AL-LISAN: JURNAL BAHASA
Publisher: LPPM IAIN Sultan Amai Gorontalo
ISSN: 2442-8965 E-ISSN: 2442-8973
Volume 10, No. 1 February 2025
Journal Homepage: https://journal.iaingorontalo.ac.id/index.php/al

Exploring Functional and Emotional Aspects of the Arabic Muslim Adventure Application Based on Don Norman's Hierarchy of Design

[1]Isma Fathanah (Corresponding Author)
ismafathanah@upi.edu
Arabic Language Education Department, Faculty of Language and Literature Education, Indonesian University of Education, Indonesia

[2]Mohamad Zaka Al Farisi
zaka@upi.edu
Arabic Language Education Department, Faculty of Language and Literature Education, Indonesian University of Education, Indonesia

[3]Hikmah Maulani
hikmahmaulani@upi.edu
Arabic Language Education Department, Faculty of Language and Literature Education, Indonesian University of Education, Indonesia

ABSTRACT

Background: This research discusses the Arabic Muslim Adventure application, an interactive app designed to help students learn Arabic through a game-based learning approach. The main issue explored is how this application affects students' functional and emotional engagement.
Aims: This research aims to explore the extent to which Don Norman's hierarchy of design is applied in the user-centred AMA application from functional and emotional aspects.
Methods: The research method used a descriptive qualitative approach. Data sources were obtained from field observations and interviews with participants. Sampling was carried out using a non-probability sampling technique with purposive sampling based on gender. The participants in this research were eight elementary school students. The data collection technique was carried out through two stages, namely observations and interviews. The data analysis process through: data display, data verification, and conclusion drawing.
Results: AMA is easy to use because of the familiar icons and useful to help understand Arabic vocabulary. The AMA application has an Islamic cultural identity and attractive visuals that successfully increase learning motivation. Some improvements are proposed, such as adding notifications on the charades game and clearer explanations in the *mufradat* section. This application successfully combines functional and emotional aspects that create positive responses.
Implications: This research is expected to provide new insights into the importance of a user-centred design approach in the development of educational applications, especially in the context of Arabic language education.
Keywords: Interactive application; hierarchy of design; Arabic language learning; vocabulary; Arabic Muslim adventure

Article Info:
Received: 22 December 2024
Accepted: 03 February 2025
Published: 20 February 2025
How to cite:
Fathanah, I., Al Farisi, M. Z., Maulani, H. (2025). Exploring Functional and Emotional Aspects of the Arabic Muslim Adventure Application Based on Don Norman's Hierarchy of Design. *Al-Lisan: Jurnal Bahasa (e-Journal),10*(1), 59-71.
https://doi.org/10.30603/al.v10i1.6122

1. INTRODUCTION

Learning media play a crucial role in the teaching and learning process, as they serve as effective tools in facilitating communication between students and teachers (Winangsih & Harahap, 2023). Learning media are not only used to deliver information but also help foster

students' interest, motivation, and comprehension. Additionally, these media provide learning stimuli that influence students' psychology, thereby enhancing their engagement and learning outcomes. Therefore, selecting and utilizing the right media is essential for creating an effective learning environment (Rahmi, 2021). However, despite the significant role of learning media, their use remains limited. Many teachers have yet to maximize the potential of technology due to several factors, such as limited access, lack of training, and insufficient understanding of digital media (Molyda et al., 2024).

As stated by Jamil & Agung (2022), Arabic language learning is still perceived as monotonous by many students. This is because the teaching methods are more theoretical and less interactive, such as the lecture method, which often does not align with students' current learning styles. The preferred approach among students is game-based learning, which can enhance student engagement and make the learning process more enjoyable (Barz et al., 2024). Furthermore, Manan & Nasri (2024) emphasize that students struggle to learn Arabic effectively without adequate visual and auditory support. Another challenge, as noted by Sutinalvi et al. (2025) is that the limited classroom time in formal education is insufficient for mastering Arabic. As a result, students require media that can be accessed independently outside the classroom. These challenges highlight the increasing need for digital learning media.

Therefore, there is a need to develop or create more engaging learning media that aligns with the advancements of the times. In today's digital age, knowledge and technology are evolving rapidly, requiring teachers to learn or use modern learning media beyond just PowerPoint (Molyda et al., 2024). Teachers must be open to digitalization, as digital platforms facilitate the learning process for both teachers and students. Thus, teachers must master digital learning (Saleh et al., 2022).

The development of digital technology opens opportunities for education to utilize digital-based learning media. Integration of digital technology into the learning process has great potential to increase flexibility, effectiveness, and student engagement (Masarroh et al., 2024). Digital learning media suitable for the current era include animation or digital videos, podcasts, augmented reality, virtual reality, educational games, interactive e-modules, and PowerPoint. The selection of digital learning media should be adapted to students' learning styles, to meet their learning needs. By creating a student-centered learning environment, it is hoped that meaningful and independent learning can be achieved (Hafizah, 2023).

One of the applications of technology as a learning medium is the Arabic Muslim Adventure (AMA). AMA is an interactive learning medium developed in 2023 in Indonesia, designed to help learners acquire Arabic vocabulary through an engaging approach. The AMA application includes various vocabulary materials related to professions in Arabic, encompassing vocabulary, sentences, and texts. The vocabulary is accompanied by pronunciation guides to help students imitate, pronounce, and memorize words. In addition to providing learning content, AMA also features games related to the material as a means of evaluating learning outcomes. AMA is a public application available for free download, although its distribution is currently limited and can only be shared among users through messaging apps such as WhatsApp (Hastani et al., 2024).

Alongside its presence, it is assumed that it is important to evaluate to ensure that the media can be used effectively to meet user expectations and achieve the desired learning objectives (Miftah et al., 2022). This is reinforced by Sarip et al. (2022), who stated that media must be designed with specific principles to ensure content validity and good readability, helping students better understand the material more effectively. One effective method to ensure that this application is functional and emotional in the learning process is to apply the Hierarchy of Design (HoD).

HoD plays a crucial role in enhancing engagement and facilitating social connectivity by strategically organizing design elements. It helps designers systematically map the user experience, addressing users' needs both functionally and emotionally (Mkpojiogu et al., 2022). This aligns with Norman, one of the pioneers in advancing knowledge related to the user-centered application of HoD. He emphasized the importance of user involvement at every stage of the design process to produce truly relevant outcomes, meeting users' functional and emotional needs (Norman et al., 2021).

Norman introduced HoD, which consists of three levels: (1) Visceral design, which relates to the instant emotional reaction toward a product's appearance and first impression, particularly in terms of aesthetics such as color, shape, and texture. At this stage, the design focuses on the product's visual appeal and the immediate feelings users experience when they first encounter it; (2) Behavioral design, which encompasses the functional aspects and usability of the product. An effective and easy-to-use product will create a positive user experience; and (3) Reflective design, which is associated with the deeper meaning users attribute to the product from a personal perspective. This involves their reflections after using the product, including the perceived value and emotional impact of their experience. These three levels complement each other and are essential considerations in creating a product that is not only functional but also shapes user experience and emotional responses (Norman, 2004).

1.1 Research Gap and Novelty

This research fills a gap in studies on the application of user-centered HoD in the context of Arabic language learning applications, particularly AMA. Although many studies have discussed HoD in the development of general applications, the relationship between users' functional and emotional engagement in technology-based Arabic learning applications, such as AMA, remains limited. This research offers a new contribution by exploring how user-centered design and HoD can be integrated to create a more effective and enjoyable learning experience while also providing insights into its impact on students' learning motivation.

1.2 Research Question

The research questions for this study are: (1) Does the technical use of AMA provide user insights based on functional and emotional engagement, particularly for Arabic language learners? (2) What are the users' recommendations for further development to create a more functional and emotionally engaging application for AMA users?

Thus, this research aims to explore the extent to which user-centered HoD relates to functional and emotional engagement with the AMA application. Through this study, it is hoped that new insights can be gained regarding the importance of a user-centered design approach in the development of educational applications, particularly in the context of Arabic language education. Furthermore, this research also aims to provide recommendations for further development in creating applications that are more functional and emotionally engaging for users.

2. METHODS

2.1 Research Design

This research employed a descriptive qualitative design. Using a descriptive approach, the study outlines the functional features of the application based on Don Norman's design levels (Visceral, Behavioral, and Reflective). It analyzes the emotional aspects experienced

by users when interacting with the application, including its appearance, user experience, and long-term impact. The research aims to produce concrete recommendations for the development or refinement of the application to better align with the needs and preferences of AMA users.

2.2 Subject/Participants

Sampling was conducted using a non-probability sampling technique, specifically purposive sampling based on gender, where elementary school students were selected as the research sample. The participants in this study consisted of eight individuals, four males and four females. This selection was based on the number of male students in one elementary school class. Below is the list of participants involved in the interviews.

Table 1 Interview Participants Based on Gender

No	Code Participant	Age
1	Ml-EFN	12 years
2	Ml -KA	10 years
3	Ml -MIH	8 years
4	Ml -MR	11 years
5	Fl-ALK	10 years
6	Fl-IY	9 years
7	Fl-NYF	13 years
8	Fl-RKA	11 years

Description: Ml = Male; Fl = Female. The age range of 8–13 years is considered relevant because at this stage students experience rapid cognitive development, especially in terms of logical thinking, problem-solving, and understanding abstract concepts. The AMA application is suitable for this age range as it utilizes interactive games that align with their learning methods. According to Piaget's theory, children aged 7–11 are in the concrete operational stage, where they begin to understand basic logic. By the age of 12 and above, they enter the formal operational stage, characterized by improved abstract thinking abilities (Pakpahan & Saragih, 2022).

2.3 Research Procedures

In this study, the research procedure consists of the following steps:

1. Participant Selection: Sampling was conducted using purposive sampling to select participants based on the criteria of elementary school students. The total number of participants in this study was eight, consisting of four males and four females.
2. Data Collection, carried out through: (1) Observation: Conducted to observe how students interact with the AMA application, focusing on the functional and emotional aspects of the participants. The observation lasted for two days. The researcher applied contextual inquiry by observing participants in their learning environment for 30 minutes each. The observation was conducted in a natural setting without intervention from the researcher, and the researcher noted aspects such as challenges faced, emotional reactions, and observations regarding the meaning and value of the application in creating an emotional connection with the participants; and (2) Interviews: Semi-structured interviews using the 5W 1H approach were conducted to gain deeper insights into the students' experiences with the application. The interviews took place over two days. There were 15 main questions, with additional questions as needed. Topics discussed included the visual design of the application, the ease of use for participants,

and the perceived meaning of the application as experienced by the participants.

3. Data Analysis: The collected data will be presented through data display, data verification, data reduction, and concluding, which will be discussed in more detail in the data analysis section.

2.4 Research Instruments

The data collection technique was carried out in two stages, observation and interviews. Observation was conducted to understand how users interact with the AMA application. Through direct observation, the researcher can identify aspects that users might not be aware of or may not explicitly express. In this case, the researcher acted as a passive observer (non-participatory) to minimize the influence on user behavior during the observation. The researcher used the contextual inquiry observation technique. This technique was chosen because the researcher aimed to study the extent to which the AMA application implements the HoD, including identifying features that might be difficult to access and providing recommendations based on user perspectives. The indicators observed included participants' reactions to AMA, both verbal and non-verbal, observations of the application's responses, and observations of the meaning and value of the application in creating an emotional connection with the participants. Interviews: The interview method used was semi-structured. The questions were designed to explore what users see, hear, think, and feel when interacting with AMA. Additionally, the interviews aimed to understand the emotional, functional, and suggestions users have using the 5W 1H approach. This study involved several participants from elementary school levels, differentiated by gender, to gain a broader perspective on the discussed topics. The indicators questioned included participants' feelings about AMA, any challenges or ease they encountered while using the app, and their observations regarding the meaning of AMA as perceived by the participants.

2.5 Data Analysis

The data analysis process includes data display, data verification, data reduction, and conclusion. In the data display stage, the interview results are transcribed into text to facilitate analysis. Data reduction is performed to focus on the data most relevant to the research objectives and condense any insignificant information. Then, in the data verification stage, the obtained data will be matched with the HoD concepts. Based on this verification, the researchers then conclude it.

The researcher ensures data validity by comparing the results of the observations and interviews to confirm the consistency of the data. Additionally, the researcher asks participants to review the interview transcripts to ensure that the data interpretation aligns with their experiences. Furthermore, the data verification process with the HoD concept is based on the consistency among theoretical triangulation; using more than one theory or perspective to analyze the data to gain a broader understanding.

3. FINDINGS AND DISCUSSION

3.1 Findings

Below is the table of observation results that the researcher has conducted:

Table 2 Observation Results

No	Indicators	Results
1	Observation of how engaging the visual design is, such as emotional reactions to the application; including attractive	The sound that appears during the quiz encourages participants to keep trying until they succeed. Additionally, participants appeared happy and amazed when they first saw AMA, as indicated by their smiles, accompanied by slight twitches at the corners of their eyes and

	visual/design elements; colors; and sounds.	wide-open eyes. Participants' responses suggest that the AMA application creates emotional engagement in the learning process, for both male and female participants.
2	Observation of how well the application functions, such as how the application responds to user input; ease of navigation; and interaction speed.	The use of icons in the AMA application was familiar to the participants, making it easier for them to interact with AMA. Additionally, the navigation of AMA was found to be effective, as evidenced by participants feeling that AMA was easy to use.
3	Observation of how well the meaning and value of the application contribute to creating an emotional connection with users.	The use of visualization in AMA connects religious and cultural identities. The background of AMA, which features a mosque, signifies spiritual values, aligning the application with Islamic identity.

Below is the table of interview results that have been reduced by the researcher:

Table 3 Interview Results

No	Code Participant	Questions	Answers
1	MI-EFN	How do you feel when using AMA? And are there any elements that make you feel happy or engaged?	It's fun, I like the sound, like when there's a sound during the quiz when I answer wrong. It makes me curious, so I keep wanting to try again until I get the answer right. So, I'm learning, but it feels like playing a game, not boring.
2	FI-NYF		I'm happy and proud when I can answer a question correctly because the app is engaging with funny character images and colorful designs that are really cute. What helps the most is the vocabulary, because it shows the picture, the Arabic word, and its meaning. Then, the quiz section is also fun, because there's a 'beep' sound when I answer incorrectly, so I want to keep playing.
3	MI-MR	Is this application visually engaging?	Yes, I like the images, they're not cluttered (simple), and the colors are bright but not too overwhelming for the eyes. The features also help me understand the meaning quickly, so I can remember the vocabulary faster.
4	FI-ALK & FI-IY		Yes, when I see the images, I understand the meaning of the Arabic vocabulary, and there are fun sounds that keep me from getting bored.
5	MI-EFN	Is this application easy to use? If yes, why?	It's easy to use. The Mufradat, puzzles, and quizzes really help with learning. The material is simple, so I can answer easily. When taking the quiz, there's a sound for right or wrong answers, so it makes me want to take it more seriously to get it right.
6	MI-KA, MI-MR, FI-ALK, FI-IY, FI-NYF, & FI-RKA		It's really easy because the icons are familiar.
7	MI-EFN, MI-KA, MI-MIH, & FI-IY	Which feature do you think is the most helpful?	The puzzle is fun, it helps me remember Arabic words because I have to connect the words. The puzzle is like playing while learning, so it's not boring.
8	FI-ALK & FI-NYF		The most helpful feature is the Mufradat, because it shows the picture, the Arabic word, and its meaning clearly. Then, the quiz and puzzle sections are also interesting because there's a 'beep' sound when I answer wrong, so I want to keep playing and learn which answers are correct.
9	MI-EFN, MI-MR, FI-ALK, FI-NYF, & FI-RKA	Is there any part of the feature that is lacking or makes it difficult for you?	Yes, in the sound guessing part, there's no sound indicating whether the answer is correct or wrong, so I don't know if my answer is right or not.
10	MI-KA & FI-RKA		In the Mufradat section, I don't understand what 'lk' and 'pr' mean.
11	MI-EFN, MI-MR, MI-KA, FI-ALK, FI-NYF, & FI-RKA	Do you have any other suggestions or feedback regarding this application?	Mostly, adding a correct/incorrect sound in the sound guessing section and clarifying what the abbreviations 'lk' and 'pr' mean.
12	MI-EFN & FI-IY	What kind of impression does this application give you?	This app has a picture of a mosque, and there are men wearing a cap like an ustadz and women wearing hijabs, it feels very Islamic.
13	FI-RKA		It's really fun! I got to learn about many cool professions. Also, this app is for learning Arabic, so while practicing

	reading the Hijaiyah letters, I can also improve my Qur'an reading. There's the text, and when you click on it, you can directly hear how to pronounce it.

From the observation results, five out of eight participants (three males, two females) showed interest in the visual design of AMA, as seen from their expressions, with some even reflexively saying "Wow!" which indicated their visual attraction to AMA. The interview results confirmed that all participants responded positively to the visual design of the AMA application, although six participants (three males, three females) had difficulty understanding the meaning of "lk" and "pr" and suggested adding clarifications.

Participants aged eight (male) and nine (female) were more responsive to the visuals, while those aged ten and above showed a balance between responsiveness to the visuals and features. No emotional differences were found based on gender, nor were there any negative responses in this study. Additionally, only three participants (one male, two females) could associate AMA with Islamic identity through the characters wearing hijabs and caps and the connection between Arabic and the Qur'an, while others enjoyed the design without understanding Islamic values. However, the results of this study show that participants liked the visuals containing Islamic values.

3.2 Discussion

AMA is an application designed to provide an interactive learning experience, where students can participate and take an active role in the learning process through games. Therefore, AMA is a game-based learning medium that can enhance motivation, collaboration, and critical thinking skills, as evidenced by research conducted by Agustina et al. (2024), which shows that game-based learning media can increase students' motivation, collaboration, and critical thinking skills.

AMA was created to improve mastery of Arabic vocabulary. The application integrates several game elements, such as levels, challenges, and rewards, making the learning process enjoyable and engaging. It offers various interactive games, including puzzles, quizzes, text completion, sound guessing, and adventures, providing students with multiple ways to interact with the material.

The simple design helps users focus on learning without distractions, creating a pleasant learning experience. Additionally, the intuitive navigation ensures that users can quickly understand and use the application effectively. These aspects indicate that the AMA application has user-friendly characteristics (Hastani et al., 2024). Below are the results of the observation and interview data, along with their discussion based on the HoD, presented here.

Hierarchy of Design Level 1 (Visceral Design)

Visceral design is the first stage in the HoD framework explained by Norman. This level focuses on the immediate emotional reaction to the AMA application, which includes: (1) Emotional reactions without deep thought; (2) Product aesthetics, how attractive the product is; and (3) Sensory experiences, involving the pleasure of using the product. At this stage, the researcher identifies and defines the emotional responses of users to the AMA application, such as attractive visual/design elements, colors, and sounds (Norman, 2004).

Based on the observation results, the Arabic Muslim Adventure (AMA) application's visual elements and interactive features, such as the sounds that play during quizzes, trigger curiosity and the student's desire to continue trying until they succeed. Additionally, students appeared happy and amazed when they first saw AMA's visual aspects, as shown by their smiles, accompanied by small twitches at the corner of their eyes, and their wide-open eyes

(Mayo & Heilig, 2019). The students' responses indicate that the AMA application creates emotional engagement in the learning process, both for male and female students.

Based on the interview results, show that visual elements, such as colors and images, as well as interactive elements like sound, can trigger positive emotional experiences that enhance interest, motivation, cognition, and creativity (Rahmah et al., 2024). This finding is supported by the self-determination concept, where the students' desire to keep trying reflects their motivation to improve their skills through repeated trials (Setiawan & Nurhidayati, 2025). Additionally, the visuals presented in the AMA application are easy on the eyes, making them an important element in the design of effective learning (Rahmah et al., 2024).These findings are in line with Hargreaves' concept of emotional geography, which states that emotions and physical or visual spaces can trigger emotional responses without deep thought. This is similar to how the appearance of a product can directly influence a person's emotions without much reflection (Taloko & Putra, 2020). Students feel proud when they can answer questions correctly. This is related to the concept of achievement motivation training, where success in challenges fosters a sense of competence and enhances motivation to learn (Putra et al., 2019). The fact that this application can make students feel proud when they successfully answer questions correctly shows how game-based learning can stimulate positive emotional engagement that supports the learning process (Barz et al., 2024).

The Gestalt principle and the cognitive load theory concept support the use of visual elements and sound to help create more efficient learning and reduce cognitive load. Visualization also helps students process information more effectively. Additionally, the interview results confirm that the use of appropriate colors and attractive visual elements, such as characters and colors, can make the learning experience more enjoyable and interactive, helping to accelerate the learning process and maintain student focus (Mubarok, 2023). Additionally, according to cognitive load theory, it is essential to present material in a way that uses visualization and integrates game elements to reduce cognitive load (Ghanbari et al., 2020).

Based on the dual coding concept, attractive visuals can enhance the processing of information effectively and help students capture the material. The students responded positively to the *mufradat* feature because of the additional visuals in the form of relevant images that helped them understand the vocabulary, demonstrating how visual elements can support memory and comprehension (Kurniawan et al., 2022). Additionally, background music also plays an important role in maintaining focus as a light stimulus that keeps users' attention without disrupting the learning process (Andita & Desyandri, 2019).

The fact that several elements made the application more liked and considered enjoyable by the students shows that appropriate visual design can be a key factor in increasing student engagement based on user-centered design (Fadli et al., 2024). The AMA application successfully implemented visceral design to create a positive emotional experience for users, supported by emotional geography, gestalt principles, cognitive load theory, and dual coding theory. Students responded positively to the AMA app, especially the *mufradat* and quiz features, because of the additional relevant visuals and interactive elements like sound, providing a more enjoyable and immersive learning experience.

Hierarchy of Design Level 2 (Behavioral Design)

Behavioral design is the second level in the HoD that focuses on the functional aspects of the AMA application. At this level, the design emphasizes the usability and ease of use of the product (Rahmi, 2021). Therefore, in this stage, the researcher identifies how well the application functions and the usability of the AMA app. In other words, it defines how the AMA app responds to user input to determine the ease of navigation and the app's usability.

Based on the observation results, the Arabic Muslim Adventure (AMA) application has features such as quizzes, puzzles, *mufradat*, etc., which help students learn Arabic vocabulary. The easy navigation and familiar icons make it simple for students to use the application. Additionally, the feedback provided when answering quizzes encourages participants to play AMA repeatedly (Setiawan & Nurhidayati, 2025).

The above findings are reinforced by the interview results, where both male and female students felt that AMA was easy to use. The concept of usability explains that the ease of use of a product can create a positive user experience due to its accessible layout and features. A product should be easy to use, with clear and non-confusing interactions. This positive experience indicates that the product successfully meets user needs (Sadi et al., 2021).

In addition, the concept of game-based learning, learning through games, has become an effective method to enhance cognitive and affective-motivational learning outcomes for students (Barz et al., 2024). Game-based learning in Arabic language learning has a positive impact on language acquisition, creating an enjoyable learning atmosphere and maximizing students' potential due to their competitive nature. Games also improve language skills mastery and motivate students to keep learning (Iqbal & Suriningsih, 2021). Several male and female participants expressed the same view, stating that the AMA application aids in the learning process of Arabic vocabulary through a game-based approach.

Moreover, it was explained in more detail that several features help students understand Arabic vocabulary, such as (1) *Mufradat*, which helps them understand vocabulary with the help of pictures and meanings, (2) Puzzle, which helps them memorize vocabulary through a word-connection game, and (3) Quiz, which trains their listening ability by listening to vocabulary and selecting the corresponding image. These three features help in understanding and memorizing Arabic vocabulary.

Students are assisted by the *mufradat* feature because of its visuals, as previously discussed. The quiz feature helps the students' learning process by providing feedback through correct or incorrect sounds, allowing students to assess their understanding, as explained in behaviorism concept, which will be further discussed at level 3 of the hierarchy of design. As for the puzzle feature, students mentioned that the questions given were neither too easy nor too difficult to solve. This aligns with the concept of *flow*, where a person is highly motivated and focused when engaged in a challenging activity that is still within their ability to handle, resulting in an enjoyable and satisfying learning experience (Lavoie et al., 2022).

The puzzle game approach used in this application also reflects the principle of learning by doing, which is rooted in the constructivist concept. According to this theory, students learn most effectively when they actively interact with the material. Features like educational games encourage learning through hands-on experience, allowing students not only to memorize vocabulary but also to understand it through enjoyable activities. This aligns with the concept that play can be an effective learning tool (Saputro & Pakpahan, 2021). However, most male participants and only a few female participants noted that there were issues with certain features of the AMA app, such as the guess the sound feature not providing notifications for correct or incorrect answers.

According to the behaviorism concept, the lack of correct or incorrect notifications in the game disrupts the feedback loop in the learning process. Users should receive a confirmation of the answers they provide to enhance their learning experience and ensure effective understanding. Additionally, providing feedback reinforces learning through repetition and the reinforcement of comprehension (Mardiani, 2022).

The abbreviations "lk" and "pr" in the *mufradat* feature are confusing, highlighting the importance of intuitive design and cultural relevance. Based on the user-centered design

concept, every visual element in an app must be clear in its function and aligned with users' expectations (Barbieri et al., 2024). If such elements, like unfamiliar abbreviations, do not provide clear cues, students will struggle to use the app effectively. The AMA app clearly considers the needs and preferences of its users, in line with the user-centered design concept. This concept emphasizes the importance of understanding user needs. Features that are easily accessible, simple navigation, and engaging visual choices reflect the application of this concept (Barbieri et al., 2024).

In the context of the constructivism concept, as proposed by Piaget and Vygotsky, the AMA app provides opportunities for students to construct their own knowledge. The game features within the app allow students to actively learn, linking vocabulary to real-life situations through engaging interactions (Saputro & Pakpahan, 2021). This strengthens independent learning, where students can learn according to their abilities and pace, continuously testing and developing their understanding of Arabic vocabulary.

Overall, students have stated that the AMA app is easy to use due to its familiar icons, which help them understand Arabic vocabulary. They enjoy the process of learning Arabic vocabulary in a fun way through the interactive games offered by the app. The only necessary improvements are adding notifications for the "guess the sound" game and providing explanations for the abbreviations "lk" and "pr" in the *mufradat* section.

Hierarchy of Design Level 3 (Reflective Design)

Reflective design is the highest level in the HoD as explained by Norman, focusing on the meaning associated with a product. At this level, it relates to how the product reflects the identity, values, and perceptions felt by the user (Norman, 2004).

Based on the observation results, the AMA application successfully connects students' learning experiences with their religious and cultural identities. By using a mosque as the background, it reflects the spiritual values in the daily lives of Muslims. The mosque, as a symbol of a place of worship, was chosen to create a religious atmosphere, making the application relevant and aligned with Islamic identity (Handoko et al., 2024).

The selection of characters is tailored to Islamic culture. The male character is depicted wearing a *peci* (a traditional Muslim cap), which is a typical attribute of Muslim attire. Meanwhile, the female character wears a hijab, following Islamic dress guidelines. By presenting these characters, the application not only serves as a learning tool but also teaches values of modesty and cultural identity from an early age (Silalahi et al., 2024). The app visually reflects strong Islamic values. This not only supports language learning but also strengthens students' connection to their religious values from an early age.

The findings from the interviews further reinforce that those students not only memorized vocabulary but also enjoyed the learning experience through the games. Additionally, the AMA app was used to study the language of the Qur'an. AMA helps students strengthen their religious and cultural identity. By learning Arabic, which is closely related to understanding the Qur'an, the app reflects important values for Muslim users who wish to introduce students to their religious language (Isbah, 2023).

Overall, the AMA app demonstrated how it connects students' learning experiences with their religious lives, particularly concerning the Arabic language, which is closely tied to the Qur'an. This shows that the identity of the AMA app is built on a blend of religious education, culture, and technology, supporting both spiritual and intellectual development.

4. CONCLUSIONS

This study showed that the AMA app has successfully integrated the principles of the HoD. The app successfully combines both functional and emotional aspects. From a functional

perspective, the AMA app offers easy navigation and helps users learn Arabic vocabulary in a fun way. From an emotional perspective, the app creates an engaging experience that makes students feel excited and proud when they successfully answer questions. The visuals create a positive effect, which can enhance motivation. AMA's identity as a technology-based learning platform includes a blend of religious, cultural, and technological aspects. Some recommendations for improvement include adding notifications for the voice recognition game and providing clearer explanations in the *mufradat* section. This study provides insights into the importance of HoD in learning media, particularly in AMA. However, the study has limitations in participant selection. For future research, it is suggested to involve a larger and more varied group of participants, including students of different ages and educational backgrounds, to obtain a broader perspective on the effectiveness of this app. Additionally, it is important to develop new features, such as notifications and clearer explanations for the *mufradat* feature, which should be tested to enhance the user experience and students' learning motivation.

REFERENCES

Agustina, I., Joshua, W., Julanos, J., & Niva, M. (2024). The impact of implementing game-based learning on student motivation and engagement. *Journal of Emerging Technologies in Education, 2*(3), 241–253. https://doi.org/10.70177/jete.v2i3.1069

Andita, D. C., & Desyandri. (2019). Pengaruh penggunaan musik terhadap konsentrasi belajar anak sekolah dasar. *Jurnal Ilmu Pendidikan, 1*(3), 205–209. https://doi.org/10.31004/edukatif.v1i3.50

Anhar, Masarroh, A., Putri Ramadhani, A., & Putri, G. S. (2024). Teknologi digital: Integrasi dalam pembelajaran bahasa Indonesia di era revolusi industri 4.0. *JIIC: Jurnal Intelek Insan Cendikia, 8*(4), 4277–4283. https://jicnusantara.com/index.php/jiic

Barbieri, L., Marino, E., Bruno, F., Muzzupappa, M., & Colacino, B. (2024). User-centered design of an augmented reality inspection tool for industry 4.0 operators. *International Journal on Interactive Design and Manufacturing, 18*(1), 1–13. https://doi.org/10.1007/s12008-024-01931-x

Barz, N., Benick, M., Dörrenbächer-Ulrich, L., & Perels, F. (2024). The effect of digital game-based learning interventions on cognitive, metacognitive, and affective-motivational learning outcomes in school: a meta-analysis. *Review of Educational Research, 94*(2), 193–227. https://doi.org/10.3102/00346543231167795

Fadli, B., Ramadlan, N., Wulandari, S., Hajar, R. R., Sejati, P., & Suhendar, A. (2024). Penerapan metode UCD (user-centered design) pada sistem perpustakaan sekolah berbasis android. *KLIK: Kajian ilmiah informatika dan komputer, 4*(5), 2430–2441. https://doi.org/10.30865/klik.v4i5.1803

Ghanbari, S., Haghani, F., Barekatain, M., & Jamali, A. (2020). A systematized review of cognitive load theory in health sciences education and a perspective from cognitive neuroscience. *Journal of Education and Health Promotion, 9*(1), 1–13. https://doi.org/10.4103/jehp.jehp_643_19

Hafizah, N. (2023). Media pembelajaran digital generasi alpha era society 5.0 pada kurikulum merdeka. *Al-Madrasah: Jurnal Pendidikan Madrasah Ibtidaiyah, 7*(4), 1675–1688. https://doi.org/10.35931/am.v7i4.2699

Handoko, W., Nasution, I. P., Wahyudi, W. R., Yogaswara, H., Subair, M., Kholis, N., Massoweang, K., Firmanto, A., & Akbar, A. (2024). The relationship of Islam and locality in the architecture of the wapauwe ancient mosque in Maluku. *Journal of Islamic Architecture, 8*(1), 184–198. https://doi.org/10.18860/jia.v8i1.21729

Hastani, H., Sopian, A., & Khalid, S. M. (2024). Development of educational game “Arabic Muslim Adventure” based on construct 2 application to improve vocabulary mastery. *Taqdir, 10*(1), 1–17. https://doi.org/10.19109/9zrdkj10

Iqbal, H. S. A., & Suriningsih, W. M. (2021). Pengembangan media pembelajaran berbasis permainan roda putar pada pembelajaran kosakata bahasa Arab di taman kanak-kanak. *Al-Athfaal: Jurnal Ilmiah Pendidikan Anak Usia Dini, 4*(2), 291–303. http://dx.doi.org/10.24042/ajipaud.v4i2.11381

Isbah, F. (2023). Memahami karakteristik bahasa Arab untuk pembelajaran. *Bashrah, 3*(1), 1–10. https://doi.org/10.58410/bashrah.v3i01.604

Jamil, H., & Agung, N. (2022). Tantangan pembelajaran bahasa Arab di era society 5.0: Analisis pembelajaran bahasa Arab berbasis aplikasi interaktif. *Alibbaa': Jurnal Pendidikan Bahasa Arab, 3*(1), 38–51. https://doi.org/10.19105/ajpba.v3i1.5536

Kurniawan, C., Kusumaningrum, S. R., Lam, K.-F. T., & Surahman, E. (2022). Improving language teaching and learning process with dual coding theory approaches. *Jurnal Pendidikan Teori Penelitian dan Pengembangan, 7*(8), 281–289. https://doi.org/10.17977/jptpp.v7i8.15313

Lavoie, R., Main, K., & Stuart-Edwards, A. (2022). Flow theory: Advancing the two-dimensional conceptualization. *Motivation and Emotion, 46*(1), 38–58. https://doi.org/10.1007/s11031-021-09911-4

Manan, A., & Nasri, U. (2024). Tantangan dan peluang pendidikan bahasa Arab: Perspektif global. *Jurnal Ilmiah Profesi Pendidikan, 9*(1), 256–265. https://doi.org/10.29303/jipp.v9i1.2042

Mardiyani, K. (2022). Tujuan dan penerapan teori behaviorisme dalam pembelajaran. *Jurnal Ilmu Pendidikan dan Kearifan Lokal, 1*(9), 260–271. https://www.jipkl.com/index.php/JIPKL/article/view/30

Mayo, L. M., & Heilig, M. (2019). In the face of stress: Interpreting individual differences in stress-induced facial expressions. In *Neurobiology of Stress*. Elsevier Inc. https://doi.org/10.1016/j.ynstr.2019.100166

Miftah, M., & Rokhman, N. (2022). Kriteria pemilihan dan prinsip pemanfaatan media pembelajaran berbasis TIK sesuai kebutuhan peserta didik. *Educenter: Jurnal Ilmiah Pendidikan, 1*(9), 412–420. https://doi.org/10.55904/educenter.v1i9.92

Mkpojiogu, E. O. C., Okeke-Uzodike, O. E., Eze, C., & Emmanuel, E. I. (2022). A UX 3-factor hierarchical model for understanding, designing and evaluating the UX of software products. *Proceedings - 30th Southern African Universities Power Engineering Conference, SAUPEC 2022, 30*(1), 1–10. https://doi.org/10.1109/SAUPEC55179.2022.9730740

Mubarok, F. S. (2023). Penerapan prinsip Gestalt dalam desain visual untuk meningkatkan memori dan pemahaman pesan. *Jurnal Ilmiah Komunikasi Makna, 11*(2), 48–70. https://doi.org/10.30659/jikm.v11i2.33002

Norman, D. A. (2004). Emotional design: Why we love (or hate) everyday things. Basic Books, 63–89. https://www.researchgate.net/publication/224927652_Emotional_Design_Why_We_Love_or_Hate_Everyday_Things

Norman, M. K., Hamm, M. E., Schenker, Y., Mayowski, C. A., Hierholzer, W., Rubio, D. M., & Reis, S. E. (2021). Assessing the application of human-centered design to translational research. *Journal of Clinical and Translational Science, 5*(1), 1–7. https://doi.org/10.1017/cts.2021.794

Pakpahan, F. H., & Saragih, M. (2022). Theory of cognitive development by Jean Piaget. *Journal of Applied Linguistics, 2*(2), 55–60. https://doi.org/10.52622/joal.v2i2.79

Pithri, D. M., Safina, N., & Soraya, R. (2024). Kelayakan media pembelajaran berbasis Android menggunakan ispring suite pada teks prosedur kelas XI SMAS Istiqlal Deli Tua. *INNOVATIVE: Journal of Social Science Research, 4*(1), 5034–5044. https://doi.org/10.31004/innovative.v4i1.8439

Putra, E. M., Handarini, D. M., & Muslihati, M. (2019). Keefektifan achievement motivation training untuk meningkatkan motivasi berprestasi siswa sekolah menengah

pertama. *Jurnal Kajian Bimbingan dan Konseling, 4*(2), 62–68. https://doi.org/10.17977/um001v4i22019p062

Rahmah, A., Disman, & Supriadi, A. (2024). Implementasi pembelajaran visual auditory kinesthetic (VAK) sebagai upaya meningkatkan berpikir kreatif siswa pada pembelajaran IPS. *Didaktika: Jurnal Kependidikan, 8*(2), 4903–4914. https://doi.org/10.58230/27454312.1181

Rahmi, A. (2021). Pengembangan media pembelajaran multimedia interaktif lectora inspire mata pelajaran pekerjaan dasar elektromekanik. *JEVTE: Journal of Electrical Vocational Teacher Education, 3*(2), 114–122. https://doi.org/10.24114/jevte.v1i2.29382

Sadi, S., Nursubiyantoro, E., Astanti, Y. D., Ismianti, I., Wibowo, A. W. A., & Mastrisiswadi, H. (2021). Usability evaluation of scientific journal websites using the system usability scale (case study of the OPSI Journal website). *RSF Conference Series: Engineering and Technology, 1*(1), 378–387. https://doi.org/10.11098/cset.v1i1.401

Saleh, N., Sopian, A., Maulani, H., & Khalid, S. M. (2022). Sastra digital dalam pembelajaran bahasa Arab bagi anak dini di TK Al-Qur'an (TKQ). *Tarbiyatuna: Jurnal Pendidikan Islam, 15*(2), 175–185. https://doi.org/10.54471/tarbiyatuna.v15i2.1770

Saputro, M. N. A., & Pakpahan, P. L. (2021). Mengukur keefektifan teori konstruktivisme dalam pembelajaran. *Journal of Education and Instruction (JOEAI), 4*(1), 24–39. https://doi.org/10.31539/joeai.v4i1.2151

Sarip, M., Amintarti, S., & Utami, N. H. (2022). Validitas dan keterbacaan media ajar e-booklet untuk siswa SMA/MA materi keanekaragaman hayati. *Jupeis: Jurnal Pendidikan dan Ilmu Sosial, 5*(1), 43–49. https://doi.org/10.57218/jupeis.Voll.Issl.30

Setiawan, D., & Nurhidayati, N. (2025). Pengaruh mindfulness dan organizational citizenship behavior (OCB) terhadap kinerja pegawai dengan motivasi intrinsik sebagai variabel mediasi. *AKADEMIK: Jurnal Mahasiswa Ekonomi & Bisnis, 5*(1), 421–435. https://doi.org/10.37481/jmeb.v5i1.1212

Silalahi, R. S., Syahminan, M., & Muary, R. (2024). Fenomena penggunaan simbol-simbol keagamaan pengemis jalanan di Kota Medan. *SEMAR: Jurnal Sosial dan Pengabdian Masyarakat, 2*(1), 46–58. https://doi.org/10.59966/semar.v2i1.608

Taloko, J. L., & Putra, M. S. (2020). Emotional geographies experienced by an Indonesian doctoral student pursuing her PhD in New Zealand during the COVID-19 pandemic. *Journal of Indonesian Studies, 10*(S3), 126–141. https://doi.org/10.32674/jis.v10iS3.3203

Sutinalvi, V., Harahap, A., Lubis, M. Y. A., & Nasution, S. (2025). Tantangan dan peluang pembelajaran bahasa Arab di era digital. *Mutiara: Jurnal Penelitian dan Karya Ilmiah*, 3(1), 76–86. https://doi.org/10.59059/mutiara.v3i1.1969

Winangsih, E., & Harahap, R. D. (2023). Analisis penggunaan media pembelajaran pada muatan IPA di sekolah dasar. *Jurnal Basicedu, 7*(1), 452–461. https://doi.org/10.31004/basicedu.v7i1.4433