PCMJ

Progress in Computer and Mathematics Journal (PCMJ)
volume 2 [August, 2025]
e-ISSN: 3030-6728
Website: fskmjebat.uitm.edu.my/pcmj

NON-IMMERSIVE VR: ISLAMIC FUNERAL MANAGEMENT

Mohamad Norhakimi Md Halil
College of Computing, Informatics and Mathematics, UITM Cawangan Melaka, Kampus Jasin, 77300 Merlimau, Melaka
2021453724@student.uitm.edu.my

Mohd Shukor Abd Rahman*
College of Computing, Informatics and Mathematics, UITM Cawangan Melaka, Kampus Jasin, 77300 Merlimau, Melaka
Mshukor037@uitm.edu.my

Article Info

Received: August 2024
Accepted: March 2025
Available Online: August 2025

Abstract

Islamic Funeral management is a crucial knowledge especially for Muslim to know how to manage the death of a Muslim. Despite being important, most people lack awareness about the knowledge and the method of teaching this topic is ineffective resulting to a less number of people interested in learning it. This is why an application that educates people about this topic are made to make sure the importance of this topic is highly prioritized. The project aims to develop a VR game that specifies in learning Islamic Funeral Management through exploration and interaction between the user and virtual environment. Waterfall methodology and the 5point Likert scale instrument from the SUS questionnaire model is used in this project. Islamic Funeral management is a crucial knowledge especially for Muslim to know how to manage the death of a Muslim. Despite being important, most people lack awareness about the knowledge and the method of teaching this topic is ineffective resulting to a less number of people interested in learning it. This is why an application that educates people about this topic is made to make sure the importance of this topic is highly prioritized. The project aims to develop a VR game that specifies in learning Islamic Funeral Management through exploration and interaction between the user and virtual environment. Waterfall methodology and the 5point Likert scale instrument from the SUS questionnaire model is used in this project. The result shows that the project scores 65.75 which identified as C grade. Finding suggest that the application needs to improve on the interaction on learning Islamic funeral management. Future works can be applied to enhance the interaction between the user and the application.

Keywords: Islamic Funeral, Muslim, Virtual Reality (VR), application, waterfall, System Usability Scale (SUS),

PCMJ

Progress in Computer and Mathematics Journal (PCMJ)
volume 2 [August, 2025]
e-ISSN: 3030-6728
Website: fskmjebat.uitm.edu.my/pcmj

INTRODUCTION

Funeral management is a process of conducting the funeral for the deceased individual. There are many ways to manage the funeral depending on the individual religion, environmental beliefs, or a precedent set by past family members. But In Islam, funeral management consist of four process which is shower of the deceased, shroud the deceased with kafan which is a piece of white cloth that cover the body from head to toes, Solatul Janaazah (Islamic funeral prayer) and lastly burial (Jabatan Mufti Negeri Pulau Pinang, 2018). It is compulsory to know how to deal with the deceased as it is demanded as a fardhu kifayah, which means the obligation, as mandated by Allah SWT, rests upon the collective responsibility of those entrusted with it. When one individual assumes this duty, it fulfills the obligation. Conversely, if no one steps forward, all bear the weight of grave sin for their collective neglect (Muhammadong et al., 2021). Every soul will taste of death. And ye will be paid on the Day of Resurrection only that which ye have fairly earned (Marmaduke Pickthall, 1930). According to the holy Quran, it is stated that those who live will die eventually. So, it is crucial for people to take funeral management matters seriously.

It is crucial for part of the society to learn about the Islamic Funeral management, however there are significant number of individuals who are not familiar with the procedure for conducting an Islamic funeral. This is because they fear managing the corpse as it may haunt them (Yasnel, 2018) Dealing with corpses is not for everyone as there has been a long-standing story regarding the “badi” associated with human corpse. The story usually comes from the grave diggers as they often spend a significant amount of their time handling corpses. According to the beliefs of the Malay community, badi is related to an evil spirit or an unseen entity that is found in each object, living beings and condition (Yusof @ Salleh et al., 2023) Therefore, it is essential for people to overcome these fears, as there may come a time when they must manage funeral arrangements, particularly when it involves their own family members.

Thus, proactive measures are needed to educate individuals about funeral management. The simulation of funeral management is a unique solution that offers a way to embed knowledge about this topic to people. Recognizing the difficulties people encounter when handling this delicate issue, we have adopted a considerate strategy to meet their individual needs. The goal is for this application to function as a substitute teaching tool, assisting in

gaining fundamental understanding and proficiency in funeral management and, in the process, enhancing their competency in this vital field.

OBJECTIVES

The project aims to design and develop a VR application that teaches Islamic Funeral Management. VR will help in the process of learning due to its characteristics that allow user to interact and explore. The following specific objectives must be accomplished to achieve the primary goal: 1) To design a storyboard and 3D models for simulation application which teach people about funeral management. 2) To develop a simulation application that educates people step by step on how to do funeral management. 3) To evaluate the usability of the application that educates people about Islamic funeral management.

SIGNIFICANCE

The significant of this project is to expose the Muslim students 13 to 17 years old about the process of Islamic funeral management. This is because funeral management is crucial to preserve the true Islamic way of funeral management. This application can be served as an additional tool for teacher to teach students about Islamic funeral management. It allows the user to experience a similar real-life process of handling the funeral. As the topic is too many to remember and takes a long time to learn (Permatasari, 2021) .By doing it practically, the user can easily remember all the process rather than learn it in lectures way as hand on lesson a proven to be more effective.

LITERATURE REVIEW

Islamic Funeral Management

Every religion has its own way of managing the deceased, and Islam is no exception. Islamic funeral practices are guided by religious traditions and rituals, placing emphasis on simplicity, respect, and community involvement. An Islamic funeral is a spiritual occasion that adheres to a strict set of funeral customs and rites (Muslim Funeral Services, 2024). Islam demands that the body of the deceased be handled properly and honored. Allah commands that the body of the deceased is not to be burned; instead, it should be buried properly to prevent it

from being eaten by animals (alJami' li Ahkam al-Quran, 19/219). Islamic funerals consist of four process which is shower of the deceased, shroud the deceased with kafan which is a piece of white cloth that cover the body from head to toes, Solatul Janaazah (Islamic funeral prayer) and lastly burial. The mosque and hospital play significant roles in the funeral process. When a death occurs at the hospital, the deceased is initially prepared there, including the necessary showering. Subsequently, the body is transported to the mosque, where the entire funeral process, from the shower to the final prayer (Solatul Janaazah), takes place.

Non-Immersive VR

Non-immersive VR, also called semi-immersive VR, is when the user remains aware that they are viewing a virtual environment (Merel, 2015) .Unlike immersive VR, which completely shuts out the real world, non-immersive VR still allows users to view the real world to some extent. It has a limited field of view in the 15 virtual worlds, allowing users to maintain awareness of the real world. VR can only be controlled using 2D devices such as keyboards, mice, or touchscreens (Abdul Manaf et al., 2021) .Throughout the years, VR has served as a tool to help educate and learn from people. Despite many studies in this area, there is still controversy about the real effects of VR on learning and cognition, but preliminary results indicate that the use of VR can increase learning performance (Carpenter & Anderson, 1996) .Many companies and organizations have utilized VR as a learning tool, especially in education, medicine, and other professions. The perk of choosing non-immersive VR is that it is easily accessible and more affordable than immersive VR. This is because non-immersive VR can be used on devices like smartphones and computers.

Constructivism in VR

Knowledge is the result of the interrelations of the subject who has knowledge and the object to be known (Jean Piaget, 1973). From Piaget perspective, it shows that constructivism is well suited to the nature of VR which is immersive and interactive. Since constructivism emphasizes active learning where knowledge is gained through exploration and interaction, VR can be served as an ideal platform for the user to actively engage with the virtual environment, manipulate objects and experiencing hands on learning. The constructivist learning environment consists of four elements: scenario, conversation, collaboration and

meaning construction (Wang et al., 2022). The table below shows the constructivism learning environment elements.

Constructivist learning environment elements	Meaning of basic elements	Specific implementation
Scenario	Presenting learning scenarios	• Build 15 virtual scenarios based on the complete process of online teaching • Build a VR environment lab based on offline scenarios • Model design, animations, sound design, etc to make the scene realistic
Conversation And Collaboration	Complete data analysis and learning task challenges through communication and interaction between teachers and students learners and human machines	• Scene roaming provide user with the freedom to explore • HUD information guidance and navigation designs • Message alerts and feedback complete the teaching scene • Visualization of practical operation
Meaning construction	Acquire new knowledge and apply it in practice	• Presenting learning materials in rich forms such as text, pictures and animation • Visualization of invisible process in offline experiments • Knowledge answering and feedback as well as record answers and view results.

METHODOLOGY

Succeeding in building computer software requires that the Waterfall model be followed sequentially, with each stage of the development process being viewed as progressing downhill. When Winston W. Royce introduced the Waterfall model in 1970, it was intended to illustrate feasible software development process (Bassil, 2012). There are multiple steps in the

Waterfall model that must be performed in order, and only after the previous step has been finished can the following step be started. Figure 1 shows the Waterfall model's several phases.

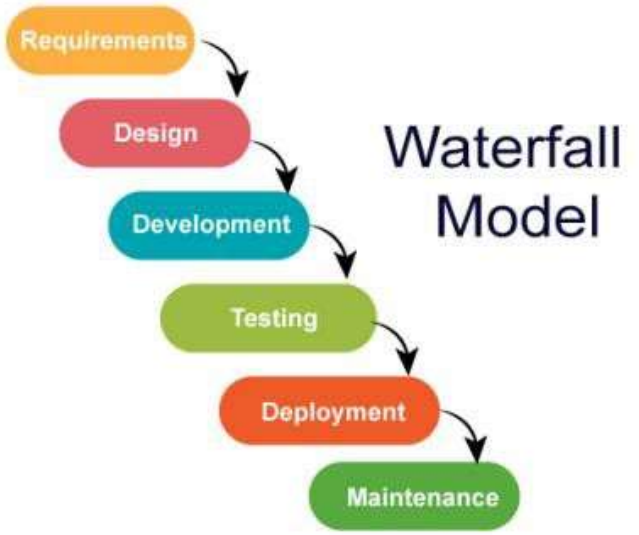


Figure 1: The phases of the Waterfall methodology

The waterfall model allows overlapping between phases making it very flexible. The waterfall model is divided into 6 phases, 1) Requirements, 2) Design, 3) Development, 4) Testing & Integration, 5) Deployment, 6) Maintenance.

PCMJ
Progress in Computer and Mathematics Journal (PCMJ)
volume 2 [August, 2025]
e-ISSN: 3030-6728
Website: fskmjebat.uitm.edu.my/pcmj

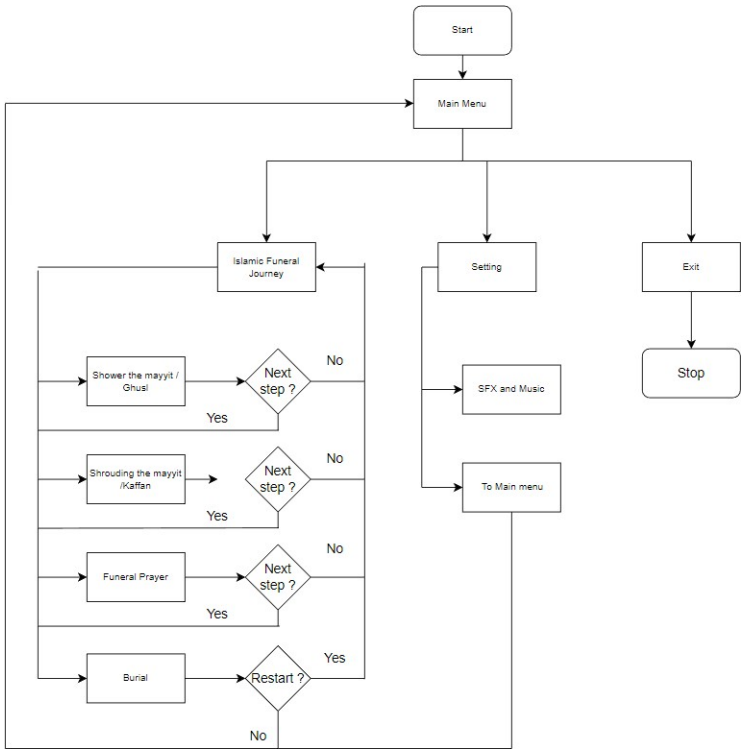


Figure 2: Flowchart of Islamic Funeral Management

A flowchart is a type of diagram that represents a workflow or process. A flowchart can also be defined as a diagrammatic representation of an algorithm, a step-by-step approach to solving a task. The flowchart shows the steps as boxes of various kinds, and their order by connecting the boxes with arrows. This diagrammatic representation illustrates a solution model to a given problem. Flowcharts are used in analyzing, designing, documenting, or managing a process or program in various fields. Figure 2 shows the overall flowchart of the project. The application starts at the main menu page, where the user can click Islamic Funeral Journey, setting, or exit. The player can click the exit button to close the program. If the user clicks the Islamic Funeral Journey button, it will proceed with the four options of Islamic Funeral process which is Shower, shroud, prayer, and burial. If the user clicks the shower process and finishes the shower process, the user will then have an option to continue to the next process which is shroud process. The process then continues the same for the prayer and burial. Users will have full control of their movement around the space. Next, when the user

Progress in Computer and Mathematics Journal (PCMJ)
volume 2 [August, 2025]
e-ISSN: 3030-6728
Website: fskmjebat.uitm.edu.my/pcmj

clicks setting, it will show the option of SFX and volume button where user can adjust the music and volume and main menu button.

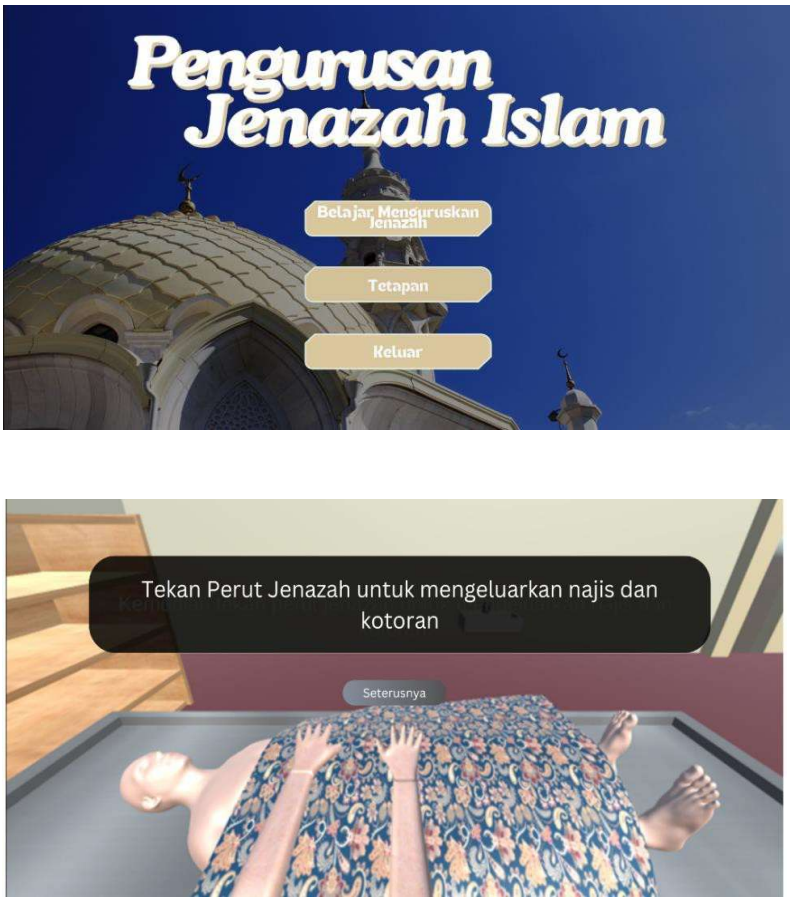


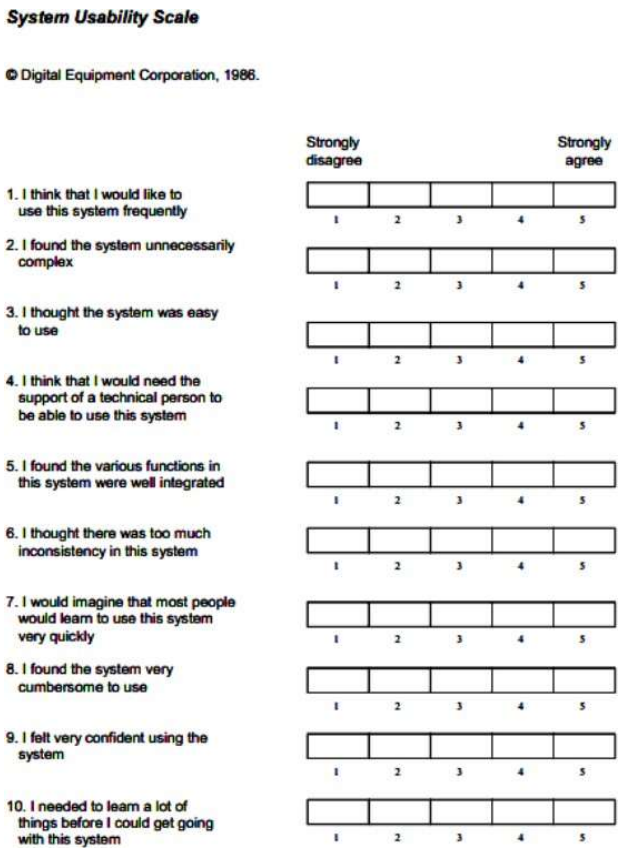
Figure 3: Part of the user interface

The application allow user to learn Islamic Funeral Management in Virtual Reality, providing a different type of approach in learning the process through exploration and interactive learning. It consists of the visuals of the action, the recitation in each process and the actual environment of the learning process. By learning four of the process which is shower of the deceased, shroud the deceased, funeral prayer and burial with a detailed step by step in non-immersive way, user were able to feel more close to the real life situation.

PCMJ
Progress in Computer and Mathematics Journal (PCMJ)
volume 2 [August, 2025]
e-ISSN: 3030-6728
Website: fskmjebat.uitm.edu.my/pcmj

RESULT AND DISCUSSION

To verify whether this project achieve the objectives or not which is the usability, Systen Usability Scale (SUS) questionnaire is used to evaluate the Non-Immersive VR: Islamic Funeral Management application. The participant who has used this application will be measuring the usability of this application after it finishes through the SUS question. This feedback allows users to find any lacking or user difficulties to be improved and fixed. Figure 4 shows the SUS questionnaire.



System Usability Scale

© Digital Equipment Corporation, 1986.

	Strongly disagree				Strongly agree
1. I think that I would like to use this system frequently	1	2	3	4	5
2. I found the system unnecessarily complex	1	2	3	4	5
3. I thought the system was easy to use	1	2	3	4	5
4. I think that I would need the support of a technical person to be able to use this system	1	2	3	4	5
5. I found the various functions in this system were well integrated	1	2	3	4	5
6. I thought there was too much inconsistency in this system	1	2	3	4	5
7. I would imagine that most people would learn to use this system very quickly	1	2	3	4	5
8. I found the system very cumbersome to use	1	2	3	4	5
9. I felt very confident using the system	1	2	3	4	5
10. I needed to learn a lot of things before I could get going with this system	1	2	3	4	5

Figure 4: SUS questionnaire

Demographic Findings

Based on the result of the data collection, gender distribution shows a little different in number between the representation of female and male where female is (n=17, 56.7%) and

male is (13, 43.3%). For the age distribution shows that all the participants are aged between 13 to 17 years old (30, 100%), while there are no participants below 13 years old and 17 years old above. These results are aligned with the project target age group where only age between 13 to 17 years old

SUS Questionnaire Findings

The SUS questionnaire contains 10 questions that ask participants to rate on a scale point with 5 level, range from strongly disagree (1) to strongly agree (5). For the odd numbers which is 1,3,5,7,9, it will be subtracted 1 from the score while for the even number which is 2,4,6,8,10 will be subtracted from 5. After the subtraction, the adjusted score for each item is total up together to get SUS raw score. Then the result will be multiplied by 2.5 to get a scale from 0 to 100 to be able to final score.

• Formula for SUS Raw Score

fx = (D2-1) + (5-E2) + (F2-1) + (5-G2) + (H2-1) + (5-I2) + (J2-1) + (5-K2) + (L2-1) + (5-M2)

• Formula for SUS Final Score

fx= N * 2.5

• Formula for average SUS Score

fx = Average (02:030)

• Total SUS Score and Average SUS Score

Item	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	SUS Raw Score	SUS Final Score
1	4	4	5	4	5	3	4	3	4	4	22	55
2	5	1	5	5	5	3	3	3	3	3	20	50
3	3	1	4	3	5	2	5	2	4	4	29	72.5
4	3	2	4	4	5	3	4	2	4	4	24	60
5	1	3	3	3	3	3	3	3	3	3	18	45

6	4	4	4	3	4	2	4	2	4	2	25	62.5
7	5	3	5	5	5	1	5	1	5	5	27	67.5
8	2	4	3	3	3	3	3	2	3	2	19	47.5
9	5	1	5	1	5	1	5	1	5	1	28	70
10	5	1	5	1	5	1	5	1	5	1	28	70
11	5	1	5	4	4	1	5	1	3	5	27	67.5
12	5	4	4	3	4	2	4	2	4	3	26	65
13	5	2	5	1	5	1	5	1	5	1	28	70
14	4	5	4	5	5	5	5	4	5	5	29	72.5
15	5	5	5	4	5	5	5	4	5	5	32	80
16	5	5	5	5	5	5	5	5	5	5	35	87.5
17	4	2	4	4	4	2	5	2	5	5	26	65
18	5	1	5	4	5	2	5	2	5	4	32	80
19	5	1	5	5	5	2	4	2	5	5	31	77.5
20	4	2	4	4	5	2	5	2	5	5	28	70
21	4	4	5	5	4	5	5	4	4	5	32	80
22	5	5	5	5	5	5	5	5	5	5	40	100
23	5	3	4	1	3	3	5	2	5	2	25	62.5
24	4	3	5	1	5	1	4	2	5	2	26	65
25	5	4	4	4	4	5	2	3	3	4	28	70
26	4	3	4	5	3	3	3	3	4	4	25	62.5
27	5	3	5	1	3	2	5	2	4	1	25	62.5
28	4	2	4	4	4	3	4	2	4	4	26	65
29	4	1	5	1	3	3	5	2	5	2	27	67.5
30	5	1	5	1	5	1	5	1	5	1	28	70
Average SUS Score												65.75

Overall Findings

Based on the average score displayed, the obtained total average score is 65.75. Based on table, a table by Lewis & Sauro to grade the SUS percentile, the grade for this project is C which the adjectives rating is “okay”.

Table 1 :SUS Grade (Lewis & Sauro, 2018)

Grade	SUS	Percentile Range
A+	84.1 - 100	96 - 100
A	80.8 – 84.0	90 - 95
A-	78.9 – 80.7	85 - 89
B+	77.2 – 78.8	80 - 84
B	74.1 – 77.1	70 - 79
B-	72.6 – 74.0	65 - 69
C+	71.1 – 72.5	60 - 64
C	65.0 – 71.0	41 - 59
C-	62.7 – 64.9	35 - 40
D	51.7 - 62.6	15 - 14
F	0 - 51.6	0 - 14

CONCLUSION

To conclude, The Non-Immersive VR: Islamic Funeral management application has proven to be useful in learning how to manage Islamic Funeral. Learning in VR has provided a more engaging and effective way, where user can experience scenery similar to real world. Thus, increasing the outcome of the learning processes. Therefore, this can be an alternative method in learning the process of Islamic Funeral Management.

REFERENCES (APA 7TH EDITION)

Abdul Manaf, M. B., Bt Sulaiman, S., & Bt Awang Rambli, D. R. (2021). Immersive and Non-Immersive VR Display using Nature Theme as Therapy in Reducing Work Stress. Proceedings - International Conference on Computer and Information Sciences: Sustaining Tomorrow with Digital Innovation, ICCOINS 2021, 276–281. https://doi.org/10.1109/ICCOINS49721.2021.9497220

Carpenter, T., & Anderson, L. (1996). Using virtual technology for learning design skills. Proceedings of ED MEDIA 96.

Jabatan Mufti Negeri Pulau Pinang. (2018). Pengurusan Jenazah & Pusara (2nd ed.). Jabatan Mufti Negeri Pulau Pinang.

Jean Piaget. (1973). Psychology and Epistemology : Towards a Theory of Knowledge. Allen Lane.

Lewis, J. R., & Sauro, J. (2018). Item Benchmarks for the System Usability Scale. In Journal of Usability Studies (Vol. 13).

Marmaduke Pickthall. (1930). The Meaning of The Glorius Koran (1st ed.).

Merel, T. (2015, July). The 7 drivers of the $150 billion AR/VR industry. TechCrunch.

Muhammadong, Lukman, & Susiwati. (2021). BIMBINGAN PELAKSANAAN FARDHU KIFAYAH PADA JENAZAH. SEMINAR NASIONAL HASIL PENGABDIAN 2021 "Penguatan Resit, Inovasi, Dan Kreativitas Peniliti Di Era Pandemi Covid-19" ISBN: 978-628-387015-3 .

Muslim funeral services. (2024). Funeral Partners . https://corporate.funeralpartners.co.uk

Permatasari, R. M. (2021). STRATEGI PEMBELAJARAN INTERAKTIF DI ERA PANDEMI MELALUI MEDIA ONLINE BAB.

Wang, F., Li, A., & Wu, J. (2022). Using Virtual Reality to Enhance the Teaching of Kiln Firing of Ceramic Products. Proceedings - 2022 IEEE International Conference on Teaching, Assessment and Learning for Engineering, TALE 2022, 155–159. https://doi.org/10.1109/TALE54877.2022.00032

Yasnel. (2018). El-Ibtidaiy: Journal of Primary Education 72 |. Journal of Primary Education, 1(1), 72–89.

Yusof @ Salleh, M. Y., Ahmad, M. S., Hassan, P., Zainal Abidin, M. Z. H., Abd Razak, M. I., Ibrahim, N. A., & Ramli, M. A. (2023). The Perspective of the Malay-Muslim Undertaker on the Badi of a Human Corpse. International Journal of Academic Research in Business and Social Sciences, 13(4). https://doi.org/10.6007/ijarbss/v13-i4/16675