International Journal of Learning, Teaching and Educational Research
Vol. 24, No. 8, pp. 925-941, August 2025
https://doi.org/10.26803/ijlter.24.8.41
Received Jun 9, 2025; Revised Jul 25, 2025; Accepted Aug 18, 2025

Implementing Interactive Language Learning Mobile Apps in Higher Education: Students' Perceptions and Perspectives

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Abstract. The study examined students' perspectives and perceptions about a new interactive mobile learning application experience developed in alignment with Oman 20-40 vision to shift to digital education. ENGL150152 intercative app was created to improve vocabulary learning and reading comprehension. As a result of Oman Vision 2040, higher education institutions are increasingly adopting technology-enhanced education. Known for its flexibility and ability to overcome time and distance constraints, Mobile-Assisted Language Learning (MALL) has become a key tool in this digital transformation. This study evaluated the effectiveness of an interactive language learning mobile app that works with an automated feedback system. This study employed a mixed method exploratory design. A nine-component assessment framework was used to assess the effectiveness of ENGL150152 application from student's perceptions and perspectives. Data were collected through online surveys distributed to 780 English language students at a higher education institution in Oman. Descriptive Statistics revealed that while dissatisfaction with traditional teaching methods is widespread, students showed high levels of satisfaction with the app's versatility, interactivity, usability, inclusivity, sustainability, immediate feedback, adaptability, and flexibility. Nonetheless, the results suggesteded updating the mobile app to maximize flexibility and offline accessibility and integrating more AI-driven tools to enhance personalization. The study highlighted that Oman needs a significant shift from traditional to digital education.

Keywords: Mobile-Assisted Language Learning (MALL); Automated Feedback System; Digital Education; Higher Education; Students' Perception

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1. Introduction

This study is based on Oman Vision 20-40, which highlights how important it is for universities to shift from conventional education to digital education. The COVID-19 pandemic has further increased the urgency of the need for digital learning solutions, forcing institutions to adopt online, blended, and MALL learning methods (Crompton et al., 2019; Krull & Duart, 2017). However, the transition to digital education is not easy, especially to ensure that technology is used successfully in practice to advance educational goals (González Lloret, 2019; Mirza, 2014). Goksu (2021), Neffati (2021), and Parsazadeh et al. (2018) reported that the rapid integration of mobile technologies into education has changed the way students learn languages thanks to the unique personalized learning experiences MALL offers.

Therefore, to meet the strategic goals of Oman Vision 20-40 to digitilize higher education, we attempted to convert current face-to-face conventional English language courses offered by one of the foreign language departments of a university in Oman into mobile-technology-mediated-learning courses. Drawing on TELL theories and guided by MALL curriculum design and assessment frameworks, an interactive mobile app ENGL150152 was developed. This research would help higher education institutions in Oman shift to technology-meditaed education. Hence, this study focused on the evaluation of a newly developed interactive mobile language learning application aimed at improving reading comprehension and vocabulary among university students in Oman. The study sought to answer the following research questions:

RQ1: How do students perceive the effectiveness of the mobile application in improving their vocabulary and reading comprehension learning experiences?

RQ2: What are the key strengths and weaknesses of the mobile application from students' perspectives?

2. Literature Review

2.1. Mobile-Assisted Language Learning (MALL)

MALL involves the use of smart devices like smartphones and tablets to learn languages. Several studies (Chung et al., 2019; Crompton et al., 2019) reporteded that MALL offers students the opportunity to overcome time and space barriers as they could have access to learning materials anytime and anywhere. In addition, studies such as Booton (2023), Diacopoulos et al. (2020), and Neffati et al. (2021) suggesteded that MALL imposed itself as an integral alternative to traditional language teaching and learning as mobile apps offer a multitude of interactive activities that meet students' language practice needs. Kukulska-Hulme (2024) suggested that MALL offers an ideal alternative to traditional language teaching and learning.

2.2. Affordances of Interactive Mobile Applications for Language Learning

The learning potential of MALL lies in its ability to personalize and self-regulate large-scale learning. Portability, flexibility, usability, personalization, contextualization, and interactivity are key features of mobile applications.

According to Hwang et al. (2025) and Lin et al. (2023), interactive mobile apps impacted learner motivation, engagement, and autonomy; enhanced learner self-regulation; and personalized language learning. Recent studies examined the effectiveness of interactive mobile applications in improving language learning experiences. Nushi et al. (2023) reported that instant feedback from AI-based speech recognition improved student fluency and pronunciation. Loewen et al. (2020) reporteded improved communication skills. Hwang et al. (2025) and Chen et al. (2024) asserted that interactive mobile apps that combined interactive texts with interactive quizzes helped students memorize words and understand texts better. Benlaghrissi and Ouahidi (2023), Chaisuriya & Rongsiri (2023), Chavez et al. (2024), Elaish et al. (2023), and Pichugin et al. (2021) asserteded that mobile applications effectively improved lexical memory and reading comprehension.

They further reported that mobile apps can be set up to get instant feedback and effectively improve students' grammar learning. Lin et al. (2023), Fitriani et al. (2025), Maraza-Quispe et al. (2024), and Lin et al. (2023) confirmed that combining vocabulary learning with reading comprehension activities improved the overall reading comprehension skills. Chua and Kabilan (2022) found apps that offer automatic grammar and spell checking and writing assignments effectively improved students' writing skills. Li (2024) and Rosell-Aguilar (2017) reported that apps that allow group writing reviews were better suited for improving writing skills. Kim (2013) found that mobile apps were effective in improving speech listening skills and students' attitudes toward learning.

Chen (2024) reporteded that mobile apps that incorporated interactive listening tasks, text summarization, adjustable audio speed, and interactive questions improved student listening comprehension. Cho et al. (2019) also reporteded that interactive grammar activities improved students' grammatical skills. Similarly, Loewen et al. (2020) and Rosell-Aguilar (2018) reporteded that mobile apps that provided engaging vocabulary exercises featuring real-life examples effectively enhanced vocabulary learning.

2.3. Effective Features of Interactive Mobile Apps

Various researchers have put forth different frameworks for the evaluation of the efficacy of mobile applications. In this regard we can cite Wang et al. (2024), Lee et al. (2023), Chen et al. (2024), Viberg & Grönlund (2017), Koole (2009), Reinders & Pegrum (2016), Miangah & Nezarat (2012), Gafni et al. (2017), Mishra & Koehler (2006), Son (2016), Gilakjani (2017) and Ramos et al. (2022). They all pointed out the importance of different features, but they all agreed that usability, pedagogy, personalization, interactivity, contextualization, engagement, accessibility, feedback, and cost are key factors.

2.3.1. Usability

It essentially delineates the app's user interface and how simple it is to navigate and use. This is made possible by various features such as intuitive responsive design, text-to-speech for convenient access, smooth navigation, easy-to-use interface, easy menus, adjustable text size, and color contrast. Reinders et al. (2016) and Gafni et al. (2017) emphasized that usability is key to the effectiveness of mobile applications and that simple menus play an important role

in user satisfaction. Poor usability reduces productivity and leads to student dissatisfaction. Chen et al. (2024), Viberg & Grönlund (2017) argued that the usability evaluation feature should be considered in mobile app development to increase efficiency.

2.3.2. Personalization

Personalization refers to the ability of an app to adapt to a learner's needs, preferences, and development. This includes personalized learning paths, adaptive content, and feedback based on student performance. Chen (2021) and Miangah & Nezarat (2012) stated that personalized learning is a key feature of language mobile apps that help ensure self-regulated and sustainable learning.

2.3.3. Interactivity

Mobile app interactivity refers to the ability to enhance engagement and active participation. This is achieved thanks to mobile interactive tools such as chatbot conversations that simulate real conversations, interactive individual and collaborative quizzes and tasks, forums, voice recognition, games, and instant feedback (Miangah & Nezarat, 2013). Gafni et al. (2017) highlighted the role of interactivity in increasing user engagement and motivation. Koole (2009) highlighted that high levels of interactivity promote deep cognitive processing. Similarly, Wang et al. (2024) pointed out that interactive features, such as instant feedback and spoken language recognition, contribute significantly to students' ability to acquire language skills in immersive environments, as well as ease of collaboration and communication outside the classroom. However, Kukulska-Holm (2024) argued that the effectiveness of social features depends on the quality of interaction and users' control.

2.3.4. Accessibility

Accessibility refers to the ability of apps to be used across multiple devices, platforms, and locations. This includes offline access and compatibility with different operating systems. Elaish (2023) explained that MALL transcends time and space constraints and allows for the continuous use of the target language, resulting in improved language acquisition and autonomous and self-regulating learning skills. Reinders et al. (2016) emphasized portability as a hallmark of effective language learning applications, arguing that seamless access between platforms increases the flexibility of the learning process.

Similarly, Chen (2021), Elaish (2019), Gafni et al. (2017) and Hwang (2025) identified accessibility as one of the key characteristics when evaluating a good mobile app, suggesteding that an effective app not only allows for a quick transition between different contextual settings but also allows for a rapid transition between different contextual settings. They argued that language learning should be able to be naturally integrated into the user's daily life.

2.3.5. Feedback and Timeliness

Gafni (2017), Reinders & Pegrum (2016), and Miangah & Nezarat (2012) argued that effective mobile applications integrate instant feedback systems, peer review, progress tracking, interactive tools, and interactive tools that enable automatic corrections, explanations, and improvement suggestedions. Chen (2024) and Xia

et al. (2025) further argued that immediate and accurate feedback effectively promotes self-correction and self-reflection skills through personalized recommendations provided by AI and improves learning outcomes.

2.3.6. AI-Driven Features Support

It is highly recommended to integrate AI-driven tools into mobile applications such as chatbots and speech recognition to facilitate personalized learning, immediate feedback, and interactive adaptive learning experiences. Chavez et al. (2024) and Chapelle (2019) showed that AI-powered devices have become a trademark for powerful interactive mobile applications. They agreed that they would be effective in providing personalized feedback and adaptive content tailored to each learner's needs, increase engagement, and personalize learning. Chapelle (2019), Xia (2015), and Zhang (2023) further highlighted the potential of AI-driven devices in automating and improving educational practices via mobile.

2.3.7. Gamification

Playful elements such as badges, leaderboards, and storylines have been proven to increase motivation and engagement. Lee et al. (2023) found that gamified MALL apps have a 40% higher long-term retention than non-gamified apps. Burston (2015) and Viberg et al. (2017) emphasized that mobile apps that integrate gaming apps with reward-based mechanisms improve motivation and engagement. However, the effectiveness of the game depends on its relevance to the learning objectives.

2.3.8. Multimedia Integration

The use of audio, visual media, and real-life scenarios in mobile apps can be considered as an important factor in improving vocabulary acquisition and reading comprehension. According to Mayer's (2005) cognitive theory, integrating verbal and visual information through multiple cognitive channels improves reading comprehension. Similarly, Ramos et al. (2022) found that contextual multimedia content applications improve lexical memory compared to text-only applications.

2.3.9. Contextualization

According to Rosell-Aguilar (2017), learning with real-life situations is important, especially when learning new words. He argued that mobile apps could improve this by using tools like GPS and route planning based on our location. He also said that while these features are useful for language learning, they also need to address privacy concerns. Therefore, recent research has highlighted several essential characteristics of successful interactive mobile applications, including gamification, accessibility, ease of use, personalization, customization, feedback, and ease of navigation. By combining these features, users can be guaranteed a smooth, captivating, immersive, and all-inclusive learning experience. These apps are proved to have current positive results in enhancing language learning.

However, their scalability and long-term effects need more research and investigation to be adequately assessed. In this context, Lee et al. (2023) stressed the need for more longitudinal studies because gamification is supposed to intensify engagement and motivation, but its long-standing effects on proficiency

was not sufficiently researched nor proven. The idea of incorporating AI into interactive mobile applications looks promising, but its effectiveness needs to be verified. Kukulska-Holm (2024), Yang (2025), and Wang et al. (2024) argued that adding AI-driven tools may not be cost-effective and that advanced and complex data mining and analysis tools that are not easily accessible to designers of interactive mobile applications that facilitate language learning.

Furthermore, since mobile apps are designed for users all over the world, contextualization is another matter. Al-Jarf (2023) suggesteded that apps should be specific to cultures and situations, as they have proven to be more effective than generic apps. In addition, technical constraints, storage constraints, the need for a user-friendly interface, educational issues, and concerns about inequalities need to be addressed. Kukulska-Hulme & Shield (2008) stated that not all mobile applications are designed for educational purposes, which may limit their functionality in language learning.

Al-Jarf (2023) further reported that contextualization also posed another challenge as mobile apps are designed for users from all around the globe. They should be geared toward specific cultures and contexts as the culture-specific ones showed more effectiveness compared with the general-purpose apps open to general users and use.

3. Methodology

3.1. Research Design

The study used a mixed method exploratory design to investigate students' perceptions of newly developed mobile applications. This interpretive perspective provided a comprehensive insight into the evaluation of the new mobile application, providing quantitative and qualitative explanations.

3.2. Participants

We invited 780 first-year undergraduate students from various majors at Oman's higher education institutions. Convenience purposeful sampling was employed to select participants due to its feasibility in accessing a readily available group of participants. Convenience purposeful sampling allowed for an in-depth exploration of students' perceptions and perspectives regarding the app's efficiency. The students were purposefuly selected based on specific criteria. They must have completed the preparatory foundation year, must be full-time students, must have attended the digital literacy training sessions and workshops, and must have used the ENGL150152 mobile application to study and practice vocabulary and reading comprehension.

Participants were expected to have developed the required digital competencies required to effectively use the app to study the language courses, as well as gained a comprehensive understanding of the effectiveness of the new app. All study participants who actively participated as members provided informed consent (Mirza et al., 2023). Anonymity and confidentiality were strictly maintained throughout the research process. The study protocol received ethical approval from the university research council.

3.3. Data Collection and Analysis

Data were collected using an online questionnaire based on a descriptive Likert scale with closed-ended and open-ended questions. Since the literature does not provide a comprehensive assessment framework for assessing the effectiveness of interactive mobile reading comprehension and vocabulary learning applications, the questionnaire was derived from the most common assessment frameworks that provide a comprehensive overview of the principles of mobile language learning (Wang et al., 2024; Lee et al., 2023; Viberg & Grönlund, 2017; Koole, 2009; Reinders & Pegrum, 2016; Miangah & Nezarat, 2012; Gafni et al., 2017; Mishra & Koehler, 2006; Son, 2016; Gilakjani, 2017; Ramos et al., 2022; Walker, 2011).

The components of the survey are defined by usability, content relevance, interactivity, engagement, feedback system, adaptability/personalization, multimedia integration, customizability and flexibility, and accessibility. The questionnaire was tested for reliability and validity. Cronbach's alpha value is 0.898, indicating that the internal reliability is sufficient. SPSS was used to calculate descriptive statistics such as mean and standard deviations. Qualitative data from open-ended questions were coded and analyzed using thematic analysis.

3.4. The Interactive Language Learning App ENGL150152

This study developed an interactive mobile language learning application to improve students' vocabulary and reading comprehension taking into consideration key aspects while designing it like technology, education, learners, context, efficiency, engagement, accessibility, and cost. This application was developed using a design model of an educational system consisting of five phases: analysis, planning, development, implementation, and evaluation (Fardoun et al., 2009; Peterson, 2003). The design phases started with needs analysis and situational analysis for data collection and content development. The design stages ended with a pilot phase. This current study reported the results of the first round of pilot testing.

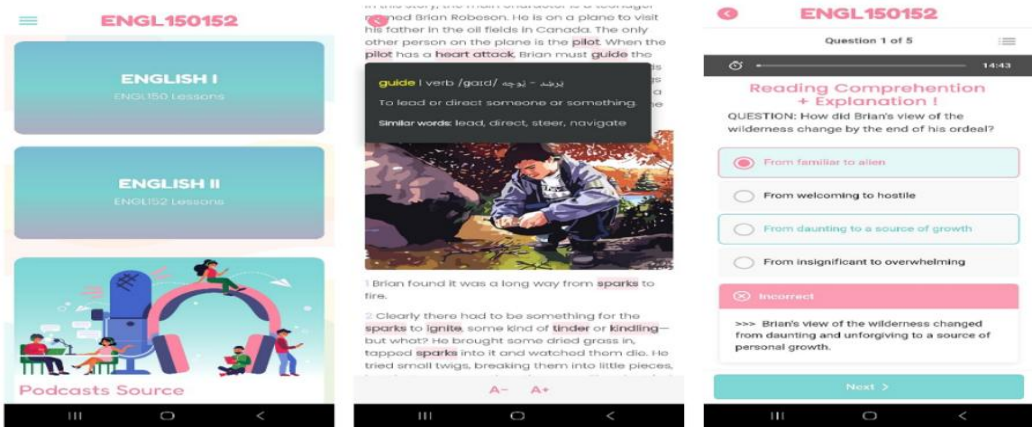

Figure 1: App Interface Screenshots

4. Results

4.1. Students' Perceptions Regarding the Effectiveness of the Mobile App

Table 1: Content Relevance

	Agree	Strongly Agree	Neutral	Disagree	Strongly Disagree
Mean	53%	43%	3%	0%	0%
Standard Deviation	0.058	0.0304	0.0421	0%	0%

The high level of agreement indicated a high level of satisfaction with the quality and relevance of the content. More than 90% of students found the content easy to understand and fit the learning objectives of the course and textbook. 3% of students were somewhat hesitant, which might indicate room for improvement by more explicitly linking content with course objectives. The low variability showed that the mobile app provided clear and easily accessible content.

Table 2: Usability

	Agree	Strongly Agree	Neutral	Disagree	Strongly Disagree
MEAN	44%	55%	1%	0%	0%
Standard Deviation	0.0451	0.0479	0.0197	0	0%

The low standard deviation value showed consistent positive feedback from students. Most students found the app easy to navigate and appreciated its visual design and interface. A small fraction of neutrality might indicate areas where navigation can be simplified and optimized. The interactive features of the app were also very engaging.

Table 3: Interactivity and Engagement

Agree	Strongly Agree	Neutral	Disagree	Strongly Disagree	Agree
Mean	44%	55%	1%	0%	0%
Standard Deviation	0.0451	0.0479	0.0197	0	0%

The high mean and low standard deviation showed that most students recognized the diversity of the app and its ability to accommodate different learning preferences and interests as it offers a variety of interactive activities. All students believed that interactive texts and vocabulary features in eBooks are time-efficient, effective, engaging, and enjoyable. They also reporteded that it helped them understand texts, practice vocabulary effectively, and improve their reading comprehension. They proclaimed that they would keep using the app for language learning purposes beyond the limits of the course and highlighted the app's continuous and sustainable engagement.

Table 4: Feedback Systems

Agree	Strongly Agree	Neutral	Disagree	Strongly Disagree	Agree
Mean	55%	45%	0%	0%	0%
Standard Deviation	0.0521	0.0541	0.013	0%	0%

The students were very pleased with the feedback system in the application. The low standard deviation and high mean values proved that the interactive application provided useful guidance. This is very important to keep students interested and motivated. Students agreed that feedback was regular, timely, and responsive and helped identify areas for improvement. The feedback system was particularly good at helping students independently review their work and identify weak areas for improvement.

Table 5: Personalization and Adaptability

Agree	Strongly Agree	Neutral	Disagree	Strongly Disagree	Agree
Mean	58%	41%	1%	0	0
Standard Deviation	0.0355	0.0494	0.0141	0	0

The results showed that students positively rated the adaptability and customizability of ENGL150152 app. Most students reporteded that flexible learning that fit their personal choices was one of its strengths. The interactive assignments were presented in a good light as most students found them engaging, relevant and adapted to their study skills and language abilities.

Table 6: Customization and Flexibility

Agree	Strongly Agree	Neutral	Disagree	Strongly Disagree	Agree
Mean	48%	48%	4%	0%	0%
Standard Deviation	0.035	0.035	0.035	0	0

The results revealed that 96% of students felt the app's flexibility enabled them to efficiently manage their time and study whenever it was most convenient for them. This might suggested that the app fulfilled students' expectations by offering accessible learning options, flexibility, and the ability to adjust to users' schedules. Just 4% of respondents reporteded they were neutral, which could indicate that some students haven't noticed or used the customization options to their full potential.

Table 7: Accessibility/User Experience

Agree	Strongly Agree	Neutral	Disagree	Strongly Disagree	Agree
Mean	53%	43%	4%	0%	0%
Standard Deviation	0.0645	0.035	0.0434	0%	0%

The results showed that most students found the app to be very trustworthy and its response speed to be very good, as they didn't experience technical or performance issues. This indicated that the app is user-friendly. 4% of students were neutral which indicated that few users experienced delays from time to time. In addition, 80% of participants confirmed that the app worked well on different devices and network conditions, proving its compatibility and adaptability. Finally, the high mean and low standard deviation indicated the overall satisfaction of students with the reliability of the ENGL150152 application.

Table 8: Multimedia integration

Agree	Strongly Agree	Neutral	Disagree	Strongly Disagree	Agree
Mean	53%	45%	1%	0%	0%
Standard Deviation	0.0645	0.0759	0.01	0	0

The results showed that students appreciated the additional multimedia tools offered by ENGL150152 mobile app which are useful in enhancing their vocabulary and learning experiences by encountering authentic English. As a result, the importance of multimedia elements in the development of learning was highlighted. However, suggestedions for improvement have been made, especially when it came to integrating more interactive scenarios and gameplay elements.

Overall, students were very satisfied with the ENGL150152 mobile application, with 90-98% satisfied, and would recommend the application to their peers. Students appreciated the app's flexibility, multimedia content, and feedback mechanisms and many students highlighted the need to develop similar apps in other courses, reflecting the app's versatility, relevance, and ease of use. This indicates a recognition of its applicability to other scientific disciplines. Minor improvements based on neutral feedback could further strengthen its effectiveness.

4.2. Thematic Analysis of Open-Ended Questions: Strengths and Weaknesses

Thematic analysis following Braun and Clarke's (2006) six-phase approach was implemented. This involved familiarization with the data, initial coding, searching for themes, reviewing themes, defining and naming themes, and producing the report. Five main themes were identified. The themes shed light on the usefulness of the ENGL150152 app and areas for improvement. Quantitative data from the questionnaires and the qualitative data from the open-ended questions were used to get a better overall picture of what students went through. This integrated approach made it possible to get a better understanding of the statistical data by adding rich contextual explanations and subtleties.

4.2.1. Versality

The students noted that the app is versatile and can be used to improve language skills other than vocabulary and reading comprehension. These findings corroborated results from the analysis of the closed-ended questions. They claimed that interactive texts, interactive features such as interactive reading and

vocabulary development tasks, and the app's ability to adapt to students' specific schedules and paces make learning more flexible and practical. However, students suggesteded that more interactive features be added, such as drag-and-drop activities, clickable notes, and group interactive quizzes, to make it even more engaging and interactive. They also suggesteded more hands-on training sessions to help students better use the app for self-study. In addition, students proposed adding language skills such as writing and speaking to make the application more versatile.

4.2.2. Personalization

According to students' feedback, the app provides excellent opportunities for personalized learning, but they recommend that the customization features be improved further. This would allow students to focus on specific areas and set their own learning objectives. They suggesteded providing more hands-on training to help them understand and take advantage of the app's customization features.

4.2.3. Accessibility

Despite occasional issues with speed, app response time, and ability to work on different devices, students were very pleased with the app's navigation, ease of use, and accessibility (ENGL150152). In alignment with the results of the analysis of the closed-ended questions, to ensure that learning continues uninterrupted, students proposed developing features that ensure smooth operation across multiple devices and provide offline access so that everyone can use their learning. This would allow students living inremote areas with limited internet access to use the app.

4.2.4. Personalized Feedback

The students evaluated the app's evaluation mechanism and provided useful information about its performance in real time. However, they said they were looking for more detailed and personalized feedback, such as error analysis and personalized teaching suggestedions, self-analysis tools (such as a diary or progress board) that encourage self-assessment and reflection, and the ability to integrate teacher assessments and professional assessments alongside the app's automated grading system.

4.2.5. Sustainability

Integrated multimedia content, such as podcasts, has proven to be very helpful for students. However, the students suggesteded expanding and diversifying the range of multimedia elements to ensure long-term engagement and sustainable learning. In addition, students suggesteded incorporating elements of gamification to maintain long-term commitment and motivation. Features such as badges, progress tracking, and competitive challenges are seen as a potential way to not only make learning more fun and challenging but also foster a sense of community and competition among users.

5. Discussion

Positive feedback indicated that the app is potentially an effective language-learning tool that can improve students' reading comprehension and vocabulary

learning. A high level of satisfaction is an indication of MALL's success in this context. Crompton (2019) argued that user satisfaction depends on apps' responsiveness, accessibility, engagement, and educational value. The results of this study are consistent with these principles, suggesteding that the application effectively supported language learning, and highlighting the strengths of the app as a powerful and comprehensive learning tool that promotes autonomous language learning. Students were satisfied with the app's resources performance as a self-study tool that enhanced their vocabulary, grammar, reading comprehension, and learning experience.

Benlaghrissi et al. (2023), Chaisuriya and Rongsiri et al. (2023), Elaish et al. (2023), Nushi et al. (2023), Pichugin et al. (2023), Rosell-Aguilar (2017), Li (2024), Fitriani et al. (2025) and Zohoorian et al. (2022) argued that good interactive mobile apps not only improve learners' language skills, vocabulary and grammar but also make it easier to use accessibility and navigation features of the device. In alignment with the current research, the students highly appreciated the potential of interactive features such as interactive texts and interactive activities in increasing engagement and motivation to learn vocabulary and read texts, saving learning time, and maintaining long-term interest. These results supported the findings of Al-Harthy et al. (2021), Reinders & Pegrum (2016), and Gafni et al. (2017).

Students appreciated the app's ability to customize their level of learning style. Successful Apps provide personalized learning paths tailored to modern research and adaptive learning systems. Zhang et al. (2023) showed that the AI-based personalization capabilities of the MALL app improve learners' ability to remember words and adapt to the language level of the content. The current app supports advanced features that personalize and meet the needs of learners, subject areas, and learning experiences that need to be personalized in their studies. They reported that machine learning can solve this problem, suggesteding that AI-based systems can reduce students' stress levels by automatically adjusting content. Hwang et al. (2025) reported that true personalization is difficult to achieve in mobile learning programs.

The review highlights the app's powerful features, comprehensive and effective learning tools, and support for continuous improvement and student autonomy. Chua, Kabilan (2022), and Xia et al. (2025) argue that immediate, actionable feedback is essential for self-disciplined learning. Students need personalized recommendations for in-depth error analysis to reflect the transition to AI-based feedback (Yang, 2025). Modern applications, as well as AI-powered analytics applications, provide direct feedback mechanisms to help students fill in gaps in their findings, especially in the development of cognitive strategies.

The integration of multimedia features proved the main advantage of this app. Students were positive about the multimedia elements, stating that they helped them expand their vocabulary and improve their reading comprehension. Students appreciated the appropriateness of context and multimedia content and suggesteded expanding opportunities through interactive scenes and game

elements. Burston (2015), Mayer (2005), and Reinders & Pegrum (2016) reported that contextual audiovisual content can improve vocabulary learning by 25% compared to text format alone. According to a recent study by MALL, ENGL150152 apps focus on real-world situations. Al-Jarf (2023) found that Omani students from certain cultural backgrounds improved their reading comprehension by 18%.

The app showed its strengths by acknowledging its limitations, such as lack of gamification, limited customization options, and accessibility issues due to the app not offering offline access. According to a UNESCO study (2023), 40% of students worldwide experience a decrease in internet connectivity, which requires them to develop lightweight apps with offline capabilities. Improving the usability of offline apps can reduce problems and improve accessibility, especially in rural areas of Oman.

As the app initially was intended for adult students, no games were included. Viberg et al. (2017) identified games that increase intrinsic motivation and increase sensory achievement. Thus, the present study's recommendations regarding gamification approaches are also consistent with these findings, suggesteding that adding competition and reward-based features may increase sustained engagement.

Kukulska-Holm (2024) showed that the broader challenges toward MALL are to be considered as well. Research showed that technical and educational incentives must be considered for mobile learning to be as effective as possible. A balanced combination of modern Technology-Assisted Language Learning (TELL) teaching methods is essential for the future of MALL. Following this idea, Viberg et al. (2017) developed an updated version of an interactive mobile app for the success of interactive mobile apps by continuously monitoring, evaluating, and updating ENGL150152 research results.

This study adds to our theoretical understanding of Mobile-Assisted Language Learning (MALL) by showing that established MALL principles can be used in higher education settings. The results support theories about interactive learning, showing how features like instant feedback and multimedia integration, as suggested by constructivist learning frameworks, make learning more interesting and help people learn new skills. Additionally, the study's findings about how students view the usability and versatility of apps add to existing models of how technology is accepted in higher education institutions.

6. Conclusion

The study found that the newly designed ENGL150152 language learning application has the potential to significantly change the way higher education works in Oman. In fact, according to student feedback, the ENGL150152 mobile app has great promise in terms of autonomous language learning. The main findings highlighted that ENGL150152 interactive mobile apps have successfully followed MALL's best practices and improved the vocabulary and reading comprehension learning experience. This is due to a variety of interactive features,

including ease of navigation, interactivity, customization, personalization, multimedia integration, instant feedback mechanisms, and overall accessibility. While the current version of the ENGL150152 language learning interactive mobile app focused on self-directed and self-regulated learning, the study also pointed out that social media features such as the use of peer discussion forums and instructor dashboards can also address this trend. We will consider this in the next update of the app.

The study also highlighted other areas of improvement, such as adding AI-driven tools to further improve personalization and customization, and adding gamification features and offline access so that more students can use it to keep up with MALL's changing world of innovation. More research could look into how the ENGL150152 app affects student learning over time and whether it can be used for other language skills or academic subjects.

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