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Effectiveness of e-Deaf (*Fiqh Jenazah* for Deaf): As a Learning Aid for the Deaf Students

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Abstract: *This study examines the effectiveness of using the innovative product e-Deaf: Fiqh Jenazah for Deaf as a learning aid for deaf and mute students in understanding Fiqh Jenazah. The e-Deaf product is designed as an interactive platform with visual, text, and animation content tailored to the communication needs of the target group. The objective of this study is to evaluate the effectiveness of the e-Deaf website (Fiqh Jenazah for Deaf) in helping deaf and mute students understand the concept of funeral management. This research adopts a quantitative approach through action research involving a pre-and post-test design to assess the effectiveness of e-Deaf in enhancing comprehension of funeral management. Descriptive analysis methods were used to analyze the data collected. The study involved respondents among hearing-impaired students at Politeknik Kota Kinabalu. The overall findings of the study revealed a significant increase in scores, with a 74% improvement in skills related to recognizing, signaling, and answering questions after the intervention. These findings indicate that teaching aids like e-Deaf have the potential to enhance specific cognitive abilities among deaf and mute students. In conclusion, the integration of innovative technology in Islamic education for special needs groups is an appropriate approach toward inclusivity and lifelong learning.*

Keywords: e-Deaf, *Fiqh Jenazah*, special education, innovation, hearing-impaired community

1. Introduction

Islamic education is a crucial foundation in shaping the identity and character of Muslims, including those with hearing impairments. However, this group often faces challenges in understanding worship practices, including Fiqh Jenazah, due to communication constraints and a lack of suitable learning materials. According to Norazah Nordin et al. (2016), the use of technology and interactive media can help special needs students enhance their understanding of various topics.

Fiqh Jenazah, which encompasses funeral rites such as bathing, shrouding, funeral prayer, and burial, is basic knowledge every Muslim needs to learn. However, for hearing-impaired individuals, the absence of effective teaching methods often leaves them behind in this area (Abu Bakar et al., 2018). A study by Yahaya et al. (2019) also emphasized the importance of developing user-friendly, technology-based learning resources to improve religious literacy among special education students.

In response to this issue, e-Deaf: Fiqh Jenazah for Deaf was introduced as an interactive learning platform specifically designed to meet the communication needs of hearing-impaired individuals. By integrating visual, textual, and animated elements, this product has the potential to serve as an effective and inclusive learning aid. This study aims to evaluate the effectiveness of e-Deaf in improving understanding of Fiqh Jenazah among the hearing-impaired community.

2. Literature Review

The primary challenge in Islamic education for hearing-impaired individuals lies in the lack of specific learning materials that utilize Malaysian Sign Language (BIM) to explain Islamic terminology (Dzulkifli et al., 2022). Studies have found that students struggle to comprehend worship practices such as prayer, fasting, and funeral management due to the lack of interactive and comprehensible teaching methods.

Several studies recommend interactive technology as an innovative approach to help hearing-impaired students understand religious concepts. For instance, Norazah Nordin et al. (2016) highlighted that multimedia technology facilitates information delivery through a combination of text, visuals, and animations. In this context, e-Deaf: Fiqh Jenazah for Deaf is an innovation aligning with these needs, offering a user-friendly interactive approach.

Yahaya et al. (2019) asserted that Islamic education must be inclusive and consider the unique needs of special education students. Through innovations like e-Deaf, deaf students have an opportunity to deepen their understanding of religious knowledge effectively. This initiative also contributes to strengthening the faith of the hearing-impaired community, who are often exposed to religious propagation by other faiths using sign language more extensively (Syar Meeze Mohd Rashid, 2017).

3. Problem Statement

Hearing-impaired individuals frequently face significant challenges in understanding Islamic Education terminology, including aspects of worship and Fiqh Jenazah. A major issue is the lack of learning materials suitable for their needs, such as the limited use of Malaysian Sign Language (BIM) in translating Islamic terms. Additionally, educators and preachers often lack proficiency in BIM, leading to ineffective communication between teachers and deaf students (Syar Meeze Mohd Rashid, 2019; Ministry of Education Malaysia, 2020). Furthermore, outreach efforts to this community are also less aggressive compared to other religions, which actively provide learning materials using sign language. This can potentially jeopardize the understanding of Islamic faith and practices among the deaf community if not addressed promptly (Syar Meeze Mohd Rashid, 2017).

Moreover, these students require technologically equipped learning aids during their teaching and learning sessions. Hence, innovations like e-Deaf (Fiqh Jenazah for Deaf) are needed as an alternative to overcome these challenges (Roslin & Salleh, 2021; Yasin et al., 2010).

4. Objectives

The purpose of this study is to evaluate the effectiveness of the e-Deaf website in assisting deaf and mute students in understanding funeral management concepts through the interactive materials provided.

5. Importance of the Study

According to Nur Hanisah and Mohd Isa Hamzah (2021), interactive learning methods or gamification techniques offer numerous benefits. These materials, conveyed through text, visual graphics, words, animated videos, and audio, enrich the learning experience. Renee and Timothy (2021) suggested that, despite differences in pedagogical approaches, active learning can enhance student engagement, boost motivation, improve memory processes, foster higher-order thinking skills, and refine the overall learning experience.

Gamification involves emotions such as curiosity, critical thinking in making choices, and feelings of joy upon completing challenges. This study allows researchers to evaluate the effectiveness of interactive learning in the teaching and learning context of deaf and mute students, particularly in enhancing their comprehension. Interactive learning possesses captivating features adaptable to individual student learning styles, motivating them and increasing their engagement. Indirectly, it also helps nurture problem-solving skills through multiple levels of online games. The use of positive reinforcement in the software can further encourage students to persevere and make learning more enjoyable.

6. Methodology

This study adopts an action research approach to evaluate the effectiveness of the interactive learning platform e-Deaf for deaf and mute students at Politeknik Kota Kinabalu. Action research involves reflective inquiry to gather and analyze data (Balakrishnan, 2017; Mustapha & Rahim, 2008). This method is suitable for directly obtaining information from study participants, making it an appropriate means to validate the website's effectiveness. Action research is characterized by empirical, systematic, valid, and reliable features, enabling precise actions to be undertaken (Balakrishnan, 2017).

The study involves four semester-two students enrolled in the Special Skills Certificate under the Tourism and Hospitality Department, Politeknik Kota Kinabalu, as research samples to assess the effectiveness of the e-Deaf website. These students struggle with understanding terms and vocabulary in the topic of funeral management and lack proficiency in using technological tools. The study was conducted in real-life settings before and after using e-Deaf. The samples were selected using random sampling techniques.

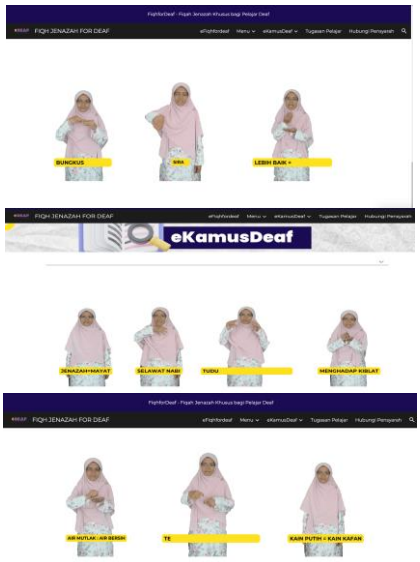
The instruments included initial observations conducted through interviews, pre-tests, and post-tests. The collected data was analyzed using descriptive analysis methods. All instruments were validated by a panel of six members, comprising three experts in Special Hearing Education and three in Islamic Education.

7. Data Collection Methods

The researchers took several steps to ensure the effective implementation of e-Deaf. The first step was preliminary observation, where they identified challenges during previous teaching sessions. Observations revealed that students struggled to understand terms used in funeral management, including sounds and signal codes, as sign language related to Islamic Education terms is very limited. Hence, the researchers created a digital sign language dictionary, eKamusDeaf, for commonly used terms in funeral management as a reference for students.

The second step involved action planning, where action research was designed to address students' difficulties in memorizing the basics of funeral management. The third step was implementing interventions using various strategies and approaches. Researchers conducted observations, interviews, as well as pre-tests and post-tests, before and after using e-Deaf to evaluate the website's effectiveness. Teaching sessions were conducted with interpreters to facilitate data collection and monitor the website's impact.

Table 1: Steps in Daily Teaching Plan for e-Deaf

Steps / Time / Visual Evidence	Activity
Introduction (5 minutes) 	The instructor begins by using sign language to signal the recitation of a prayer before starting the lesson. The instructor shows a video of funeral management scenes on the screen. Students are asked to share their opinions using sign language based on what they observe.
Explanation Activity (20 minutes) 	The instructor presents an interactive video from the e-Deaf website, complete with captions and signal codes, alongside an infographic showcasing the basic steps of funeral management. Four students watch the video presentation covering the topic being discussed, specifically the Funeral Prayer.
Interactive Practical Activity – Guess the Signal (15 minutes) 	After receiving the explanation via the interactive video, students are asked to identify the signal codes related to funeral management. They are given 15 minutes to memorize these signals. Afterward, the instructor selects a student to come forward and demonstrate one of the signals in front of the others. The remaining students must guess the signal by writing their answers on the whiteboard.
Reinforcement Activity (Interactive e-Deaf Quiz) (15 minutes)	Students are tasked with choosing questions in a game-based quiz format

<table>
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<td>using platforms like Wordwall and Quizizz. During this step, the instructor observes the students' cognitive skills in understanding fundamental knowledge on the Funeral Prayer topic. The "learning through play" approach encourages interactive participation in the teaching and learning session. The instructor also evaluates the students' ability to master the learning content according to their proficiency levels. This step aims to strengthen the vocabulary learned during the earlier part of the session.</td>
</tr>
<tr>
<td>Closure (5 minutes)
 
</td>
<td>Students are required to record a video of their feedback and learning reflection in sign language, then upload it to a designated space. The instructor evaluates the effectiveness of e-Deaf based on the students' submitted scripts and feedback.</td>
</tr>
</table>

7.1 The Researcher's Implementation of Study Sessions

The researcher conducted four learning sessions based on Table 1. During each session, participants were taught to identify, signal, memorize, and answer questions using all interactive teaching aids available in e-Deaf. The interactive platform included slides for each topic, paired with signals, videos, the eKamus Deaf (Deaf Dictionary), and digital game-based quizzes.

Once participants successfully identified and signaled correctly, they advanced to the eKamus Deaf section, where they were required to guess the meanings of signals commonly used in funeral management. This session tested their understanding of terms related to funeral management. If they were unable to answer, they had to repeat the session.

Participants then engaged with interactive quizzes available through applications such as Wordwall and Quizizz. These activities aimed to reinforce the vocabulary they had learned from the slides and eKamus Deaf materials.

As a final step, the e-Deaf platform provided references on current issues sourced from the Mufti Wilayah portal, offering participants additional knowledge on funeral management.

7.2 Data Collection

The data collection involved:

1) Transcription of Interviews: Fully typed interview transcripts to facilitate analysis.
2) Pre-tests and Post-tests: Conducted to assess the effectiveness of e-Deaf in learning outcomes.
3) Descriptive Analysis: Observations to demonstrate changes in participants' understanding before and after the study.

The data was analyzed and interpreted to report the effectiveness of e-Deaf based on evidence gathered from the study respondents.

8. Findings

8.1 Findings Before Using e-Deaf

The study's results prior to students utilizing e-Deaf revealed unsatisfactory score percentages. Table 2 displays the findings recorded before the implementation of e-Deaf.

Table 2: Findings before using e-Deaf

Item	Student A	Student B	Student C	Student D
Section A: Identifying & Signaling	4/10	3/10	1/10	3/10
Section B: Cognitive Skill (Answering Question)	0/10	2/10	0/10	2/10
Total Marks	**4/20**	**5/20**	**1/20**	**5/20**
Percentage	**20%**	**25%**	**5%**	**25%**

Table 2 above illustrates the study results before students utilized the e-Deaf platform. The findings indicate that most students struggled with identifying, signaling, and answering questions during the study. Overall, it was concluded that all participating students failed to achieve half of the total possible score in the identification and signaling activities related to funeral management terms. On average, students were only able to identify and signal fewer than two funeral management terms given.

In Section B of the quiz questions, students B and D both scored 2 out of 20, while students A and C failed to answer any questions correctly. This shows that the cognitive skills required to answer the given questions were at a very weak level.

8.2 Findings After Using e-Deaf

The results obtained after the deaf and mute students used e-Deaf as a teaching aid in funeral management lessons showed significant score improvements. Table 3 illustrates the findings after e-Deaf implementation.

Table 3 highlights that all students demonstrated improved scores compared to their performance before using e-Deaf.

Table 3: Findings After Using e-Deaf

Item	Student A	Student B	Student C	Student D
Section A: Identifying & Signaling	9/10	10/10	8/10	10/10
Section B: Cognitive Skill (Answering Question)	9/10	10/10	8/10	10/10
Total Marks	**18/20**	**20/20**	**16/20**	**20/20**
Percentage	**90%**	**100%**	**80%**	**100%**

The findings presented in Table 3 illustrate the outcomes achieved by deaf and mute students after utilizing e-Deaf in this study. The results show a significant improvement in scores compared to before the e-Deaf platform's implementation.

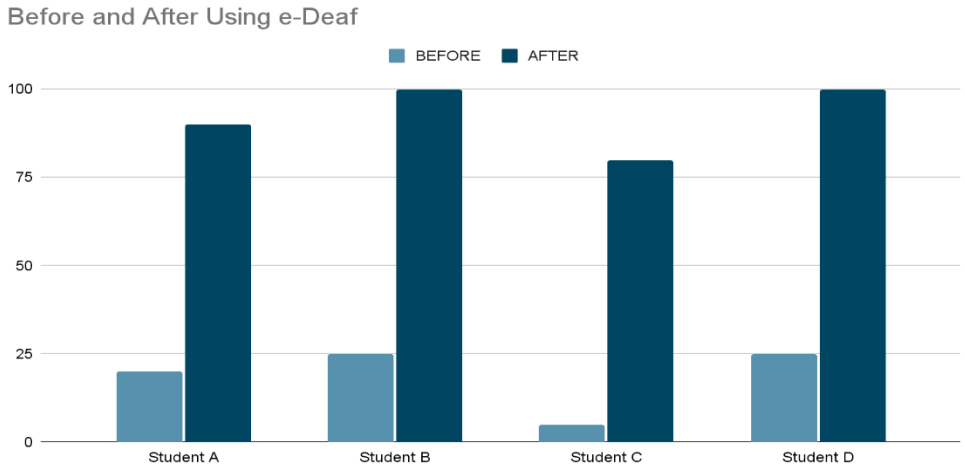
In Section A of the evaluation form (refer to Appendix B), the data indicates that all students successfully identified and re-signaled the list of animals provided. Meanwhile, in Section B of the evaluation form:

- Students B and D successfully signaled all ten terms correctly.
- Student A scored nine out of ten.
- Student C achieved eight out of ten correct answers in the activity of identifying and signaling funeral management terms.

Overall, these findings demonstrate a remarkable improvement in the percentage scores of students participating in the study.

8.3 Analysis of Findings Before and After Using e-Deaf

The graphical data shows a positive impact on students after using e-Deaf in this study.



Based on the analysis:

- Student A's score increased from 20% to 90%.
- Student B achieved an improvement from 25% to 100%.
- Student C's performance rose from 5% to 80%.
- Student D similarly improved from 25% to 100%.

Additionally, the graph indicates that Students B and D demonstrated higher abilities in identifying, signaling, and answering quiz questions compared to other students. This is evident as, prior to using e-Deaf, both students scored 25%, while the others scored below this threshold. However, Students A and C did not achieve the perfect 100% performance attained by Students B and D after using e-Deaf.

9. Discussion

The findings of this study reveal a significant difference in the data collected before and after the use of e-Deaf by deaf and mute students at Politeknik Kota Kinabalu. The research confirms that utilizing technology and supportive tools can positively influence these students' learning experiences. The results highlight a clear improvement in student performance after using the e-Deaf learning platform, emphasizing the vital role of technology in enhancing their classroom learning. This aligns with previous studies underscoring the importance of technology in improving teaching and learning effectiveness (Abdullah, 2017; Baharudin et al., 2023; Roslin & Salleh, 2021; Yasin et al., 2010).

The study also found variations in individual student performance, reflecting differences in their understanding and ability to engage with technology. This observation aligns with past findings, suggesting that individual factors impact student achievement even when technology is used in learning (Ismail et al., 2021; Mahlan & Hamat, 2020). Overall, students showed improvements in identifying, signaling, interpreting, and answering quiz questions, particularly after using e-Deaf. These findings demonstrate that technology can have a positive impact, regardless of students' diverse needs and levels of ability.

In general, e-Deaf plays a critical role in enhancing students' capabilities to identify and signal funeral management terms, especially for deaf and mute learners. The technology also facilitates teachers and lecturers in delivering information more engagingly and effectively. Furthermore, e-Deaf enriches students' vocabulary and fosters a conducive and innovative learning environment, which directly motivates students to participate more enthusiastically in their learning sessions.

9.1 Implications of the Study

This study highlights that using e-Deaf significantly benefits special-needs students, particularly those who are deaf or mute. The platform showed substantial improvement in their ability to identify, signal, and grasp concepts effectively. Interactive platforms like e-Deaf offer students the opportunity to access more engaging and suitable learning materials. Teachers can use this tool as an effective teaching aid, making learning sessions more impactful while enhancing student involvement.

Beyond improving daily academic learning in institutions, e-Deaf also empowers students by equipping them with fundamental skills such as recognizing sign language, reading text, and understanding visually presented information. The inclusion of interactive elements such as animations, videos, and sound makes learning easier and provides students with opportunities to practice in a fun and stimulating environment.

In alignment with educational policies, special needs students are entitled to equal education opportunities as their mainstream counterparts (Ab Rahman et al., 2020; Abdullah, 2017; Abol & Nordin, 2023; Agus, 2021; Lawrence-Brown, 2004). The technological elements in e-Deaf encourage these students to become more creative and active participants in the learning process. This is supported by the Special Education Program implemented in Malaysia, which emphasizes infrastructure, teaching aids, and methodologies tailored to the needs of special education students, alongside a focus on lifelong learning.

According to Wong, Liew, and Tang (2023), technologies like interactive learning apps and digital platforms significantly improve educational effectiveness for deaf and mute students. Their study demonstrated how user-friendly platforms with visual and animated features enhanced students' motivation and provided better opportunities to understand complex concepts. This supports the findings of Nurhanisah and Mohd Isa Hamzah (2021), who stressed that gamification approaches and interactive media foster a passion for learning and accelerate academic achievement for special-needs students.

Thus, interactive technologies like e-Deaf introduce a new dimension in educating deaf and mute students, not only supporting academic performance but also empowering them to communicate and interact effectively in everyday life.

10. Conclusion

This study has proven that e-Deaf is highly suitable as a learning aid for deaf and mute students at Politeknik Kota Kinabalu. e-Deaf has successfully enhanced students' understanding of various terms related to funeral management by improving their ability to identify and signal using the platform. This learning tool provides deaf and mute students the opportunity to engage in a teaching and learning process based on technological elements in line with globalization. Consequently, this study indirectly supports lecturers teaching deaf and mute students by improving vocabulary and terms that are often misunderstood, particularly in the

context of Islamic education. This digital learning approach confirms that such individuals are not left behind in the rapidly evolving technological world.

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