2008) can be an option for teachers and students in addition to electronic books or kosher CDs. The selection of teaching media such as AR encourages the active involvement of students and can improve the focus and memory of especially students with disabilities such as hearing impairment (Jamila et al., 2012; Abuhassna et al., 2020a; Abuhassna et al., 2020b; Al-Maatouk et al., 2020; Megat and Abuhassna, 2020; Masrom et al., 2021; Abuhassna et al., 2021)

Accordingly, it is the use of AR as a learning medium that makes the teaching and learning process more interactive, engaging and enjoyable. Conventional teaching and learning strategies require a breath of fresh air as students need lessons that involve active engagement especially for the cognitively impaired to help them focus and further strengthen their memory. Thus, AR technology became an alternative in developing the use of the latest technology in the national education system as well as intensifying the students' enthusiasm to actively engage during the teaching and learning session (Jamila et al., 2012).

Conclusion

The industrial revolution 4.0 witnessing the rapid development of technology, producing a wave of globalization in which every matter is simply at our fingertips; making the present world without borders. The rapid development of the world has also affected the education system in Malaysia and around the world. Today's education system and process need to be in line with the development of technology so that the younger generation is more creative and innovative and able to compete globally. In this regard, reforms to the Malaysian education system need to be carried out so that a more comprehensive and flexible education system can be established. A more comprehensive and flexible education system allows students to develop naturally and creatively possessed potential. The effectiveness of education produces a knowledgeable society and thus forms a developed country that is able to compete in various aspects globally.

References

Abuhassna, H., & Awae, F. (2021b). The Effect of Employing Animated Films in Teaching Arabic as a Foreign Language (AFL) to Non-Native Speakers in Thailand Schools. Innovative Teaching and Learning Journal, 5(2), 1–10. Retrieved from https://itlj.utm.my/index.php/itlj/article/view/65

Abuhassna, H., & Yahaya, N. (2018). Students' Utilization of Distance Learning through an Interventional Online Module Based on Moore Transactional Distance Theory. Eurasia Journal of Mathematics, Science and Technology Education, 14(7), 3043-3052. https://doi.org/10.29333/ejmste/91606

Abuhassna, H., Awae, F., Alsharif, A. H., Yahaya, N., & Alnawajha, S. (2022b). Understanding Online Learning Engagement and Challenges during COVID19: Qualitative Evidenc. International Journal of Academic Research in Progressive Education and Development, 11(1), 651–661.

Abuhassna, H., Busalim, A. H., Mamman, B., Yahaya, N., Zakaria, M. A. Z., Al-Maatouk, Q., & Awae, F. (2022a). From Student's Experience: Does E-learning Course Structure Influenced by learner's Prior Experience, Background Knowledge, Autonomy, and Dialogue. Contemporary Educational Technology, 14(1), ep338. https://doi.org/10.30935/cedtech/11386

Avila-Garzon, C., Bacca-Acosta, J., Kinshuk, , Duarte, J., & Betancourt, J. (2021). Augmented Reality in Education: An Overview of Twenty-Five Years of Research. Contemporary Educational Technology, 13(3), ep302. https://doi.org/10.30935/cedtech/10865

Azhar A. (1997). Media Pembelajaran. Jakarta: PT. Raja Grafindo Persada.

Azuma, R. T. (1997). A survey of augmented reality. In Presence: Teleoperators and Virtual Environments. https://doi.org/10.1162/pres.1997.6.4.355, 6(4), 355-385.

Bernama. (2021). Bajet 2022: KPM Terima Peruntukan Terbesar Berjumlah RM52.6 Bilion. Retrieved on 29 Oktober 2021 from https://www.astroawani.com.

Billinghurst, M. (2002). Augmented reality in education. Retrieved on 19 February 2010 from http://www.newhorizons.org/strategies/echnology/billinghurst.htm

Choli, I. (2020). Pendidikan Agama Islam Dan Industri 4.0. Tahdzib Al-Akhlaq: Jurnal Pendidikan Islam, 3(2), 20-40.

Chowanda, A. (2011). Perancangan Game Kartu Interaktif Berbasis Android Menggunakan Augmented Reality. Computer and Technology, 2(2).

Freitas, R., & Campos, P. (2008). SMART: a system of augmented reality for teaching 2nd grade students. Paper presented at the Proceedings of the 22nd British CHI Group Annual Conference on HCI 2008: People and Computers XXII: Culture, Creativity, Interaction - Volume 2, Liverpool, United Kingdom.

Gagne, R. M., Wager, W. W., Golas, K. C., & Keller, J. M. (2005). Principles of Instructional Design (5th Edn). Boston: Thomson Wadsworth.

Hafiza, A., & Halimah, B. Z. (2011). Visual Learning through Augmented Reality Storybook for Remedial Student. In Halimah B. Z., P. Robinson, M. Petrou & P. Oliver (Eds.). Visual informatics: Sustaining research and innovations. Heidelberg: Springer Verlag Berlin.

Huda, W. R., Fauziah, B., Harryizman, H., Ali Yusny, D., Haslina, M., & Norida, M. D. (2010). Using augmented reality for supporting learning human anatomy in science subject for malaysian primary school. Paper presented at the Regional Conference on Knowledge Integration in ICT (INTEGRATION2010), 2 June 2010, Putrajaya.

Kutty, J. K. M., Yasin, M. H. M., & Majid, R. A. (2016). Pelaksanaan Pengajaran Kemahiran Membaca dan Menulis dalam Bahasa Melayu bagi Murid Prasekolah Bermasalah Pendengaran. Jurnal Pendidikan Bahasa Melayu, 2(1), 110-127.

Juan, C., Beatrice, F., & Cano, J. (2008). An augmented reality system for learning the interior of the human body. Paper presented at the Advanced Learning Technologies, 2008. ICALT '08. Eighth IEEE International Conference.

Kaufmann, H. (2006). The potential of augmented reality in dynamic geometry education. Paper presented at the 12th International Conference on Geometry and Graphics (ISGG), Salvador, Brazil.

Kementerian Pendidikan Malaysia. (2020). Dasar Pendidikan Negara. Retrieved on 24 Februari 2022 from https://www.moe.gov.my

Lim, A. (2010). ICT now a teaching tool. Retrieved on 13 Oktober 2010 from https://www.thestar.com.my/

Logical Choice. (2011). Case Study: Augmented Reality captivates and Engages Kindergarden Reading Classrooms. New Supplemental Curriculum - Letters Alive - Transforms Learning for English Language Learners at California School. Retrieved on 20 Mei 2012 from http://ww1.prweb.com/prfiles/2011/01/27/4041334/ LettersalivebyLogicalChoice.pdf

Malik, M. (2018). Malaysia Negara Membaca 2030. Dekad Membaca Kebangsaan. Retrieved on 29 September 2018 from https://www.sinarharian.com.my

Zakaria, M. A. Z. M., Abuhassna, H., & Ravindaran, K. (2020). Virtual reality acceptance in classrooms: a case study in teaching science. International Journal of Advanced Trends in Computer Science and Engineering, 9(2), 1280-1294. https://doi.org/10.30534/ijatcse/2020/58922020

Jarjis, M., Stephanie, W. J., Riyanta, D., Mandasari, R. I. M., & Pudjoatmodjo, B. (2018). SholatKu: Aplikasi pengenalan sholat sunnah untuk anak-anak berbasis augmented reality. eProceedings of Applied Science, 4(2).

Amin, M. N. A. (2019). Anak Wajib Dapat Pendidikan Rendah, Menengah. Retrieved on 27 Januari 2019 from https://www.sinarharian.com.my

Norabeerah, S., Halimah, B. Z., & Azlina, A. (2011). Technical skills in developing augmented reality application: Teachers' Readiness. Dalam B. Z. Halimah, P. Robinson, M. Petrou, P. Olivier, T. Shih, S. Velastin & I. Nystrom (Eds). Visual informatics: Sustaining Research and Innovations. Heidelberg: Springer Verlag Berlin. 360-370.

Norziha, M. M. Z., Halimah, B. Z., & Azlina, A. (2009). Learning science using AR Book: A preliminary study on visual needs of deaf learners. Kertas kerja dibentangkan pada persidangan The IVIC Visual Informatics: Bridging Research and Practice. Kuala Lumpur, Malaysia.

Oviensy, V., & Putri, L. A. (2022, January). Ru-Ar-B (Rumah Augmented Reality dan Braille) Untuk Meningkatkan Hasil Belajar Pendidikan Agama Islam. Proceeding CJP-BUAF 5th: Journal Proceeding's Conference of Borneo Undergraduate Academic Forum, 1(6), 175-186.

Al-Maatouk, Q., Othman, M. S., Alsayed, A. O., Al-Rahmi, A. M., Abuhassna, H., & Al-Rahmi, W. M. (2020). Applying communication theory to structure and evaluate the social media platforms in Academia. International Journal, 9(2), 2278-3091. https://doi.org/10.30534/ijatcse/2020/92922020

Rofiq, M. N. (2010). Pembelajaran Kooperatif (Cooperative Learning) Dalam Pengajaran Pendidikan Agama Islam. Jurnal Falasifa, 1(1), 1–14.

Roslinda, R., & Halimah, B. Z. (2011). Designing usability evaluation methodology framework of augmented reality basic Reading courseware (AR BACA SinD) for down syndrome learner. Paper work presented in International Conference on Electrical Engineering and Informatics. Bandung: Indonesia.

Saforrudin, N., Zaman, H. B., & Ahmad, A. (2016). Pengajaran masa depan menggunakan teknologi augmented reality dalam Pendidikan Bahasa Melayu: Tahap kesedaran guru. Jurnal Pendidikan Bahasa Melayu, 2(2), 1-10.

Scheiter, K., Wiebe, E., & Holsanove, J. (2009). Theoritical and instructional aspects of learning with visualizations R. Zheng (Ed.). Cognitive affects on multimedia learning: Premier reference source. Retrieved on 17 January 2010 from http://www.knowfree.net.

Shaffer, J. (2001). Virtual Reality In Education. Retrieved on 19 February 2010 from http:www.newhorizons.org/strategies/technolog/shaffer.htm

Soga, M., Matsui, K., Takaseki, K., & Tokoi, K. (2008). Interactive learning environment for astronomy with finger pointing and augmented reality. Kertas kerja dibentangkan pada persidangan The Advanced Learning Technologies, 2008.

Sukring. (2013). Kedudukan Pendidikan Agama Islam Dalam Undang-Undang. Hukum Legitime, 3(1).

Umiarso & Zamrani. (2011). Pendidikan Pembebasan dalam Perspektif Barat dan Timur. Ar-Ruzz Media: Jogjakarta.

UNESCO. (2011). UNESCO ICT Competency Framework for Teachers. Retrieved on 20 Mei 2012 from https://www.unesco.org

Van, N. T., Abbas, A. F., Abuhassna, H., Awae, F., & Dike, D. (2021). Digital Readiness for Social Educators in Health Care and Online Learning During COVID-19 Pandemic: A Bibliometric Analysis. International Journal of Interactive Mobile Technologies (iJIM), 15(18), pp. 104–115. https://doi.org/10.3991/ijim.v15i18.25529

Abdul, W. (2008). Isu-isu Kontemporer Pendidikan Islam. Semarang: Need's Press.

Wahidah, N. F. D. M. (2021). Konsep Dan Tujuan Pendidikan Islam. Al-Karim, 6(1), 27–48.

Zamroni. (2000). Paradigma Pendidikan Masa Depan. Jogjakarta: Gigraf Publishing. 90-91.