

Mobile-Assisted Language Learning and Students' Perceptions of Vocabulary Retention

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Abstract: This study investigates students' perceptions of Mobile-Assisted Language Learning (MALL) and its perceived effectiveness for English vocabulary retention among undergraduate ESL learners at Imam Abdulrahman bin Faisal University (IAU), Saudi Arabia. While traditional paper-based methods often fail to promote long-term engagement and sustainable retention, mobile technologies offer flexible, autonomous, and "anytime-anywhere" learning opportunities. A quantitative, cross-sectional survey was conducted with 61 students to examine their mobile learning practices and perceptions of MALL's effectiveness compared to traditional instruction. The findings reveal a strong positive perception of mobile tools, with approximately 75% of participants agreeing that mobile phones help them remember words better. The most popular tools identified were social media platforms and language learning applications such as Duolingo and Memrise. Students overwhelmingly acknowledged the role of pedagogical factors in retention, with 85.2% emphasizing the importance of repetition and 44.3% identifying context as essential for long-term memory and correct usage. Qualitative insights further highlighted benefits such as multimedia engagement and flexibility, though participants noted potential challenges regarding digital distractions. The results suggest that while MALL is perceived as superior or a vital supplement to traditional methods, a hybrid approach (favored by 55.7% of students) is considered the most effective for vocabulary retention. These findings underscore the potential of MALL to enhance lexical acquisition in Saudi higher education and highlight the need for pedagogically grounded integration of mobile tools into the ESL curriculum.

Keywords: Mobile-Assisted Language Learning, Mall, ESL, Vocabulary Retention, Mobile Learning.

1. Introduction

1.1 Problem of the Study

Vocabulary acquisition represents a foundational component of second language proficiency, yet many university students continue to face challenges resulting from limited lexical knowledge, which adversely affects their academic achievement and communicative competence. Their limited vocabulary knowledge undermines their ability to comprehend academic texts, follow lectures, and articulate ideas effectively in both spoken and written forms. Given that vocabulary forms the foundation of all language skills, weak retention hampers reading comprehension, communication, and overall academic performance. Traditional teaching practices, often repetitive and insufficiently engaging, fail to support lasting vocabulary acquisition. As a result, learners tend to forget newly learned words quickly and experience difficulty applying them in

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authentic contexts (Ahmad, 2019; Ahmed, 2013).

Traditional paper-based methods, while widely used, often fail to promote sustainable retention and long-term engagement. In contrast, Mobile-Assisted Language Learning (MALL) has emerged as a transformative approach that enhances flexibility, learner autonomy, and motivation (Muhammad et al., 2020). Recent findings indicate that mobile technologies support “anytime-anywhere” learning, enabling continuous exposure that facilitates the transfer of vocabulary from short-term to long-term memory (Metruk, 2020). By employing interactive elements such as multimedia aids, gamification, and real-time feedback, MALL applications create immersive and cognitively engaging environments that outperform conventional classroom instruction (Squires, 2019).

Although extensive research has documented the general benefits of MALL for vocabulary learning, several key areas remain insufficiently explored. Much of the existing literature focuses on short-term learning gains rather than examining long-term retention (Azabdaftari & Mozaheb, 2012; Lu, 2008), with few studies employing longitudinal designs to determine how well learners maintain acquired vocabulary over time (Khansarian-Dehkordi, & Ameri-Golestan, 2016). Moreover, despite the widespread use of mobile devices in educational contexts, there remains a need to investigate how specific MALL affects durable vocabulary retention within Saudi higher education. This study, therefore, examines undergraduate ESL learners' perceptions of MALL's effectiveness for English vocabulary retention at Imam Abdulrahman bin Faisal University (IAU), Saudi Arabia.

Specifically, the gap addressed here is empirical and contextual rather than purely theoretical: while prior MALL research has established general benefits for vocabulary learning in a range of EFL/ESL settings (Azabdaftari & Mozaheb, 2012; Lu, 2008; Khansarian-Dehkordi & Ameri-Golestan, 2016), very little of this evidence comes from Saudi higher education specifically, and almost none of it distinguishes learners' perceptions of MALL's effectiveness from independently measured retention outcomes. This study contributes to the literature in three ways: (1) it provides one of the first learner-perception profiles of MALL use for vocabulary learning within a Saudi university context; (2) it combines descriptive and inferential analysis of both quantitative perception data and qualitative open-ended responses within a single instrument; and (3) it empirically tests whether perceived MALL effectiveness varies by proficiency level and academic year, offering preliminary evidence on the generalizability of these perceptions across learner subgroups.

1.2 Literature Review

MALL emerged in the early 2000s as educators and researchers explored the potential of mobile technologies to support language acquisition. Initially, MALL was considered an extension of Computer-Assisted Language Learning (CALL), but it quickly distinguished itself due to the unique affordances of mobile devices, including portability, connectivity, and the ability to facilitate authentic, context-aware interactions with language materials. These characteristics allowed learners to engage with language content beyond classroom boundaries, supporting situated and collaborative learning experiences (Chinnery, 2006).

As mobile technologies evolved, MALL became recognized as a distinct research domain within applied linguistics and educational technology. The rapid development of smartphones and tablets, along with ubiquitous Internet access, enabled more flexible, learner-centered, and

ubiquitous learning environments. Kukulska-Hulme and Shield (2008) highlight that MALL not only enhances access to language resources but also promotes interactive, social, and collaborative language learning, reflecting a shift from technology-driven experimentation toward pedagogically grounded mobile learning strategies.

MALL is grounded in theoretical perspectives that foreground interaction, learner agency, and the centrality of context in language development. Within a sociocultural ecological framework, Guo (2022) identifies three constructs—agency, context, and app mediation—as key components of MALL, demonstrating how different configurations of these elements give rise to distinct patterns of second language learning with mobile apps outside the classroom. This perspective highlights the importance of learners actively appropriating mobile tools and resources in ways that are meaningful within their own sociocultural and situational environments, rather than using mobile devices as neutral delivery platforms.

Complementing this ecological view, mobile learning research emphasizes situated and context-sensitive learning opportunities enabled by handheld technologies. MALL environments can support both context-independent learning, where learners use “dead time” to review language items, and context-aware learning, where tasks are closely tied to the physical or social environment (Palalas, 2011; Leow, 2014). Such designs enable authentic, real-world language use by extending practice beyond classroom walls into everyday communicative situations mediated by mobile devices (Palalas, 2011). In this sense, the theoretical foundations of MALL integrate sociocultural, ecological, and situated learning perspectives to explain how mobile technologies can foster sustained engagement, authentic language use, and enhanced vocabulary retention in ESL settings (Guo, 2022; Leow, 2014).

Technological tools and applications in MALL encompass a wide range of handheld devices, including smartphones, tablets, and other internet-enabled gadgets, which enable learners to engage with language materials across formal and informal settings. Empirical work shows that such tools support flexible, ubiquitous access to language input and practice, allowing learners to integrate vocabulary learning into everyday routines through multimedia resources, messaging, and dedicated language applications (Kukulska-Hulme & Shield, 2008). These environments can foster collaboration and creativity by enabling learners to share content, co-construct meaning, and participate in interactive tasks in digitally mediated spaces, thereby enhancing both engagement and opportunities for practice beyond the traditional classroom (Burston, 2013).

Recent studies further indicate that mobile applications can reorient language learning toward more learner-centered and autonomous practices (Alnufaie, 2022; Jeong, 2022), with students taking greater responsibility for planning and regulating their vocabulary study. Through features such as push notifications, spaced repetition, and game-like tasks, MALL tools help learners extend vocabulary learning into out-of-class contexts while providing teachers with mechanisms to monitor progress and supplement classroom instruction, which can in some cases reduce their routine workload (Al-Hashimi & Bauer, 2025; Alisoy & Sadigzade, 2025). At the same time, the widespread ownership of smartphones and personal digital devices among tertiary students means that many learners already possess the hardware required for MALL, making the integration of mobile applications into vocabulary instruction both feasible and pedagogically promising for supporting ESL vocabulary acquisition and retention (Burston, 2013; Kukulska-Hulme & Shield, 2008).

MALL has been widely recognized for its pedagogical affordances in second and foreign language education, particularly its capacity to extend learning beyond classroom boundaries. MALL capitalizes on the portability of smartphones and tablets, allowing learners to access language materials and engage in practice at any time and in diverse contexts, thereby overcoming spatial and temporal constraints and supporting more ubiquitous learning (Abduljawad & Ahmad, 2023). Portability and continuous connectivity also enable learners to participate in authentic communicative activities, interact with peers and teachers, and access a wide range of online resources, which can enhance motivation and foster greater learner autonomy (Wardak, 2020).

Beyond flexibility and access, MALL environments typically integrate rich multimedia and interactive features—such as text, audio, video, quizzes, and games—that can promote deeper processing of language input and support various skill areas, including vocabulary, reading, listening, and speaking (Neshaee Moghaddam, 2023). Empirical and review studies report that mobile-based language applications and platforms often yield significant gains in learners' proficiency and engagement when compared with traditional, non-mobile instruction, with particularly strong evidence for vocabulary growth and retention (Al-Abri et al., 2025; Peng et al., 2021).

1.3 Research Questions

Guided by the gap and contribution outlined above, this study addresses the following research questions:

- RQ1: What are undergraduate ESL learners' perceptions of the effectiveness of MALL for vocabulary retention, relative to traditional classroom methods?
- RQ2: Which mobile tools and strategies do learners report using most frequently for vocabulary learning?
- RQ3: How important do learners perceive repetition and context to be for vocabulary retention?
- RQ4: Do learners' perceptions of MALL's effectiveness vary by English proficiency level or academic year?

As this study is descriptive and perception-based rather than experimental, no directional hypotheses are proposed; RQ4 is addressed through inferential tests reported in Section 3.

2. Methodology

2.1 Research Design

This study adopted a quantitative, cross-sectional survey design to examine undergraduate ESL learners' perceptions of MALL's effectiveness for English vocabulary retention at IAU. A structured questionnaire was used to collect data on students' mobile-based vocabulary learning practices, perceived effectiveness of MALL compared with traditional methods, and views on factors such as repetition and context in vocabulary retention.

2.2 Participants

The target population comprised undergraduate ESL students enrolled at IAU. A convenience sample of students from different academic levels ($n = 61$) participated voluntarily by completing

the online questionnaire. Participants reported their self-perceived English proficiency level (beginner, intermediate, or advanced) to allow description of the sample in terms of language proficiency. Convenience sampling was adopted because it allowed efficient access to a population of ESL learners already using mobile devices for language study, within the data collection window available for this study; this approach is appropriate for an exploratory, single-institution study of learner perceptions, though it limits the generalizability of the findings, a limitation addressed further in Section 4.6.

2.3 Instrument

Data were gathered using a fully researcher-developed questionnaire designed to elicit information about students' use of mobile applications for vocabulary learning and their perceptions of vocabulary retention. Items were generated by the research team based on the constructs identified in the MALL literature reviewed in Section 1.2 (e.g., flexibility, repetition, context-dependence) rather than adapted from a pre-existing published scale. To establish face and content validity, the draft instrument was reviewed by five experts in the field, whose feedback informed revisions to item wording and coverage prior to piloting. Following this expert review, the questionnaire was piloted with a small group of students from the target population; feedback from this pilot was used to further refine item wording and response options before the instrument was distributed to the full sample.

The instrument included closed-ended items on:

- academic level and self-reported English proficiency
- frequency of using mobile applications to learn a language (always, often, sometimes, rarely, never)
- main mobile tools used for vocabulary learning (dictionary apps, flashcard apps such as Quizlet, language learning apps such as Duolingo or Memrise, social media platforms, and other tools)
- typical ways of using mobile phones to learn vocabulary (looking up meanings, practising with exercises or games, watching videos or listening to audio, reviewing words repeatedly, and other strategies)
- beliefs about whether mobile learning helps remember words better and whether it improves vocabulary retention more than traditional methods (Likert-type responses from strongly agree to strongly disagree)
- perceived effectiveness of different methods (mobile-assisted learning, traditional classroom methods, a combination of both, or other)
- perceptions of the role of repetition and context in vocabulary retention (e.g., importance of repetition; reasons why context is important, such as helping understand meanings, remember words longer, and use words correctly).

The questionnaire also contained open-ended questions inviting students to explain how mobile-assisted learning had changed the way they remember new vocabulary and to justify their views on how mobile phone use helps or does not help them remember new words.

2.4 Data Collection Procedures

The questionnaire was administered online using a web-based survey platform to facilitate easy access via students' mobile phones and other devices. Data collection took place over a four-week period, from January 24, 2026 to February 20, 2026. A link to the survey was shared with eligible ESL students through institutional communication channels, and participants were informed about the purpose of the study, the voluntary nature of participation, and the confidentiality of their responses. Students who agreed to participate completed the questionnaire at their convenience, typically in one sitting, and no identifying information was collected to ensure anonymity.

2.5 Data Analysis

Data from the completed questionnaires were exported to a statistical software package for analysis. Descriptive statistics (frequencies and percentages) were used to summarize participants' demographic characteristics, patterns of mobile application use for vocabulary learning, and their perceptions of the effectiveness of MALL versus traditional methods in supporting vocabulary retention. Responses to open-ended questions were reviewed and grouped into recurrent themes to provide illustrative qualitative insights that complemented the quantitative findings.

3. Results

The study aimed to examine undergraduate ESL learners' perceptions of MALL's effectiveness for English vocabulary retention at Imam Abdulrahman bin Faisal University (IAU). A total of 61 undergraduate students participated in the survey. The following sections detail the demographic characteristics of the participants, their mobile learning practices, and their perceptions of MALL's effectiveness compared to traditional methods.

3.1 Participant Demographics and Proficiency

The sample consisted primarily of fourth-year students, followed by first-year students. In terms of self-reported English proficiency, the majority of participants identified as being at the intermediate or advanced level.

Table 1: Participant Academic Level and Proficiency (n = 61)

Category		Frequency	Percentage (%)
Academic Level	First year	16	26.2%
	Second year	11	18.0%
	Third year	10	16.4%
	Fourth year	24	39.3%
English Proficiency	Beginner	9	14.5%
	Intermediate	32	52.5%
	Advanced	20	32.8%

3.2 Mobile Application Usage Patterns

Participants reported a high frequency of mobile device usage for language learning, with 77.0% using apps "Always," "Often," or "Sometimes". The most popular tools for vocabulary acquisition included social media platforms (54.1%) and language learning applications like Duolingo or

Memrise (47.5%).

Table 2: Preferred Mobile Tools and Strategies

Feature	Primary Responses
Main Tools Used	Social media platforms, Language learning apps, Dictionary apps
Common Strategies	Looking up meanings, watching videos/listening to audio, Practicing with exercises

3.3 Perceptions of Vocabulary Retention

The majority of students expressed positive views regarding the efficacy of MALL for vocabulary retention. When asked if mobile phones help them remember words better, approximately 75% of participants responded with "Strongly agree" or "Agree" ($M = 3.92$, $SD = 0.93$, on a 5-point scale; one invalid response was excluded, $n = 60$).

Furthermore, when comparing MALL to traditional classroom methods, 63.9% of participants agreed or strongly agreed that MALL improves retention more than traditional methods ($M = 3.79$, $SD = 1.08$). When asked which single method helped most, 55.7% of participants believed a combination of both methods was most effective for retention, while 31.1% felt MALL alone was superior. Only 13.1% favored traditional methods exclusively.

Table 3: Descriptive Statistics for Likert-Scale Items

Item	n	M	SD
Mobile phones help remember words better (1–5)	60	3.92	0.93
MALL improves retention more than traditional methods (1–5)	61	3.79	1.08
Importance of repetition for retention (1–4)	61	3.38	0.86

Note. A two-item perceived-effectiveness index (the first two rows above) showed acceptable internal consistency, Cronbach's $\alpha = .79$.

To examine whether perceptions varied across subgroups, a series of inferential tests was conducted. A chi-square test of independence found no significant association between proficiency level and method preference, $\chi^2(4) = 7.11$, $p = .130$ (two expected cell counts were below 5, so this result should be interpreted with caution). Kruskal-Wallis tests indicated no significant differences in perceived benefit scores across proficiency groups ($H = 1.67$, $p = .433$) or academic level ($H = 0.90$, $p = .826$), suggesting that positive perceptions of MALL were broadly consistent across the sample. A Spearman correlation showed a significant weak positive association between frequency of mobile app use and the belief that phones help remember words better, $\rho = .27$, $p = .040$, indicating that more frequent users tended to perceive somewhat greater benefit.

Table 4: Inferential Statistics for Perceived MALL Effectiveness

Test	Statistic	p
Method preference $\times$ proficiency level (χ^2)	$\chi^2(4) = 7.11$	.130
Perceived benefit (Q7) across proficiency groups (Kruskal-Wallis)	$H = 1.67$	.433

Test	Statistic	p
Perceived benefit (Q8) across academic level (Kruskal-Wallis)	H = 0.90	.826
Frequency of use × perceived benefit (Q7) (Spearman)	$\rho = .27$	.040
Frequency of use × perceived benefit (Q8) (Spearman)	$\rho = .16$	.222

3.4 The Role of Repetition and Context

Students overwhelmingly acknowledged the importance of pedagogical factors in retention. A total of 85.2% of respondents stated that repetition plays an "Important" or "Very important" role in vocabulary retention ($M = 3.38$, $SD = 0.86$, on a 4-point scale). Regarding context, 44.3% of students selected "All of the above," indicating that they viewed context as essential for understanding meaning, long-term memory, and correct usage combined, while a further 39.3% selected understanding meaning alone as the primary reason context matters.

3.5 Qualitative Insights

Qualitative data from open-ended questions highlighted several key themes:

Flexibility and Accessibility: Students frequently cited the "anytime, anywhere" nature of mobile phones as a primary benefit.

Multimedia Engagement: Many noted that hearing native pronunciation and seeing words in "movie clips" or "TikToks" helped lock words into permanent memory.

Innovative Strategies: One student reported using vocabulary as their phone wallpaper to ensure "constant exposure" throughout the day.

Distractions: Despite positive views, a recurring concern was the potential for "phone notifications" and "social media" to distract from focused learning.

4. Discussion

4.1 Positive Perceptions of MALL and the Role of Flexibility

The findings of this study reveal a consistently strong positive perception of MALL among ESL students at IAU, with approximately 75% agreeing that mobile devices assist them in remembering vocabulary more effectively. This outcome aligns with a well-established body of research demonstrating that mobile technologies have transitioned from peripheral instructional aids to central components of modern language learning ecosystems (Kukulska-Hulme & Shield, 2008; Burston, 2013). Notably, this self-reported perception converges with experimental evidence: Azabdaftari and Mozaheb (2012) found that EFL learners using mobile-based vocabulary learning significantly outperformed a flashcard-based comparison group on delayed post-tests, suggesting that IAU students' favorable perceptions are consistent with objectively measured retention gains observed elsewhere, even though the present study did not include an independent retention measure of its own. The present data reinforce this trajectory by situating students at IAU within a broader global pattern of mobile-mediated learning that transcends geographic and institutional boundaries.

A primary driver of these favorable perceptions is the flexibility and accessibility that mobile devices afford. Unlike traditional classroom settings, which are constrained by temporal and spatial limitations, mobile devices enable what researchers have termed “ubiquitous learning”—a continuous, context-independent form of engagement that extends language exposure into everyday life (Palalas, 2011). Students in the present study specifically cited the “anytime, anywhere” nature of mobile learning as a key advantage, echoing findings from Abduljawad and Ahmad (2023), who emphasize that portability and connectivity are among the most pedagogically significant affordances of mobile devices. By utilizing “dead time”—such as commuting, waiting, or leisure periods—for vocabulary review, learners can achieve the sustained, distributed practice that cognitive science identifies as optimal for long-term memory consolidation (Metruk, 2020). This mechanism helps explain the transfer of vocabulary from short-term to long-term memory, a process that traditional, time-bound classroom instruction may not consistently support.

Furthermore, mobile learning promotes learner autonomy by enabling students to self-direct the pace, timing, and content of their vocabulary study (Jeong, 2022). This autonomy is particularly significant in higher education contexts, where independent learning strategies are expected. The findings of this study suggest that IAU students are actively leveraging mobile tools to exercise agency over their vocabulary development, consistent with the sociocultural-ecological framework proposed by Guo (2022), who identifies agency and context as critical mediators of MALL effectiveness outside the formal classroom environment.

4.2 Multimodal Input and Technological Engagement

The results indicate that students are particularly drawn to social media platforms and dedicated language learning applications such as Duolingo and Memrise. This pattern is consistent with the broader literature on MALL, which highlights the pedagogical value of multimedia input in enhancing vocabulary acquisition and retention (Neshaee Moghaddam, 2023; Al-Abri et al., 2025). This aligns with Al-Abri et al.'s (2025) study of 275 Omani EFL students, which found that those using a mobile-based learning-oriented assessment tool achieved better lexical fluency and oral performance than peers taught through conventional methods alone, lending independent empirical support to the present participants' perception that multimedia-rich mobile input aids vocabulary learning. Students in the present study specifically noted that encountering new vocabulary through “movie clips” and “TikTok” videos helped anchor words more permanently in their memory, illustrating the powerful role of multimodal and contextualized input in deepening lexical processing.

This finding draws upon the principles of dual coding theory and multimedia learning, which posit that information processed through both verbal and visual or auditory channels is encoded more robustly and retrieved more reliably than information processed through a single modality (Squires, 2019). By simultaneously presenting vocabulary in written, spoken, and visually contextualized forms, MALL applications create richer associative networks in long-term memory, facilitating both initial acquisition and subsequent retention. The gamification elements prevalent in platforms such as Duolingo—including point systems, streaks, and competitive leaderboards—introduce motivational scaffolding that encourages repeated engagement with vocabulary items, thereby supporting the spaced repetition effect recognized as central to durable lexical learning (Azabdaftari & Mozaheb, 2012).

The spontaneous report by one student of setting target vocabulary as a phone wallpaper to achieve “constant exposure” is a particularly instructive example of learner creativity within MALL environments. This informal, self-devised strategy reflects an internalized understanding of exposure frequency as a driver of retention and exemplifies the kind of autonomous, tool-mediated learning that MALL can foster when students are given the latitude to personalize their learning environments. Such behaviors corroborate Alnufaie’s (2022) observation that MALL users often develop idiosyncratic learning practices that extend beyond the designed affordances of any specific application, highlighting the dynamic and agentic dimensions of mobile-assisted vocabulary learning.

4.3 The Enduring Importance of Pedagogical Principles: Repetition and Context

While the technological dimensions of MALL are central to its appeal, the present study underscores those enduring pedagogical principles remain indispensable for effective vocabulary retention. 85.2% of participants identified repetition as “important” or “very important,” and 44.3% selected all available contextual factors—understanding meaning, long-term memory, and correct usage—as essential for vocabulary retention, with a further 39.3% citing understanding meaning alone as the key reason context matters. These findings affirm that technological novelty alone does not account for MALL’s effectiveness; rather, it is the capacity of mobile tools to operationalize well-established vocabulary acquisition principles that makes them pedagogically valuable.

The near-universal recognition of repetition’s importance aligns with a substantial body of psycholinguistic research demonstrating that vocabulary retention depends on multiple exposures distributed across time (Lu, 2008; Khansarian-Dehkordi & Ameri-Golestan, 2016). MALL applications are particularly well-suited to implementing spaced repetition through algorithmic scheduling of review sessions, push notifications, and adaptive difficulty adjustments—features that are largely absent from traditional classroom instruction. By automating the spacing and sequencing of practice, these tools reduce the cognitive burden on learners while simultaneously optimizing the conditions for long-term retention, making them powerful complements to formal instruction (Al-Hashimi & Bauer, 2025).

The strong consensus on the importance of context is equally significant from a pedagogical standpoint. Context-independent word learning—such as memorizing isolated word-definition pairs—has long been critiqued for producing fragile, decontextualized knowledge that fails to transfer to authentic language use. In contrast, contextual vocabulary learning, whether through reading, listening, or situated tasks, equips learners with richer semantic and pragmatic knowledge that supports comprehension and production in real communicative contexts (Leow, 2014). The present findings suggest that IAU students have an intuitive understanding of this distinction, recognizing that seeing vocabulary in authentic, meaningful contexts—as afforded by social media, video platforms, and conversation-rich applications—promotes not only initial learning but also long-term memory consolidation and appropriate usage. This has direct implications for instructional design: MALL integration in ESL curricula should prioritize contextually embedded vocabulary tasks over decontextualized drill-and-practice formats.

4.4 The Hybrid Learning Preference and Its Pedagogical Implications

Perhaps the most nuanced finding of this study is the strong preference among participants for a hybrid approach combining MALL with traditional classroom instruction, endorsed by 55.7% of

respondents—the largest single group. This preference reveals a sophisticated learner perspective that resists a binary framing of mobile versus traditional learning, instead recognizing that each modality possesses distinct strengths that are most effectively leveraged in complementary combination.

Traditional classroom instruction offers structured, teacher-mediated learning experiences characterized by explicit explanation, immediate corrective feedback, collaborative interaction, and the social dimensions of group learning that mobile applications are ill-equipped to replicate. Conversely, MALL extends vocabulary practice beyond the classroom, enables personalized and adaptive learning pathways, and provides the motivational scaffolding of gamified environments. This pattern echoes Alisoy and Sadigzade's (2025) comparative review, which found that mobile applications tend to outperform traditional methods for memorization and engagement, while teacher-led classroom instruction remains more effective for productive language use—a distinction that directly supports the present participants' preference for combining rather than choosing between the two modalities. A hybrid model that strategically integrates both modalities can thus leverage the pedagogical affordances of each while mitigating their respective limitations. This finding corroborates the conclusions of Peng et al. (2021), whose meta-analysis of MALL research on second language skills found that blended approaches consistently outperformed purely mobile or purely traditional instruction in terms of learning outcomes.

From a curriculum design perspective, these findings suggest that educators should approach MALL not as a replacement for classroom-based vocabulary instruction but as a powerful extension of it. Effective integration might involve the flipped classroom model, in which students use mobile applications for initial vocabulary exposure and spaced repetition practice outside class, while classroom time is reserved for deep contextual engagement, collaborative tasks, and communicative application of newly acquired vocabulary. This approach would capitalize on the flexibility of MALL while preserving the irreplaceable social and pedagogical dimensions of direct instruction, aligning with the preferences expressed by the majority of participants in this study.

4.5 Challenges and Limitations: The Distraction Problem and Self-Regulation

Despite the overwhelmingly positive perceptions of MALL among participants, qualitative data from open-ended responses identified digital distraction as a significant and recurring challenge. Students specifically cited push notifications, social media feeds, and the generally distracting nature of smartphone environments as threats to sustained, focused vocabulary learning. This finding reflects a structural tension inherent to MALL: the same device that enables rich, flexible vocabulary learning also serves as a platform for entertainment, social connection, and constant interruption, making sustained cognitive engagement difficult to maintain.

This challenge is well documented in the MALL literature and has been identified as one of the primary barriers to the effective autonomous use of mobile devices for language learning (Wardak, 2020; Jeong, 2022). Notably, IAU students' perceptions in the present study were more strongly positive than those reported in some comparable EFL contexts: Metruk (2020), surveying 77 Slovak EFL learners, found only "moderately positive" attitudes toward smartphone use for language learning, with distraction and difficulty planning study time cited as recurring concerns, whereas 75% of the present sample agreed that phones help them remember words better. This divergence suggests that the benefits and drawbacks of MALL are not experienced uniformly across learner populations, and that institutional and cultural context may shape how strongly the

distraction trade-off is felt. The cognitive costs of task-switching and attentional interruption are well established in educational psychology, and frequent disruption of focused learning episodes can significantly undermine the depth of processing required for durable vocabulary retention. Students who lack robust self-regulatory skills may find that their mobile learning sessions devolve into fragmented, superficial engagement that fails to achieve the spaced repetition and contextual processing necessary for long-term retention.

These findings underscore the importance of integrating explicit self-regulation instruction into MALL-based vocabulary programs. Educators and curriculum designers should not assume that students will autonomously develop the metacognitive strategies needed to manage digital distractions; rather, structured guidance on strategies such as disabling non-essential notifications during study sessions, using app-blocking tools, setting clear learning goals, and self-monitoring progress should be incorporated into MALL pedagogical frameworks. Furthermore, the development of digital literacy competencies—including the critical evaluation of one's own mobile learning behaviors—should be recognized as an integral component of effective MALL instruction, particularly in higher education contexts where autonomous learning is both expected and essential.

4.6 Implications for Saudi Higher Education and Future Research

The findings of this study carry important implications for ESL vocabulary instruction in Saudi higher education. The high levels of smartphone ownership and digital literacy among IAU students, combined with strong positive perceptions of MALL, suggest that the infrastructure and motivational conditions for effective mobile-assisted vocabulary learning are already in place. What remains needed is a more deliberate, pedagogically grounded approach to MALL integration within institutional curricula—one that moves beyond ad hoc student-driven tool use toward systematically designed learning experiences that harness the full range of MALL affordances.

Instructors and curriculum developers at IAU and similar institutions should consider developing structured MALL components that align mobile learning activities with specific vocabulary learning objectives, incorporate spaced repetition schedules, and provide contextually rich tasks that leverage the multimedia capabilities of mobile applications. Institutional support for teacher training in mobile pedagogy and the development of MALL-specific assessment frameworks would further strengthen the integration of mobile tools into formal ESL curricula, ensuring that the benefits observed in this study are realized in a consistent and equitable manner across student cohorts.

Future research should address several limitations of the present study. The cross-sectional survey design, while appropriate for capturing learner perceptions at a single point in time, cannot establish causal relationships between MALL use and vocabulary retention outcomes. Longitudinal designs incorporating pre- and post-tests of vocabulary knowledge would provide more robust evidence of MALL's long-term effects on retention. Additionally, the convenience sample of 61 students from a single institution limits the generalizability of the findings; larger, multi-institutional studies that include control groups and control for variables such as proficiency level, prior mobile learning experience, and specific application use would yield more definitive conclusions. Qualitative research methods—including interviews, think-aloud protocols, and learning diary analyses—could also provide deeper insight into the mechanisms through which MALL facilitates or impedes vocabulary retention, enriching the predominantly quantitative

evidence base that currently characterizes this field.

5. Conclusion

This study examined undergraduate ESL learners' perceptions of MALL's effectiveness for English vocabulary retention at Imam Abdulrahman bin Faisal University, Saudi Arabia. Drawing on a quantitative cross-sectional survey with 61 undergraduate participants, the findings reveal strong positive perceptions of MALL, with approximately 75% of students agreeing that mobile devices enhance their ability to remember vocabulary. The most widely used tools—social media platforms and dedicated language learning applications such as Duolingo and Memrise—were valued for their multimedia affordances, flexibility, and motivational features. Students overwhelmingly recognized the importance of pedagogical factors, particularly repetition (endorsed by 85.2%) and contextual learning (endorsed by 44.3%, with a further 39.3% citing understanding meaning alone), highlighting that effective MALL use is grounded in established principles of vocabulary acquisition rather than technology alone. The preference of 55.7% of participants for a hybrid approach combining MALL with traditional classroom instruction suggests that mobile tools are most effectively positioned as pedagogical supplements rather than replacements for direct instruction. Qualitative insights further revealed that while MALL offers transformative affordances, digital distraction remains a significant challenge requiring the cultivation of self-regulatory skills. These findings underscore the potential of MALL to enrich lexical acquisition in Saudi higher education and call for pedagogically grounded, institutionally supported integration of mobile tools into ESL curricula.

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