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Innovating Arabic Vocabulary Learning Media through the Barcode-Based Interactive E-Book 'VocaQuest' for Arabic Language Education Students at Islamic Higher Education Institutions in Indonesia

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Abstract
The limited availability of interactive and digitally-based vocabulary learning media constitutes a major problem for students of the Arabic Language Education Study Program at Islamic Higher Education Institutions in Indonesia. This study aims to analyze the innovation of vocabulary (mufradat) learning media through an interactive e-book called *"VocaQuest"* that utilizes barcode technology, focusing on its media characteristics, pedagogical aspects, and integration of digital technology. The research method employed is descriptive qualitative with content analysis using the Miles and Huberman model. The results of the analysis show that *"VocaQuest"* offers innovation in three main dimensions: a thematic vocabulary design accompanied by transliteration and example sentences; a barcode system that enables independent access to audio-visual content; and an evaluation feature with various formats such as multiple choice, word matching, and meaning guessing. This study indicates that the *"VocaQuest"* e-book is an innovation in Arabic language learning media that combines a communicative approach with digital technology, making it a relevant solution for independent mufradat learning among PBA students in the digital era.

Keywords:
Interactive E-Book, Arabic Vocabulary, Barcode, *VocaQuest*, Digital Learning Media

A. INTRODUCTION

In Arabic language learning, there are four main language skills that are essential to understand and develop: listening, speaking, reading, and writing. These Arabic language skills are important to be implemented among all learners who are engaged in the process of learning Arabic. In the process of Arabic language learning, vocabulary is one of the key elements that needs to be emphasized. Vocabulary serves as an essential foundation in Arabic language learning. In Arabic, the term for vocabulary refers to a collection of words that form a complete and meaningful language structure (Aziza & Muliansyah, 2020). Vocabulary plays a crucial role in developing Arabic language skills, enabling learners to use Arabic appropriately and in accordance with correct linguistic rules. Vocabulary learning aims to train learners to pronounce words accurately and according to proper linguistic conventions, construct Arabic sentences in a structured and systematic manner, and communicate effectively and appropriately in Arabic (Anggian, 2022).

Nevertheless, the process of vocabulary learning requires various forms of practice and does not always proceed smoothly, particularly for students learning Arabic. Many students still experience difficulties in memorizing and mastering vocabulary, as inadequate vocabulary proficiency can hinder their ability to develop the four Arabic language skills, namely listening, speaking, reading, and writing (Fadila et al., 2025). These difficulties are further exacerbated by vocabulary learning approaches that tend to remain monotonous and traditional, making them less capable of fully addressing students' learning needs. In fact, each student may have their own preferred ways or individual characteristics when learning vocabulary. Identifying appropriate learning methods is therefore important, as students may otherwise be unable to determine which strategies are most effective for their individual learning needs. Furthermore, the use of less

interactive learning media can also become a barrier to students' vocabulary acquisition. Therefore, innovative teaching strategies are needed, including the use of various methods and learning media that have been shown to help students learn Arabic vocabulary more effectively (Ramadhan et al., 2024).

In the current digital era, the challenges of learning Arabic vocabulary are increasing alongside changes in students' learning habits, which have become increasingly connected to technology and digital media. Today's students are more accustomed to using digital devices in their daily lives; however, current learning approaches have not yet fully utilized the potential of technology to its maximum extent (Nengrum & Arif, 2020). Therefore, there is a need for innovative technology-based learning media that are more interactive and engaging to increase students' motivation to learn Arabic vocabulary (Zaenulloh et al., 2024). Furthermore, digital literacy skills have become one of the fundamental requirements of 21st-century learning. Students are not only expected to be able to use technology but also to utilize it effectively as a supporting tool in the learning process, including in Arabic language learning and vocabulary acquisition (Yaumi, 2018).

In response to these challenges, innovation in learning media has become an important solution for improving Arabic vocabulary learning among university students. Interactive learning media have been shown to enhance students' enthusiasm for learning by presenting materials in a more engaging, varied, and less monotonous manner, thereby encouraging students to become more interested and actively involved in the learning process (Hakim & Akhyar, 2017). One learning media innovation considered effective is the use of interactive e-books, which provide easy access anytime and anywhere without being restricted by space and time. This allows students to learn vocabulary more flexibly and independently according to their individual needs. Based on these needs, an interactive learning medium called the barcode-based interactive e-book VocaQuest was developed specifically for students in Arabic Language Education (PBA) programs at Islamic Religious Higher Education Institutions (PTKI) in Indonesia. This medium combines the flexibility of e-books with barcode technology, enabling students to access learning content directly and conveniently. Consequently, Arabic vocabulary acquisition can be carried out more independently, interactively, and communicatively without students having to rely entirely on the physical presence of an instructor (Muzakki et al., 2025).

The interactive e-book VocaQuest was developed as an Arabic vocabulary learning medium that integrates visual elements, interactive exercises, and barcode-based digital technology. It covers various vocabulary themes relevant to university students' daily lives, including daily activities, academic and campus life, Islamic religion and culture, time and numbers, family and social relationships, as well as professions and technology. Each topic is systematically organized and includes Arabic vocabulary, transliteration, Indonesian meanings, examples of sentence usage, and various forms of evaluation exercises, such as multiple-choice questions, word-and-meaning matching, guessing the meaning of words in context, and a final assessment. In addition, the use of barcodes in this e-book provides convenient access to learning materials in a practical and interactive manner, enabling students to engage in independent learning through a flexible and communicative digital medium.

The development of digital-based learning media has been widely implemented in Arabic language learning through various forms, including applications, interactive multimedia, and educational e-books. Previous studies have shown that digital media can support the Arabic language learning process and increase learners' engagement in learning activities (Ilmiani et al., 2020). However, previous studies still have limitations in terms of integrating different learning components. Some digital media continue to focus on presenting learning materials and exercises separately and have not specifically integrated thematic vocabulary, word usage contexts, varied exercises, self-assessment, and access to digital content within a single learning medium. In addition, the use of barcode technology as an integral component of interactive e-books for vocabulary learning, particularly for students in Arabic Language Education (PBA) programs at Islamic Religious Higher Education Institutions (PTKI) in Indonesia, has not yet been widely developed or specifically examined. Therefore, there remains an opportunity to develop a learning medium that not only presents vocabulary in a digital format but also integrates learning materials, practice activities, and access to digital content in a cohesive manner.

This gap provides the basis for the development of the barcode-based interactive e-book *VocaQuest*. Unlike digital media that function merely as reading materials or collections of exercises, *VocaQuest* integrates three main components: (1) thematic and contextual *mufradāt* accompanied by transliteration, meanings, illustrations, and example sentences; (2) learning activities and assessments that enable students to independently evaluate their understanding; and (3) barcode technology that connects the e-book to digital content in a practical manner. The integration of these three components constitutes the main contribution of *VocaQuest* in providing a more interactive and contextual Arabic vocabulary learning medium that supports independent learning among students in PBA programs at PTKI institutions in Indonesia. Thus, the novelty of this study lies not only in the use of barcode technology but also in the integration of thematic *mufradāt*, pedagogical activities, and interactive digital content access within a single learning medium.

B. METHODS

This study employed a descriptive qualitative approach using the content analysis method. This approach was selected because the study aimed to describe and analyze the characteristics and innovations of Arabic vocabulary learning media presented in the barcode-based interactive e-book VocaQuest, which was designed for students in Arabic Language Education (PBA) programs at Islamic Religious Higher Education Institutions (PTKI) in Indonesia (Septiana et al., 2024). The study was positioned as a content analysis study because its focus was directed toward examining the content, structure, pedagogical characteristics, and forms of interactivity embedded in the learning medium, rather than measuring the effectiveness of its use among students. Therefore, students were not involved as research participants, and no data were collected from students through tests, questionnaires, interviews, or experiments.

The research object was the barcode-based interactive e-book *VocaQuest*, which was developed as a digital learning medium for Arabic vocabulary. The analysis focused on the components contained in the e-book, including the presentation of thematic vocabulary, transliteration, word meanings, examples of vocabulary usage in sentences, illustrations, types of exercises, assessments, and the use of barcodes as a feature for linking users to digital content. The analysis also examined the characteristics of interactivity, pedagogical aspects, and the potential of the medium to support flexible and independent vocabulary learning. Therefore, the findings of this study describe the characteristics and pedagogical potential of the medium based on its content and available features, rather than demonstrating its effectiveness through students' learning outcomes (Sugiyono, 2020; Fadli, 2021).

The data sources in this study consisted of primary and secondary data. The primary data comprised the barcode-based interactive e-book *VocaQuest*, which served as the main object of analysis. The unit of analysis in this study consisted of all media components contained in the e-book, which were classified into five categories: (1) vocabulary materials, including themes, Arabic vocabulary, transliteration, and word meanings; (2) context and visual elements, including examples of vocabulary usage in sentences and illustrations; (3) learning activities, including exercises and assessments; (4) digital interactivity, including the forms of interaction provided within the e-book; and (5) barcode technology, including the functions of the barcode and access to integrated digital content. These five categories were used to systematically identify the characteristics, innovations, and pedagogical aspects of the learning medium.

Secondary data were drawn from scholarly sources, including journals, books, research articles, and relevant previous studies on Arabic vocabulary learning, digital learning media, interactive e-books, digital literacy, and educational technology. These sources provided the theoretical foundation and comparative basis for interpreting the findings from the analysis of *VocaQuest*. Data were collected through documentation and a literature review. Documentation involved identifying, recording, and classifying each component of *VocaQuest* according to the predetermined analytical categories, while the literature review supported the interpretation of the medium's characteristics.

Data were analyzed by adapting the Miles and Huberman data analysis framework, which consists of data reduction, data display, and conclusion drawing (Hisaanah et al., 2026). During data reduction, information from the interactive e-book *VocaQuest* was selected and categorized

according to the predetermined analytical categories: vocabulary presentation, vocabulary usage context, exercises and assessments, digital interactivity, barcode integration, and pedagogical aspects. The data were then systematically presented in descriptive form and tables to illustrate the characteristics of each analyzed component. Finally, conclusions were drawn based on the patterns and characteristics identified in the e-book, particularly its innovations, interactivity, barcode technology integration, and pedagogical potential as an Arabic vocabulary learning medium in the digital era (Rozaq et al., 2026).

Given this research design, the study was not intended to measure the effectiveness of *VocaQuest* or improvements in students' learning outcomes following its use. Instead, the analysis focused on the content, features, instructional design, and interactivity of the learning medium. The findings may serve as a basis for further research involving trials or effectiveness testing of *VocaQuest* with students as research participants.

C. RESULT & DISCUSSION

RESULT

6. Content Aspect

The *VocaQuest* e-book is a digital Arabic vocabulary learning medium designed for students in Arabic Language Education (PBA) programs at Islamic Religious Higher Education Institutions (PTKI) in Indonesia. The 47-page e-book presents vocabulary materials in a systematic and thematic structure across six themes relevant to students' academic, social, and religious contexts: (1) Daily Life (*al-Ḥayāh al-Yawmiyyah*), (2) Academic Life on Campus (*al-Ḥayāh al-Akādīmiyyah fī al-Ḥaram al-Jāmiʿī*), (3) Islamic Religion and Culture (*al-Dīn wa al-Thaqāfah al-Islāmiyyah*), (4) Time and Numbers (*al-Waqt wa al-Arqām*), (5) Family and Social Relationships (*al-Usrah wa al-ʿAlāqāt al-Ijtimāʿiyyah*), and (6) Professions and Technology (*al-Mihan wa al-Tiqniyyah*).

Each theme contains 20 vocabulary items, resulting in a total of 120 thematic vocabulary items. Each item is presented in Arabic script (*rasm*), accompanied by Latin transliteration, Indonesian meaning, and an example sentence. Relevant illustrations are also provided to support each theme. The structure of each theme is relatively consistent, beginning with an introduction to the thematic context, followed by a vocabulary table, example sentences, exercises, and an assessment.

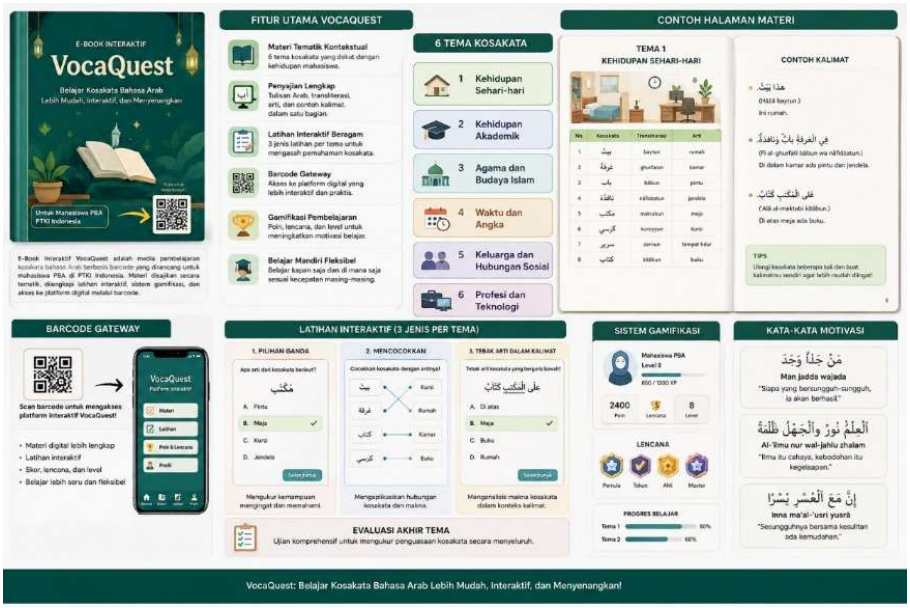


Figure 1. Layout and Main Features of the *VocaQuest* E-Book

Figure 1 illustrates the visual structure and main features of VocaQuest, including six vocabulary themes, sample content pages, interactive exercises, a barcode gateway, a gamification system, and motivational messages. These visual findings indicate that VocaQuest goes beyond

presenting vocabulary as text by integrating learning materials, activities, and digital features within a single medium. The division of content into six themes also demonstrates a contextual organization of vocabulary around daily life, academic, religious, social, and technological contexts.

- **Daily Life Theme (page 3–9):** This section presents vocabulary related to daily routines, including *yastaīqiẓu* (wake up), *yaghtasilu* (bathe), *yalbasu* (get dressed), *yatanāwalu al-fuṭūr* (have breakfast), *yadhhabu ilā al-madrasah* (go to school), *yalʿabu* (play), *yushāhidu al-tilfāz* (watch television), and *yanāmu fī al-layl* (sleep at night).
- **Academic Life on Campus Theme (page 10–16):** This section covers vocabulary related to higher education, including *jāmiʿah* (university), *kulliyyah* (faculty), *maʿhad* (institute), *qism* (study program), *muḥāḍir* (lecturer), *ṭālib/ṭālibah* (male/female student), *imtiḥān* (examination), *maktabah* (library), *baḥth ʿilmiyy* (academic research), and *majallah ʿilmiyyah* (academic journal).
- **Islamic Religion and Culture Theme (page 17–23):** This section includes vocabulary related to Islamic religious practices and concepts, such as *al-ṣalāh* (prayer), *al-zakāh* (almsgiving), *al-ṣawm* (fasting), *al-ḥajj* (pilgrimage), *al-Qurʾān*, *al-ḥadīth*, *al-masjid* (mosque), *al-taqwā* (piety), *al-akhlāq* (morals), *al-tawḥīd* (monotheism), *al-wuḍūʾ* (ablution), and *al-qiblah* (direction of prayer).
- **Time and Numbers Theme (page 24–29):** This section presents vocabulary related to time and numbers, including *al-sāʿah* (hour), *al-yawm* (day), *al-usbūʿ* (week), *al-shahr* (month), *al-sanah* (year), and numerical expressions.
- **Family and Social Relationships Theme (page 30–35):** This section covers vocabulary related to family members and social relationships, including *ab* (father), *umm* (mother), *akh* (brother), *ukht* (sister), *jadd* (grandfather), *jaddah* (grandmother), *zawj* (husband), *zawjah* (wife), *ʿamm* (paternal uncle), *khālah* (maternal aunt), and *ṣadīq/ṣadīqah* (male/female friend).
- **Professions and Technology Theme (page 36–41):** This section includes vocabulary related to occupations and technology, such as *muʿallim* (teacher), *ṭabīb* (doctor), *muhandis* (engineer), *muwaẓẓaf* (employee), *ṭayyār* (pilot), *shurṭiyy* (police officer), *ḥāsūb* (computer), *hātif* (telephone), *hātif dhakiyy* (smartphone), *Internet*, *taṭbīq* (application), and *shabakah* (network).

Based on the analysis, the content aspect of *VocaQuest* demonstrates a systematic organization of vocabulary around contexts relevant to daily life, academic settings, social interactions, technology, and religion. The thematic organization is aligned with the learning objective of enabling students to understand and use Arabic vocabulary in meaningful and contextually relevant situations. Each theme provides vocabulary that supports students' ability to recognize, understand, and apply words in contexts related to their daily, academic, social, religious, and technological experiences. Thus, vocabulary is not presented as isolated items but as contextualized language resources that support practical vocabulary acquisition and the development of students' communicative competence.

7. Language Aspect

From a language perspective, *VocaQuest* employs a bilingual Arabic–Indonesian presentation supplemented by Latin transliteration. This format is consistently applied throughout the vocabulary tables, which present the Arabic script, transliteration, and Indonesian meanings. The transliteration supports learners in understanding how Arabic vocabulary is pronounced, while the Indonesian translation provides accessible semantic equivalents for users. The language aspect is also reflected in the presentation of vocabulary through example sentences. Rather than presenting vocabulary as isolated words, *VocaQuest* places each item within a simple sentence structure. For example, the vocabulary item *yastaīqiẓu* is presented in the sentence "Yastaīqiẓu Aḥmadu fī al-sāʿati al-sābiʿah," translated as "Ahmad wakes up at seven o'clock." This presentation demonstrates how *VocaQuest* connects vocabulary forms with their use in meaningful sentence contexts.



Figure 2. Overview of *VocaQuest* E-Book Content and Interactive Learning Activities

Figure 2 illustrates an example of vocabulary presentation under the Academic Life theme, featuring Arabic script, Latin transliteration, Indonesian meanings, and example sentences. It also shows multiple-choice exercises, vocabulary–meaning matching activities, and context-based meaning identification. These findings indicate that the language presentation in VocaQuest extends beyond introducing vocabulary forms and meanings by incorporating contextual sentence use and practice activities.

In addition, the parallel use of Arabic and Indonesian makes the e-book bilingual in its presentation. Thus, the language features of VocaQuest extend beyond introducing vocabulary forms and meanings to providing contextualized usage through example sentences.

8. Interactivity Aspect

The interactivity aspect of *VocaQuest* is reflected in the integration of barcode (QR code) technology and various learning activities. The barcode is placed at the beginning of the e-book and serves as a gateway to interactive digital platforms or content. Users can access this content by scanning the barcode with digital devices such as smartphones or tablets. Thus, the barcode functions as a bridge between the content presented in the e-book and external digital resources.





Figure 3. Interactive Design of *VocaQuest*

As shown in Figure 3, the interactivity of *VocaQuest* is realized through two main components. First, the barcode gateway connects the e-book to digital platforms or learning materials beyond its pages. Second, the exercises and assessments provide activities that require users to respond to the material they have learned. Thus, Figure 3 illustrates not only the visual design of the medium but also the integration of digital technology and learning activities within *VocaQuest*.

In addition to the barcode, interactivity is also incorporated through exercises provided in each theme. *VocaQuest* offers three main types of exercises: multiple-choice questions, word–meaning matching, and contextual meaning identification. Each theme includes five multiple-choice questions, each with four answer options. The matching exercises require users to pair Arabic vocabulary with its Indonesian meaning, while the contextual meaning exercises require users to determine the meaning of vocabulary based on its use in sentences.

At the end of the e-book, *VocaQuest* provides a vocabulary comprehension assessment on pages 42–44 covering all six themes. The assessment uses varied question formats, including short-answer items, multiple-choice questions, sentence construction, contextual meaning identification, and word–meaning matching. This variety indicates that interactivity in VocaQuest does not rely solely on barcode technology but is also developed through activities that require users to respond to the learning material. Thus, the interactivity of *VocaQuest* takes two main forms: technology-based interactivity through barcode integration and activity-based interactivity through exercises and assessments.

9. Pedagogical Aspect

Based on an analysis of the content and structure of the medium, several pedagogical characteristics of *VocaQuest* were identified.

- **First, the material is organized systematically and thematically.** Each theme follows a relatively consistent presentation structure consisting of a contextual introduction, vocabulary table, example sentences, exercises, and assessment. This structure indicates a learning sequence that progresses from material introduction to practice.
- **Second, *VocaQuest* demonstrates contextual and communicative characteristics through the use of example sentences.** Vocabulary is presented not only according to its lexical meaning but also within a specific context of use. For example, the word *yastaīqiẓu* is presented not merely as “to wake up” but also in a sentence describing a particular activity and time.
- **Third, the medium incorporates varied learning activities.** Users are provided not only with reading materials but also with multiple-choice questions, matching exercises, contextual meaning identification, and a final assessment. This variety indicates that the medium offers several ways for users to revisit and process the vocabulary presented.

- **Fourth, *VocaQuest* supports independent learning.** The materials, example sentences, exercises, assessments, and barcode-enabled digital access are integrated into a single medium accessible through electronic devices. This characteristic indicates that the medium is designed to provide flexible learning opportunities without relying entirely on direct instruction from the teacher.

10. Islamic Values

Islamic values constitute one of the characteristics that distinguish *VocaQuest* from vocabulary learning media focused solely on general language contexts. These values are particularly reflected in the *Islamic Religion and Culture* theme, which includes vocabulary such as *al-ṣalāh*, *al-zakāh*, *al-ṣawm*, *al-ḥajj*, *al-Qur'ān*, *al-ḥadīth*, *al-taqwā*, *al-akhlāq*, *al-tawḥīd*, *al-wuḍū'*, and *al-qiblah*. The selection of these vocabulary items demonstrates the integration of Islamic contexts into Arabic language learning materials.

Islamic values are also reflected in the motivational elements incorporated into the medium's design. At the beginning of *VocaQuest*, the motto "مَنْ جَدَّ وَجَدَ" appears, meaning "Those who strive will succeed." In addition, the end of the e-book features Arabic motivational expressions, including " العِلْمُ نُورٌ، وَالجَهْلُ ظَلَامٌ," meaning "Knowledge is light, while ignorance is darkness." These elements indicate that *VocaQuest* not only presents language learning materials but also incorporates motivational messages aligned with the context of Islamic education.

Thus, Islamic values in *VocaQuest* are reflected in the selection of religious content, the inclusion of vocabulary related to Islamic culture, and the incorporation of Islamic-oriented motivational messages. This integration enhances the medium's alignment with the context of Arabic language learning in Islamic Higher Education Institutions in Indonesia (PTKI).

DISCUSSION

The *VocaQuest* e-book represents an innovative approach to Arabic vocabulary learning developed in response to challenges associated with conventional learning practices in Islamic Higher Education Institutions in Indonesia. Its distinctive features include content relevant to the daily experiences of Arabic Languange Education students and an integrated presentation of Arabic script, transliteration, meanings, and example sentences within each vocabulary item. In addition, the barcode feature serves as a gateway to broader digital learning resources beyond the e-book (Magdalena et al., 2020). This approach is consistent with the integration of digital learning, which connects e-book content with external digital resources, and can also be examined through Rogers' characteristics of innovation, including relative advantage, compatibility, ease of use, and observability (Ali & Georgiou, 2025).

In terms of interactivity, *VocaQuest* offers various learning activities through its barcode feature and three types of exercises for each topic, which can be associated with different levels of Bloom's cognitive domain (Nafiati, 2021). These activities range from remembering and understanding through multiple-choice questions, to applying through matching exercises, and analyzing through contextual meaning identification. The points, badges, and level system incorporated into the interactive platform represent gamification elements that, by design, have the potential to provide feedback and establish more structured learning goals. The overall design also supports independent learning by allowing students to study at their own pace without relying entirely on the instructor's physical presence (Marta et al., 2025). However, because this study employs content analysis and does not involve user-based measurement, these characteristics should be interpreted as indicators of pedagogical potential rather than evidence of increased student motivation or engagement.

The selection of six vocabulary themes in *VocaQuest* reflects their relevance to students in Arabic Language Education programs at Islamic Higher Institutions in Indonesia. In particular, the *Academic Life* and *Islamic Religion and Culture* themes are closely related to students' academic experiences and the Islamic educational environment. Vocabulary knowledge is a fundamental component of language proficiency (Nation, 2001). *VocaQuest* presents vocabulary in contextualized sentences and provides various exercises that allow students to revisit and use vocabulary across different contexts, consistent with recommendations for effective vocabulary learning proposed by

Richards and Renandya (2002). These characteristics can also be interpreted from a constructivist perspective, particularly Vygotsky's view that learning develops actively through interaction with the environment and learning tools. By incorporating interactive digital media, *VocaQuest* provides opportunities for students to construct their understanding of vocabulary through more active and independent learning activities (Budyastuti & Fauziati, 2021). This connection represents an interpretation of the medium's design characteristics and does not constitute evidence of learning effects that have been empirically tested.

Furthermore, the use of barcode technology in *VocaQuest* exemplifies digital integration in Arabic language learning at Islamic Higher Education Institutions in Indonesia and has the potential to facilitate students' access to digital learning resources (UNESCO, 2018). The inclusion of an Arabic motivational section featuring expressions such as *man jadda wajada* and *al-ʿilmu nūrun wa al-jahlu ẓalām* indicates that *VocaQuest* is designed not only to present language learning materials but also to incorporate motivational and value-oriented messages into the learning process. Within the context of Islamic education, these messages can be interpreted as connecting language learning with values of perseverance and appreciation for knowledge. Similarly, the *Islamic Religion and Culture* theme, which includes vocabulary such as *al-ṣalāh*, *al-zakāh*, *al-Qurʾān*, *al-taqwā*, and *al-akhlāq*, connects Arabic language learning with Islamic concepts and practices relevant to the Islamic Higher Education Institutions in Indonesia environment. Thus, the Islamic elements in *VocaQuest* function not only as content but also as values embedded within the learning experience. However, this study identifies the integration of Islamic values only at the level of content and media design. Therefore, it does not establish their effects on students' character development or learning motivation.

D. CONCLUSION

The barcode-based interactive e-book *VocaQuest* is an innovative Arabic vocabulary learning medium designed for students in Arabic Language Education programs at Islamic Higher Education Institutions in Indonesia. Its innovation is reflected in the integration of barcode technology, thematic vocabulary presentation, and interactive exercises that support more flexible and independent Arabic language learning. In addition, vocabulary is presented with Arabic script, transliteration, Indonesian meanings, and example sentences, providing contextualized use of vocabulary in situations relevant to students' daily lives.

The findings indicate that *VocaQuest* has interactive and pedagogical characteristics relevant to digital-based Arabic language learning. The integration of barcode technology, exercises, and assessments has the potential to support student engagement in learning activities and the development of digital literacy in Arabic language learning. Accordingly, *VocaQuest* can be viewed as an innovative, engaging, and flexible digital learning medium for students in PBA programs at PTKI institutions in Indonesia. However, these findings reflect the potential of the medium based on its characteristics and content rather than empirically demonstrated effects. Further research and user-based trials are therefore needed to examine its effectiveness in enhancing student engagement and digital literacy.

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