

Learners' Needs for Gamified Mobile Learning in Arabic Reading for the Development of the I-Mubtadiin Mobile Application

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ABSTRACT

The growing integration of mobile technologies in education has created new opportunities to enhance language learning through flexible, interactive, and learner-centred approaches. Despite the increasing availability of mobile learning applications, relatively few studies have examined learners' needs prior to the development of gamified mobile applications for Arabic reading, particularly among beginner learners in Malaysian higher education. This study aimed to identify learners' needs for the development of the i-Mubtadiin mobile application by investigating the challenges encountered in Arabic reading, learners' readiness for mobile learning, preferred gamification elements, and desired application features. A sequential mixed-methods design was employed, consisting of a quantitative survey involving 80 undergraduate students enrolled in introductory Arabic language courses at Universiti Malaysia Sabah (UMS), selected using convenience sampling because they represented the intended users of the proposed application, followed by Focus Group Discussions involving 10 purposively selected participants. The questionnaire was reviewed by experts in Arabic language education, instructional technology, and educational measurement to establish content validity and was piloted with 30 beginner learners. The instrument demonstrated satisfactory internal consistency, with Cronbach's alpha values exceeding the recommended threshold of .70. Quantitative data were analysed using descriptive statistics, while qualitative data were analysed using Braun and Clarke's thematic analysis. The findings indicated that beginner learners experienced considerable difficulties in Arabic reading, particularly in pronunciation, vowel differentiation, reading fluency, and vocabulary acquisition. The results also revealed a high level of readiness to adopt mobile-assisted learning and strong preferences for gamification elements that support learning, including immediate feedback, interactive quizzes, rewards, and progress tracking. Furthermore, learners identified audio pronunciation, interactive reading exercises, user-friendly navigation, and immediate corrective feedback as the most essential features for the proposed application. The integration of quantitative and qualitative findings consistently demonstrated that these preferences reflected learners' expectations for structured, learner-centred, and self-directed mobile learning experiences. The study highlights the importance of conducting a learner-centred needs analysis during the instructional design process and provides empirical evidence to guide the development of the i-Mubtadiin gamified mobile application for improving Arabic reading among beginner learners.

Keywords: Arabic reading, beginner learners, gamified learning, mobile learning, needs analysis, educational technology, i-Mubtadiin

INTRODUCTION

Arabic is one of the world's major languages, spoken by more than 400 million people and recognised as one of the official languages of the United Nations. Beyond its global significance, Arabic occupies a unique position as the language of the Quran and remains an important language for religious, educational, cultural, and professional purposes across many countries. In Malaysia, Arabic is offered at various educational levels, including primary schools, secondary schools, and higher education institutions, where it is commonly taught as a foreign language to non-native speakers (Kassim & Sahrir, 2023).

Despite its importance, Arabic remains one of the most challenging foreign languages for beginner learners. Compared with languages that use the Roman alphabet, Arabic employs a distinct writing system, phonological structure, and morphological patterns. Beginner learners often encounter difficulties in recognising Arabic letters, differentiating between short and long vowels, pronouncing unfamiliar sounds, and reading connected words fluently. These challenges frequently reduce learners' confidence and motivation during the early stages of language acquisition (Al-Khresheh, 2025; Kassim & Sahrir, 2023).

Reading is one of the most fundamental language skills because it serves as the foundation for vocabulary acquisition, grammar comprehension, and overall language proficiency. However, successful Arabic reading requires learners to simultaneously master letter recognition, phonological awareness, pronunciation accuracy, and decoding skills. Previous studies have consistently reported that many beginner learners struggle to develop these competencies, particularly those with little or no prior exposure to Arabic (Kassim & Sahrir, 2023). Consequently, learners often become dependent on classroom instruction and experience limited opportunities for independent learning.

Rapid advances in digital technology have significantly influenced educational practices worldwide. Mobile-Assisted Language Learning (MALL) has emerged as an effective instructional approach that enables learners to access educational resources anytime and anywhere through smartphones and tablets. Compared with conventional classroom instruction, mobile learning offers greater flexibility, learner autonomy, and continuous access to learning materials. Recent systematic reviews indicate that MALL improves learner engagement, self-directed learning, and language achievement when mobile learning activities are supported by appropriate pedagogical strategies rather than technology alone (Chengli et al., 2025).

In recent years, gamification has attracted increasing attention in educational research because of its potential to improve learner engagement, motivation, and persistence. Gamification refers to the integration of game design elements, such as points, badges, rewards, quizzes, progress tracking, and challenges, into non-game learning environments. Recent systematic reviews have consistently demonstrated that gamification positively influences learners' motivation, engagement, and language learning outcomes when game elements are aligned with instructional objectives (Ishaq et al., 202; Al-Khresheh, 2025). Nevertheless, research focusing specifically on gamified mobile learning for Arabic reading remains limited, particularly within Malaysian higher education.

Although mobile learning applications for language learning continue to expand, many available applications are developed without systematically identifying learners' actual needs before the development process begins. Contemporary instructional design emphasises that successful educational technologies should be developed based on learners' characteristics, learning challenges, technological readiness, and instructional expectations. Conducting a needs analysis therefore represents an essential first stage of instructional design because it ensures that technological innovations address authentic learning problems rather than merely incorporating technological features (Mustaffa & Sailin, 2022 ; Chengli et al., 2025).

Within Universiti Malaysia Sabah (UMS), Arabic language courses are offered to beginner learners from diverse academic backgrounds, many of whom have limited or no previous experience learning Arabic. Preliminary observations indicate that these learners frequently experience difficulties in mastering Arabic reading skills using conventional instructional methods. Although lecturers increasingly integrate digital resources into teaching, there remains a lack of comprehensive mobile applications specifically designed to support Arabic reading through learner-centred and gamified approaches. Furthermore, previous research conducted among non-Arabic speaking learners demonstrated that learner readiness, engagement, and satisfaction play important roles in technology-enhanced Arabic language learning, suggesting that educational technologies should be designed based on learners' actual learning needs and technological readiness (Kassim et al., 2023).

The i-Mubtadiin mobile application is proposed as a gamified Mobile-Assisted Language Learning platform designed to facilitate Arabic reading acquisition among beginner learners. Before initiating the design and development process, it is essential to identify learners' learning challenges, readiness for mobile learning, preferred gamification elements, and expectations regarding application features. The findings from this needs

analysis will establish the pedagogical foundation for designing an application that is educationally meaningful, learner-centred, and technologically appropriate.

Accordingly, this study investigates learners' needs for gamified mobile learning in Arabic reading and provides empirical evidence to support the development of the i-Mubtadiin mobile application. Specifically, the study aims to:

1. Identify the challenges encountered by beginner learners in learning Arabic reading.
2. Determine learners' readiness towards mobile-assisted Arabic learning.
3. Identify learners' preferences regarding gamification elements in a mobile learning application.
4. Determine the essential features required for developing the i-Mubtadiin mobile application.

LITERATURE REVIEW

Arabic Reading among Beginner Learners

Reading is one of the most fundamental language skills because it forms the basis for vocabulary acquisition, pronunciation, grammar comprehension, and overall language proficiency. For learners of Arabic as a foreign language, reading is considerably more demanding than in many other languages due to the unique characteristics of the Arabic writing system. Learners are required to recognise letter shapes in different word positions, distinguish between visually similar letters, identify diacritical marks, and produce accurate pronunciation while simultaneously comprehending the meaning of the text (Kassim & Sahrir, 2023; Al-Khresheh, 2025).

Numerous studies have reported that beginner learners frequently experience difficulties during the early stages of Arabic language acquisition. Common challenges include inaccurate pronunciation, weak phonological awareness, confusion between short and long vowels, limited vocabulary knowledge, and insufficient reading fluency. These challenges are particularly evident among learners with little or no previous exposure to Arabic, who often rely heavily on teacher guidance during classroom instruction (Kassim & Sahrir, 2023; Al-Khresheh, 2025).

Within Malaysian higher education institutions, Arabic is commonly offered as a foreign language course to students from diverse educational and cultural backgrounds. Many learners enrol without any formal Arabic learning experience. Previous studies have shown that these learners frequently perceive Arabic as one of the most difficult foreign languages because of its unfamiliar writing system, pronunciation, grammatical structure, and morphology. Traditional instructional practices that rely primarily on memorisation and teacher-centred instruction often reduce learner participation and motivation, limiting opportunities for meaningful language practice (Kassim et al., 2023).

Reading acquisition therefore requires instructional approaches that support repeated practice, immediate feedback, learner autonomy, and continuous access to learning resources. Educational technologies have increasingly been recognised as valuable tools for addressing these challenges by providing interactive learning experiences that extend beyond the classroom (Hamad et al., 2024; Chengli et al., 2025).

However, existing studies have largely focused on identifying reading difficulties and evaluating instructional practices rather than investigating learners' specific needs prior to the development of technology-based interventions. Consequently, limited empirical evidence is available to guide the design of learner-centred mobile applications that specifically address Arabic reading challenges among beginner learners.

Mobile Learning in Language Education

The rapid advancement of mobile technologies has transformed educational practices worldwide. Mobile learning has emerged as one of the most influential approaches in higher education because it enables learners to access instructional materials regardless of time and location. Unlike conventional classroom learning, mobile

learning encourages flexibility, learner autonomy, and continuous learning, allowing students to practise according to their own pace and learning preferences (Hamad et al., 2024).

Within language education, Mobile-Assisted Language Learning (MALL) has gained increasing attention because mobile devices support multimedia instruction through text, audio, animation, images, videos, and interactive exercises. These multimedia elements create richer learning experiences compared to traditional instructional approaches. Research has consistently demonstrated that mobile learning contributes positively to language acquisition by increasing learner engagement, facilitating repeated practice, and promoting independent learning (Almufarreh, A., & Arshad, M. (2023).; Chengli et al., 2025).

For Arabic language learning, mobile learning provides additional advantages because learners require continuous pronunciation practice, vocabulary reinforcement, and repeated exposure to Arabic script. Smartphones enable learners to revisit learning materials multiple times outside formal classroom sessions, thereby increasing opportunities for mastery learning. Previous studies also indicate that technology-enhanced learning environments improve learners' motivation, participation, learning satisfaction, and confidence when learning Arabic as a foreign language (Kassim et al., 2023; Kassim & Sahrir, 2023).

However, the educational effectiveness of mobile learning depends largely on instructional design rather than technological sophistication. Applications developed without understanding learners' expectations often experience low acceptance and limited educational impact. Consequently, identifying learners' needs before application development has become an important stage in educational technology research (Garzon, J., Lampropoulos, G., & Burgos, D. (2023).

Nevertheless, many mobile learning studies have primarily evaluated learning outcomes after application implementation, while relatively few have examined learners' expectations, readiness, and instructional preferences during the analysis phase of instructional design. This limits the development of applications that truly reflect users' learning requirements (Chengli et al., 2025; Fitrianto, I. (2024).

Gamification in Language Learning

Gamification refers to the incorporation of game design elements into non-game learning environments to improve learner engagement, motivation, and participation. Unlike educational games that focus primarily on entertainment, gamification integrates motivational features such as points, badges, rewards, leaderboards, progress indicators, challenges, and immediate feedback into instructional activities (Ishaq et al., 2021; Wulantari et al. 2023).

Educational researchers have increasingly recognised gamification as an effective pedagogical strategy because it encourages active learning, sustained engagement, and continuous participation. Recent systematic reviews indicate that gamification positively influences learners' motivation, behavioural engagement, learning persistence, and academic performance when game elements are aligned with instructional objectives (2023; Adzmi, et al, 2024; Al-Khresheh, 2025).

In foreign language education, gamification has demonstrated positive effects on vocabulary learning, pronunciation, reading comprehension, and learner persistence. Applications such as Duolingo have shown how game mechanics can transform repetitive language exercises into enjoyable learning experiences. Learners become more willing to complete learning tasks when instructional activities are accompanied by meaningful rewards, adaptive challenges, and immediate feedback (Adzmi, et al, 2024;).

Despite the growing popularity of gamified learning, empirical studies focusing on gamification for Arabic reading remain limited, particularly among beginner learners in Malaysian higher education. Existing applications frequently incorporate generic game elements without first determining which motivational features are genuinely preferred by learners. As a result, there is limited evidence to inform the design of gamified Arabic reading applications that effectively combine pedagogical and motivational principles (Kassim & Sahrir, 2023).

Needs Analysis in Educational Technology Development

Needs analysis represents one of the most important preliminary stages in instructional design because it ensures that educational innovations are developed based on authentic learner requirements rather than technological assumptions. Within educational technology, needs analysis is commonly conducted to identify learners' characteristics, learning problems, technological readiness, instructional preferences, and desired learning features before instructional products are developed (Mubarak, S. (2024)).

Instructional design models such as ADDIE emphasise analysis as the first phase because understanding learner needs contributes directly to the effectiveness, usability, and acceptance of educational applications. Educational products that are developed without systematic needs assessment frequently fail to address learners' actual learning challenges, resulting in poor engagement, limited usability, and reduced instructional effectiveness (Ayeeni, et al., 2024; Chengli et al., 2025).

Previous educational technology studies have demonstrated that learners' perspectives provide valuable information regarding application interface design, multimedia presentation, instructional content, navigation, assessment methods, and motivational features. Understanding these expectations enables developers to produce learner-centred instructional applications that improve both usability and learning outcomes (Mubarak, S. (2024)).

For the proposed i-Mubtadiin mobile application, conducting a comprehensive needs analysis is particularly important because the target users consist of beginner learners with limited Arabic proficiency. Although needs analysis is widely recognised as the foundation of learner-centred instructional design, little empirical evidence is available regarding the needs of beginner Arabic learners in Malaysian higher education, particularly concerning their reading difficulties, readiness for mobile learning, preferred gamification elements, and desired application features. Addressing these gaps is essential to ensure that the development of i-Mubtadiin is grounded in learners' actual educational needs rather than developer assumptions.

Theoretical Framework

This study is grounded in two complementary theoretical foundations, namely the ADDIE Instructional Design Model and Self-Determination Theory (SDT). Together, these frameworks provide pedagogical and motivational guidance for identifying learners' needs prior to the development of the i-Mubtadiin mobile application. The ADDIE instructional design model identifies the Analysis phase as the foundation of effective instructional product development. During this phase, developers systematically examine learners' characteristics, learning problems, instructional needs, technological readiness, and learning preferences before designing educational interventions. Conducting a comprehensive needs analysis helps ensure that instructional products are developed based on empirical evidence rather than developer assumptions, thereby improving their relevance, usability, and instructional effectiveness. Accordingly, the present study represents the Analysis phase of the ADDIE model by identifying the challenges encountered by beginner Arabic learners, their readiness for mobile learning, preferred gamification elements, and desired application features.

In addition to ADDIE, this study is informed by Self-Determination Theory (Ryan & Deci, 2024), which explains learner motivation through the fulfilment of three basic psychological needs: autonomy, competence, and relatedness. Autonomy refers to learners' ability to control their own learning, competence reflects their perception of successfully mastering learning tasks, and relatedness concerns learners' sense of connection and support within the learning environment. Educational technologies that address these psychological needs are more likely to promote intrinsic motivation, sustained engagement, and meaningful learning. The principles of Self-Determination Theory are closely aligned with the design of gamified mobile learning environments. Mobile learning supports learner autonomy by enabling self-paced and flexible learning beyond the classroom, while gamification elements such as immediate feedback, rewards, progress tracking, and interactive quizzes enhance learners' sense of competence through continuous reinforcement and visible learning progress. Although this study does not directly measure motivational constructs, Self-Determination Theory provides an appropriate

conceptual lens for interpreting learners' preferences and informing the design of motivational features within the proposed i-Mubtadiin mobile application.

By integrating the ADDIE instructional design model with Self-Determination Theory, this study establishes a strong conceptual foundation for the needs analysis process. The ADDIE model guides the systematic identification of learner requirements, whereas Self-Determination Theory explains how instructional and gamification features can support learner motivation and engagement. Together, these frameworks provide theoretical justification for developing a learner-centred mobile application that responds to the actual needs and expectations of beginner Arabic learners.

METHODOLOGY

This study employed a sequential explanatory mixed-methods design to identify learners' needs for the development of the i-Mubtadiin gamified mobile application for Arabic reading. This design was selected because it enabled quantitative findings to first identify the overall learning needs and preferences of beginner learners, followed by qualitative exploration to explain and enrich the survey results through participants' experiences and perspectives. The integration of both quantitative and qualitative data provided a more comprehensive understanding of learners' instructional needs during the analysis phase of instructional design. The quantitative phase involved a questionnaire survey administered to 80 undergraduate students enrolled in introductory Arabic language courses at Universiti Malaysia Sabah (UMS). Participants were selected using convenience sampling because they represented the intended users of the proposed i-Mubtadiin mobile application and were readily accessible during the needs analysis phase. Since the primary objective of this study was to identify user requirements for instructional design rather than to generalise findings to the wider population, convenience sampling was considered appropriate.

The questionnaire consisted of five sections covering demographic information, Arabic reading challenges, mobile learning readiness, preferred gamification elements, and desired application features. All items were measured using a five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). Prior to the main data collection, the questionnaire underwent a rigorous validation process. Three experts specialising in Arabic language education, instructional technology, and educational measurement reviewed the instrument to establish content validity, ensuring that each item was relevant, clear, and aligned with the research objectives. Their recommendations were incorporated before the pilot study was conducted. A pilot study involving 30 beginner Arabic learners was subsequently carried out to evaluate the clarity, readability, and internal consistency of the instrument. Reliability was assessed using Cronbach's alpha coefficient. The overall reliability exceeded the recommended threshold of 0.87, indicating satisfactory internal consistency of the questionnaire.

The qualitative phase consisted of Focus Group Discussions (FGDs) involving 10 purposively selected beginner learners. Purposive sampling was employed to ensure that participants possessed direct learning experiences relevant to Arabic reading and mobile learning, allowing them to provide richer insights into their learning challenges, expectations, and preferences regarding the proposed application. A semi-structured discussion protocol was used to explore learners' experiences in Arabic reading, learning motivation, preferred gamification elements, expectations of a mobile learning application, and suggestions for improving the proposed i-Mubtadiin application. Each discussion lasted approximately 35 to 60 minutes and was audio-recorded with participants' informed consent before being transcribed verbatim for analysis. To enhance the trustworthiness of the qualitative findings, several strategies were employed, including member checking, peer debriefing, and investigator triangulation. These procedures helped ensure the credibility, dependability, and confirmability of the qualitative interpretations.

Ethical approval was obtained before the commencement of data collection, and participation was voluntary with informed consent obtained from all participants. Quantitative data were analysed using IBMSPSS Statistics through descriptive statistics, including frequencies, percentages, means, standard deviations, and ranking, to identify learners' needs and preferences. Qualitative data were analysed using Braun and Clarke's (2006) thematic analysis, involving familiarisation with the data, coding, theme development, theme review, theme definition, and report writing. Finally, findings from both phases were integrated during the interpretation

stage. Quantitative results identified the prevalence and priority of learners' needs, whereas the qualitative findings explained the reasons underlying these patterns. This integration enabled a more comprehensive understanding of learners' needs and provided stronger empirical evidence to guide the design and development of the i-Mubtadiin gamified mobile application.

FINDINGS AND DISCUSSIONS

This section presents the findings according to the four research objectives. Quantitative findings are presented using descriptive statistics, while qualitative findings from the Focus Group Discussions (FGDs) are used to explain and support the survey results.

Learners' Challenges in Arabic Reading

The first objective of this study was to identify the challenges encountered by beginner learners in learning Arabic reading. As presented in Table 1, respondents reported substantial difficulties across all aspects of Arabic reading, with mean scores ranging from 4.00 to 4.22. The highest mean scores were recorded for difficulty recognising Arabic letters and limited Arabic vocabulary ($M = 4.22$, $SD = 0.72$ and 0.84 , respectively), followed by the need for additional practice ($M = 4.21$, $SD = 0.83$), difficulty distinguishing similar letters ($M = 4.17$, $SD = 0.77$), difficulty pronouncing Arabic words ($M = 4.13$, $SD = 0.77$), difficulty understanding texts ($M = 4.12$, $SD = 0.84$), slow reading fluency ($M = 4.11$, $SD = 0.85$), and difficulty differentiating short and long vowels ($M = 4.10$, $SD = 0.72$). Respondents also indicated challenges related to lack of confidence when reading ($M = 4.02$, $SD = 0.77$) and dependence on lecturers ($M = 4.00$, $SD = 0.87$). Overall, the results demonstrate that beginner learners encounter multiple challenges that collectively hinder the development of Arabic reading proficiency.

Table 1 Descriptive Statistics of Arabic Reading Challenges

No.	Item	Mean	Standard Deviation
1	Difficulty recognising Arabic letters	4.22	0.72
2	Difficulty distinguishing similar letters	4.17	0.77
3	Difficulty differentiating short and long vowels	4.10	0.72
4	Difficulty pronouncing Arabic words	4.13	0.77
5	Limited Arabic vocabulary	4.22	0.84
6	Slow reading fluency	4.11	0.85
7	Need lecturer assistance	4.00	0.87
8	Difficulty understanding texts	4.12	0.84
9	Lack of confidence when reading	4.02	0.77
10	Need additional practice	4.21	0.83

The qualitative findings from the Focus Group Discussions (FGDs) complement the quantitative results. Participants generally agreed that recognising individual Arabic letters was manageable during the initial stages of learning. However, greater difficulties emerged when reading connected words and sentences, particularly when distinguishing visually similar letters, identifying appropriate vowel patterns, and pronouncing unfamiliar words accurately. Many participants also explained that opportunities to practise Arabic reading outside classroom sessions were limited, resulting in low confidence and continued dependence on lecturers for guidance and corrective feedback. These observations suggest that learners require greater instructional support beyond formal classroom teaching to strengthen their reading skills progressively.

The findings are consistent with previous studies reporting that Arabic reading remains one of the most challenging language skills for non-native learners because of the complexity of its orthographic system, phonological features, and morphological structure (Kassim & Sahrir, 2023; Al-Khresheh, 2025). Similar challenges have also been reported among university students learning Arabic as a foreign language, where limited vocabulary knowledge, pronunciation difficulties, and weak reading fluency hinder overall language development (Kassim et al., 2023). Recent research in Arabic language education further highlights that beginner learners often require structured learning support, repeated exposure, and appropriate instructional scaffolding

before they can achieve reading fluency (Fitrianto, 2024). Collectively, these studies suggest that the challenges identified in the present study are common among beginner Arabic learners and remain an important concern in higher education.

A closer examination of the findings indicates that these reading challenges are closely interconnected. Difficulties in recognising Arabic letters and differentiating vowel patterns frequently lead to inaccurate pronunciation, which subsequently affects reading fluency and text comprehension. Rather than occurring independently, these difficulties form a sequence in which weaknesses in foundational reading skills influence the development of higher-order reading abilities. This observation suggests that improving Arabic reading proficiency requires an integrated instructional approach that simultaneously develops orthographic recognition, phonological awareness, pronunciation accuracy, vocabulary acquisition, and reading comprehension.

The consistently high rating for the need for additional reading practice deserves particular attention. This finding indicates that classroom instruction alone may not provide sufficient opportunities for learners to consolidate newly acquired reading skills. Arabic reading proficiency develops through repeated exposure, continuous practice, and timely corrective feedback, all of which require learning opportunities beyond scheduled classroom sessions. Recent studies in Mobile-Assisted Language Learning (MALL) have similarly shown that continuous access to learning resources, self-directed learning, and flexible learning environments can significantly enhance language learning outcomes by enabling learners to practise at their own pace (Jeong, 2022; Garzon et al., 2023; Hamad et al., 2024).

These findings provide clear pedagogical direction for the development of the i-Mubtadiin mobile application. Rather than functioning merely as a digital repository of learning materials, the application should provide structured instructional experiences that directly address the reading challenges identified in this study. Essential features should include audio pronunciation, progressive reading exercises, vocabulary support, pronunciation practice, and immediate corrective feedback to enable learners to practise independently while receiving continuous instructional guidance. Organising learning content into short, progressive microlearning modules would further encourage repeated practice, reduce cognitive load, and facilitate gradual mastery of Arabic reading skills.

Overall, the findings highlight the importance of conducting a systematic needs analysis before developing educational technology. The results demonstrate that beginner learners face specific instructional challenges that cannot be addressed simply by digitising conventional teaching materials. Instead, application development should be guided by empirical evidence regarding learners' actual learning difficulties, instructional preferences, and educational expectations. By adopting this evidence-based approach, the i-Mubtadiin mobile application is expected to provide more meaningful learning experiences, strengthen learner confidence, encourage independent learning, and ultimately improve Arabic reading proficiency. These findings further reinforce the role of needs analysis as the foundation of learner-centred instructional design, ensuring that educational technologies are developed in response to authentic learner needs rather than technological assumptions (Mubarak, 2024).

Mobile Learning Readiness

The second objective of this study was to determine learners' readiness towards mobile-assisted Arabic learning. As presented in Table 2, the findings revealed that respondents demonstrated a moderate to high level of readiness to adopt mobile learning, with mean scores ranging from 3.76 to 4.00. The highest mean score was recorded for confidence in using smartphones for learning ($M = 4.00$, $SD = 0.74$), followed by willingness to learn independently ($M = 3.81$, $SD = 0.59$), motivation to use mobile learning ($M = 3.81$, $SD = 0.65$), the belief that mobile learning could improve Arabic reading ($M = 3.78$, $SD = 0.68$), and both the ability to install learning applications ($M = 3.76$, $SD = 0.55$) and confidence in managing their own learning ($M = 3.76$, $SD = 0.62$). Overall, the findings suggest that beginner Arabic learners possess the technological competence and positive attitudes required to adopt mobile-assisted learning effectively.

Table 2 Mobile Learning Readiness

No.	Item	Mean	Standard Deviation
1	Confidence using smartphones	4.00	0.74
2	Ability to install learning applications	3.76	0.55
3	Willingness to learn independently	3.81	0.59
4	Motivation to use mobile learning	3.81	0.65
5	Confidence managing own learning	3.76	0.62
6	Belief that mobile learning improves Arabic reading	3.78	0.68

The qualitative findings from the Focus Group Discussions (FGDs) further support these results. Participants consistently described smartphones as their preferred learning device because they are portable, accessible, and convenient for learning beyond the classroom. Many participants explained that they regularly used smartphones to search for Arabic vocabulary, watch instructional videos, and revise learning materials during their free time. They also appreciated the flexibility to revisit learning content repeatedly according to their own pace. However, several participants noted that many existing Arabic learning applications focus primarily on vocabulary memorisation while offering limited support for systematic reading instruction, pronunciation practice, and beginner-level progression. These observations suggest that learners are not only ready to adopt mobile learning but also expect applications that provide comprehensive instructional support tailored to their learning needs.

The present findings are consistent with previous studies identifying learner readiness as a key prerequisite for the successful implementation of Mobile-Assisted Language Learning (MALL). Learners who demonstrate greater technological confidence and self-directed learning skills are generally more willing to engage in mobile learning activities and achieve better language learning outcomes (Hung et al., 2010; Al-Rahmi et al., 2022). Recent evidence further indicates that mobile learning promotes learner autonomy, flexible access to learning resources, and continuous language practice when instructional activities are intentionally designed to support personalised learning rather than simply introducing digital technologies into the classroom (Jeong, 2022; Garzon et al., 2023; Hamad et al., 2024). These findings suggest that learner readiness extends beyond technology acceptance and includes the willingness to take greater responsibility for one's own learning.

Despite the high level of readiness reported in this study, participants consistently emphasised that technological readiness alone is insufficient to ensure meaningful learning. Learners expected mobile applications to provide structured instructional guidance, particularly in Arabic reading, where pronunciation, vocabulary development, and reading fluency require continuous practice and timely feedback. This finding indicates that learners clearly distinguish between having access to technology and having access to effective learning support. Consequently, the educational value of mobile learning depends not only on the availability of mobile devices but also on the quality of instructional experiences provided through the application.

Another important observation concerns learners' preference for flexible and self-directed learning. Participants valued the opportunity to continue learning beyond formal classroom sessions because mobile learning allowed them to review lessons repeatedly according to their own pace and learning needs. Such flexibility is particularly valuable in Arabic reading, where mastery develops through repeated exposure, consistent pronunciation practice, and gradual progression. These findings reinforce the view that mobile learning should complement conventional classroom instruction by extending learning opportunities rather than replacing face-to-face teaching.

From an instructional perspective, these findings establish several important considerations for the development of the i-Mubtadiin mobile application. Since learners have already demonstrated strong readiness to adopt mobile learning, greater emphasis should be placed on delivering meaningful instructional experiences rather than encouraging technology acceptance alone. The application should therefore incorporate a user-friendly interface, structured learning pathways, multimedia learning resources, and self-paced instructional modules that enable learners to practise Arabic reading independently. Features such as audio pronunciation, progressive reading exercises, vocabulary support, pronunciation recording, interactive quizzes, and immediate corrective feedback should be integrated to ensure that learners' technological readiness is translated into measurable improvements

in Arabic reading proficiency. These recommendations are consistent with recent studies advocating learner-centred, personalised, and adaptive mobile learning environments that respond to individual learning needs (Gumbheer et al., 2022; Almufarreh & Arshad, 2023).

Overall, these findings demonstrate that learner readiness should be regarded as an important foundation rather than the final determinant of successful mobile learning. Readiness creates the potential for technology adoption, but meaningful learning occurs only when instructional design aligns with learners' abilities, preferences, and expectations. By incorporating these findings into the design of the i-Mubtadiin mobile application, developers can create a learning environment that is accessible, pedagogically meaningful, and responsive to the needs of beginner Arabic learners. This evidence further reinforces the importance of conducting a systematic needs analysis before developing educational technologies, ensuring that application design is informed by learners' actual experiences and instructional requirements rather than technological assumptions alone (Mubarak, 2024).

Learners' Preferences towards Gamification

The third objective of this study was to identify learners' preferences for gamification elements in the proposed i-Mubtadiin mobile application. As presented in Table 3, respondents expressed positive perceptions towards the integration of gamification in Arabic reading, with mean scores ranging from 3.36 to 3.81. Game-based activities ($M = 3.81$, $SD = 0.61$), daily challenges ($M = 3.80$, $SD = 0.60$), unlocking new levels ($M = 3.78$, $SD = 0.63$), interactive quizzes ($M = 3.72$, $SD = 0.82$), and immediate feedback ($M = 3.71$, $SD = 0.84$) emerged as the most preferred gamification elements. Progress tracking ($M = 3.56$, $SD = 0.79$) and badges ($M = 3.56$, $SD = 0.76$) were also positively perceived, while rewards ($M = 3.36$, $SD = 0.95$) received the lowest mean score among the proposed elements. These findings suggest that learners perceive gamification as a learning support strategy that encourages continuous participation, reinforces learning progress, and sustains motivation throughout the learning process.

Table 3 Preferred Gamification Elements

No.	Item	Mean	Standard Deviation
1	Immediate feedback	3.71	0.84
2	Interactive quizzes	3.72	0.82
3	Rewards	3.36	0.95
4	Badges	3.56	0.76
5	Progress tracking	3.56	0.79
6	Daily challenges	3.80	0.60
7	Unlocking new levels	3.78	0.63
8	Game-based activities	3.81	0.61

The qualitative findings from the Focus Group Discussions (FGDs) provide further insight into learners' preferences for gamification. Participants consistently highlighted the importance of immediate feedback because it enabled them to identify mistakes, improve pronunciation, and refine their reading accuracy without waiting for lecturers' explanations. Interactive quizzes were also perceived positively because they transformed repetitive reading practice into engaging learning activities while allowing learners to evaluate their own progress. In contrast, opinions regarding competitive elements such as leaderboards were mixed. Although several participants considered competition motivating, many preferred monitoring their own learning progress rather than comparing their performance with others. These responses indicate that beginner Arabic learners place greater value on personal achievement, continuous improvement, and constructive feedback than on competitive ranking.

A similar pattern has been reported in recent studies examining gamification in language learning. Research has consistently shown that gamification enhances learner engagement, motivation, persistence, and learning performance when game elements are meaningfully integrated into instructional activities rather than used solely for entertainment (Ishaq et al., 2021; Wulantari et al., 2023; Kumar & Hashim, 2024). Likewise, Adzmi et al. (2024) emphasised that game elements such as feedback, rewards, and progress monitoring can strengthen

learners' motivation and sustain active participation throughout the learning process. These findings reinforce the view that the educational value of gamification lies in its ability to encourage meaningful learning behaviours rather than simply increasing enjoyment.

An interesting observation emerging from this study is that learners consistently favoured gamification elements that support mastery learning instead of competition. Immediate feedback, progress tracking, and rewards received higher ratings than badges, daily challenges, and level progression, suggesting that learners are primarily motivated by opportunities to monitor their own improvement and receive continuous reinforcement. This observation is consistent with Self-Determination Theory, which proposes that intrinsic motivation develops when learners experience competence, autonomy, and a sense of accomplishment (Ryan & Deci, 2020). For beginner Arabic learners, receiving timely feedback and observing gradual progress appear to be more motivating than competing with peers, particularly during the early stages of reading development.

The findings also suggest that gamification should be selected based on its instructional value rather than its popularity. Although gamification has become an increasingly common feature of educational technologies, not every game mechanic contributes equally to learning. The present findings demonstrate that learners clearly differentiate between game elements that genuinely facilitate learning and those that merely introduce competition. This highlights the importance of aligning gamification with instructional objectives and learners' motivational preferences to maximise educational effectiveness.

From a design perspective, the findings indicate that gamification within the i-Mubtadiin mobile application should function as a mechanism for reinforcing learning rather than entertaining users. Priority should therefore be given to instructional game elements that encourage consistent practice, provide meaningful feedback, recognise learner progress, and sustain motivation throughout the learning process. Competitive features may still be incorporated where appropriate; however, they should remain optional so that learners can choose the learning experience that best matches their individual preferences and confidence levels.

Overall, these findings demonstrate that effective gamification begins with a clear understanding of learners' motivational preferences rather than the indiscriminate inclusion of popular game mechanics. By identifying the elements that learners perceive as meaningful, developers can integrate gamification in ways that strengthen instructional objectives and promote long-term learning engagement. The findings therefore provide empirical support for adopting a needs-driven approach to gamified instructional design, ensuring that motivational features are selected based on learners' actual preferences and learning requirements rather than assumptions made during the development process.

Desired Features of the i-Mubtadiin Mobile Application

The fourth objective of this study was to identify the essential features required for the development of the i-Mubtadiin mobile application. As presented in Table 4, respondents expressed strong preferences for instructional features that directly support Arabic reading, with mean scores ranging from 4.22 to 4.46. Offline learning ($M = 4.46$, $SD = 0.63$) received the highest rating, followed by interactive reading practice ($M = 4.36$, $SD = 0.69$), a user-friendly interface ($M = 4.36$, $SD = 0.71$), a progress dashboard ($M = 4.35$, $SD = 0.69$), reading games ($M = 4.28$, $SD = 0.67$), audio pronunciation ($M = 4.27$, $SD = 0.63$), vocabulary support ($M = 4.27$, $SD = 0.61$), animated demonstrations ($M = 4.26$, $SD = 0.63$), pronunciation recording ($M = 4.23$, $SD = 0.67$), and immediate corrective feedback ($M = 4.22$, $SD = 0.67$). Overall, the findings indicate that learners place greater importance on instructional support and usability than on sophisticated technological functions, suggesting that educational value should remain the primary consideration in application development.

Table 4 Desired Mobile Application Features

No.	Item	Mean	Standard Deviation
1	Audio pronunciation	4.27	0.63
2	Interactive reading practice	4.36	0.69
3	Animated demonstrations	4.26	0.63

4	Vocabulary support	4.27	0.61
5	Pronunciation recording	4.23	0.67
6	Reading games	4.28	0.67
7	Immediate corrective feedback	4.22	0.67
8	Progress dashboard	4.35	0.69
9	Offline learning	4.46	0.63
10	User-friendly interface	4.36	0.71

The qualitative findings from the Focus Group Discussions (FGDs) further explain these preferences. Participants consistently described audio pronunciation as the most essential feature because it enabled them to verify pronunciation accuracy while reading unfamiliar Arabic words. They also preferred learning activities organised into short and manageable lessons, allowing them to learn independently without becoming overwhelmed. Furthermore, participants emphasised that immediate corrective feedback should not simply indicate whether an answer is correct or incorrect but should also provide brief explanations to facilitate learning from mistakes. A simple interface, intuitive navigation, and offline accessibility were also regarded as important because these features would enable uninterrupted learning regardless of internet connectivity or learning location. These findings indicate that learners expect a mobile application that functions as a personalised learning companion, providing continuous instructional support rather than merely serving as a digital repository of learning materials (Jeong, 2022; Gumbheer et al., 2022).

Recent studies in Mobile-Assisted Language Learning (MALL) similarly demonstrate that multimedia resources, learner-friendly interfaces, interactive instructional activities, and timely feedback significantly improve learner engagement, language acquisition, and overall learning performance (Garzon et al., 2023; Sholekhah & Fakhurriana, 2023). Likewise, research on educational technology has shown that learners are more likely to adopt and continuously use mobile learning applications when they are intuitive, accessible, and designed to support self-directed learning (Al-Rahmi et al., 2022; Hamad et al., 2024). Recent developments in educational technology further emphasise that successful mobile applications should integrate personalised learning experiences and adaptive instructional support rather than focusing solely on technological innovation (Almufarreh & Arshad, 2023; Ayeni et al., 2024).

The present findings provide further evidence by identifying the instructional features that beginner Arabic learners consider most valuable before the application development process begins. Unlike many previous studies that evaluated mobile learning applications after implementation, this study adopts a needs analysis approach to identify learners' instructional expectations during the planning stage. The results clearly indicate that learners prioritise features that directly address their reading difficulties, particularly pronunciation support, guided reading practice, vocabulary assistance, explanatory feedback, and flexible access to learning resources. These preferences reflect learners' expectation that mobile applications should function as instructional companions capable of facilitating independent and continuous learning rather than simply delivering digital content (Mubarak, 2024; Fitrianto, 2024).

From a design perspective, the findings establish several key principles for the development of the i-Mubtadiin mobile application. Multimedia components, particularly high-quality audio pronunciation and animated demonstrations, should be integrated to facilitate accurate pronunciation and improve reading comprehension. Learning content should also be organised into progressive microlearning modules that enable learners to develop reading skills systematically through short and manageable learning activities. In addition, the application should incorporate immediate corrective feedback, personalised progress monitoring, interactive reading exercises, and offline accessibility to maximise usability and support continuous learning. These design principles are consistent with current recommendations for learner-centred educational technologies that prioritise usability, flexibility, and personalised learning experiences (Gumbheer et al., 2022; Almufarreh & Arshad, 2023).

Taken together, these findings demonstrate that the success of an educational mobile application depends not only on the integration of advanced technologies but also on how effectively those technologies address learners' instructional needs. The design of the i-Mubtadiin mobile application should therefore be guided by empirical

evidence gathered during the needs analysis phase rather than by technological trends alone. By translating learners' preferences into concrete design specifications, the proposed application is expected to provide meaningful learning support, enhance independent learning, improve Arabic reading proficiency, and promote sustained learner engagement. These findings further reinforce the value of needs analysis as a fundamental stage of instructional design, ensuring that educational technologies are developed in response to authentic learner requirements rather than developer assumptions (Mubarak, 2024).

CONCLUSION

This study investigated the learning needs of beginner Arabic learners as a foundation for developing the i-Mubtadiin gamified mobile application. The findings revealed that learners continue to experience considerable challenges in Arabic reading, particularly in recognising Arabic letters, differentiating vowel patterns, achieving accurate pronunciation, expanding vocabulary, and developing reading fluency. At the same time, learners demonstrated a high level of readiness to adopt mobile-assisted learning and expressed strong preferences for gamification elements and instructional features that support continuous practice, immediate feedback, learner autonomy, and independent learning. The integration of quantitative and qualitative findings consistently showed that these needs should serve as the primary basis for designing learner-centred mobile learning applications.

A major contribution of this study lies in its systematic needs analysis conducted prior to application development. Unlike many previous studies that evaluated mobile learning applications after implementation, this study focused on identifying learners' actual challenges, technological readiness, motivational preferences, and instructional expectations during the Analysis phase of the ADDIE instructional design model. Furthermore, by drawing on the principles of Self-Determination Theory, the findings demonstrate that learners value instructional features that enhance autonomy, competence, and sustained engagement through meaningful feedback, progress monitoring, and self-paced learning. Consequently, this study extends the literature on Mobile-Assisted Language Learning (MALL), gamified language learning, and instructional design by providing empirical evidence to support learner-centred educational technology development.

The findings also provide practical design implications for the development of the i-Mubtadiin mobile application. The application should incorporate structured microlearning modules, audio pronunciation, interactive reading activities, vocabulary support, immediate corrective feedback, personalised progress monitoring, and carefully selected gamification elements that reinforce learning rather than merely introducing entertainment or competition. Designing the application based on empirically identified learner needs is expected to improve usability, learner engagement, instructional effectiveness, and Arabic reading proficiency while promoting continuous learning beyond formal classroom settings.

Despite its contributions, this study has several limitations. First, the quantitative phase involved only 80 undergraduate students from a single public university, while the qualitative phase included 10 purposively selected participants. Although these participants represented the intended users of the proposed i-Mubtadiin mobile application, the findings should be interpreted within the context of beginner Arabic learners at Universiti Malaysia Sabah and may not be generalisable to learners from other higher education institutions or educational settings. Second, the study employed convenience sampling because the primary objective was to identify learners' needs during the Analysis phase of the ADDIE instructional design model rather than to make statistical generalisations. While this approach was appropriate for the purpose of the study, future research involving larger and more diverse samples using probability sampling techniques would strengthen the external validity and generalisability of the findings. Third, this study focused exclusively on the needs analysis stage and therefore did not evaluate the usability, learner acceptance, engagement, or instructional effectiveness of the completed mobile application. Consequently, the findings provide empirical guidance for instructional design but do not yet demonstrate the educational impact of the i-Mubtadiin application following its implementation.

Future research should extend this work by involving participants from multiple higher education institutions representing diverse educational backgrounds and levels of Arabic proficiency. Subsequent studies should proceed to the Design, Development, Implementation, and Evaluation phases of the ADDIE instructional design model to produce and validate the completed i-Mubtadiin mobile application. Future evaluations should examine the application's usability using the System Usability Scale (SUS), learners' acceptance of the application, learning engagement, and its effectiveness in improving Arabic reading proficiency through experimental or quasi-experimental research designs. Such studies would provide stronger empirical evidence regarding the effectiveness of learner-centred, gamified mobile learning and contribute to the wider implementation of evidence-based educational technologies in Arabic language education.

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