Mitigating Lexical Attrition in Saudi EFL Learners: The Role of Digital Practices and Bilingual Contexts

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Abstract

This study examines lexical attrition among Saudi secondary school English as a Foreign Language learners. Lexical attrition refers to the gradual loss of previously acquired vocabulary due to factors such as code-switching, infrequent usage, and reliance on L1-dominant communication. Using preliminary survey data and contemporary literature, the research explores cognitive and behavioral factors contributing to vocabulary erosion among digitally active adolescents. Findings indicate that excessive reliance on translation tools, frequent alternation between languages on social media, and passive engagement with visually dominated content such as video games and infographics significantly hinder vocabulary retention. Conversely, learners who actively produce English digital content, use spaced repetition techniques, and participate in structured peer interactions show substantially better long-term vocabulary retention. The study provides evidence-based recommendations for educators, including the integration of gamified learning technologies, promoting bilingual journaling, and fostering English-speaking environments both inside and outside the classroom. This research contributes to the existing literature on second language (L2) vocabulary attrition by highlighting practical strategies to sustain lexical competence among high school learners in bilingual, digitally enriched contexts.

Keywords: lexical attrition, vocabulary retention, digital exposure, code-switching, EFL learners, Saudi Arabia

1. Introduction

Lexical attrition, defined as the gradual loss of previously acquired vocabulary, poses a significant challenge for English as a Foreign Language (EFL) learners, particularly in contexts where the target language is not extensively used outside formal education settings. In Saudi high schools, students typically acquire English vocabulary within structured classroom environments but have limited opportunities for authentic language use beyond these settings. Consequently, vocabulary that is not regularly reinforced tends to deteriorate over time (Schmid & Köpke, 2009; Al Fraidan, 2023). Research consistently shows that vocabulary decay is especially pronounced when classroom instruction lacks supplementary retrieval-based tasks or meaningful personal engagement. For instance, Schmid and Mehotcheva (2020) found that second language (L2) lexical retention declines significantly when learners do not receive consistent exposure to language input after instruction. Similarly, Seibert Hanson and Brown (2020) observed that EFL learners who utilized mobile-assisted spaced repetition tools retained considerably more vocabulary compared to those employing traditional memorization techniques. Quoc and Van (2023) also emphasized that without socially meaningful reinforcement, such as reflective writing or verbal interactions, learners are unlikely to retain newly acquired vocabulary in the long term. Collectively, these findings underline the importance of incorporating metacognitive strategies and authentic communication activities into vocabulary instruction to support sustained lexical retention.

The complexity of lexical attrition among Saudi high school learners is exacerbated by digital behaviors typical of Generation Z students. High school students frequently engage with social media platforms such as TikTok, Instagram, and Snapchat, where visual content often supersedes text-based communication. Such engagement patterns impede the deep cognitive processing required for durable vocabulary retention (Ali & Seghedin, 2021; Liang, 2022). Although students frequently encounter English passively through these platforms, the opportunities for active vocabulary use are limited, causing learners to quickly revert to Arabic during social interactions.

Furthermore, frequent code-switching between Arabic and English has a negative impact on vocabulary consolidation. Research indicates that mid-sentence code-switching hinders lexical recall and disrupts the cognitive encoding of new vocabulary into long-term memory (Nguyen, 2021). In Saudi high school contexts, where English use is predominantly academic, students often switch back to Arabic during digital interactions, significantly increasing the likelihood of vocabulary attrition (Alzahrani, 2023).

Translation technologies, particularly Google Translate, provide convenient assistance but simultaneously reduce learners' reliance on internal vocabulary retrieval processes. Alghamdi (2023) identified a significant correlation between Saudi students' frequent use of translation applications and decreased spontaneous lexical recall and long-term retention.

The current study investigates the specific effects of passive digital exposure, frequent code-switching, and excessive reliance on translation tools on lexical attrition among Saudi high school English as a Foreign Language (EFL) learners. Additionally, the study proposes practical, evidence-based strategies to mitigate lexical attrition, including structured content creation, deliberate digital engagement, and reinforcement techniques such as spaced repetition. By examining an under-researched demographic, this research provides targeted insights into the intersection of digital culture, bilingualism, and vocabulary maintenance among Saudi secondary-level learners.

While extensive research addresses lexical attrition among adult learners, the phenomenon remains underexplored in adolescent populations, especially within digitally bilingual contexts such as Saudi Arabia. Thus, this study uniquely contributes to the literature by examining Saudi high school students, highlighting specific lexical behaviors shaped by digital media, and offering practical strategies for educators and policymakers to enhance lexical retention in similar bilingual educational contexts.

The present study aims to:

- Investigate the impact of digital behaviors, such as social media use, translation tool reliance, and code-switching, on lexical attrition among Saudi EFL high school students.
- Identify effective digital strategies that can mitigate vocabulary loss and enhance lexical retention.
- Provide actionable, evidence-based recommendations to educators for integrating digital practices into Saudi EFL contexts.

2. Literature Review

Previous studies such as (Al Fraidan, 2012; Al Fraidan and Fakhli, 2024; Al Fraidan, 2024a, 2024b) have shown that Saudi EFL learners, including preparatory-year and English-major students, use varied vocabulary learning strategies, highlighting the importance of targeted instructional approaches to improve vocabulary retention. Emerging educational technologies, such as the Metaverse, provide novel opportunities for vocabulary reinforcement through immersive learning experiences, as discussed in recent scenarios proposed for the Saudi educational context by Al Fraidan and Olaywi (2024). The effective design and implementation of flexible distance education models, such as that developed by Al-Adhaileh and Al Fraidan (2016), underscore the potential of digitally mediated instruction to maintain continuous engagement and mitigate lexical attrition in Saudi EFL learners. Additionally, the digital transformation strategies outlined by Al Fraidan and Alaliwi (2024) underscore the importance of sustainable digital interventions in fostering long-term vocabulary retention, aligning closely with Saudi Arabia's educational vision and global trends.

Schmid and Mehotcheva (2020) provide essential insights into lexical attrition across diverse learner demographics. Their study evaluated retention among 231 adult English L2 speakers in Europe, employing lexical judgment tasks and frequency-based recall tests. Findings showed that vocabulary attrition was most severe among learners with minimal or no post-instructional exposure to the English language. In contrast, learners who periodically engaged with English by reading, watching movies, or participating in social interactions demonstrated significantly better vocabulary retention. This finding supports the "use-it-or-lose-it" principle, emphasizing the importance of regular language exposure to sustain long-term vocabulary retention.

Although consistent exposure to the target language is crucial, the nature of digital engagement also influences lexical retention. Liang (2022) conducted a longitudinal study with 138 Chinese university EFL students, comparing vocabulary retention between two groups: one group regularly accessed text-rich English-language blogs, while the other primarily engaged with image-focused social media platforms like TikTok and Instagram. Pre- and post-assessments over eight weeks revealed that students exposed to blogs retained 27% more vocabulary. Liang argued that text-dense content facilitated deeper semantic processing compared to the superficial engagement typical of visual platforms, indicating the significance of digital media choice on vocabulary consolidation.

Blair and Morini (2023) similarly demonstrated that learners exposed to structured multimedia content, especially involving controlled language-switching environments, retained vocabulary more effectively compared to peers in passive, monolingual settings. Additionally, Kanellopoulou and Kermanidis (2019) found that incorporating subtitles in multimedia contexts fosters dual encoding processes, enhancing long-term vocabulary recall.

Code-switching, defined as alternating between first language (L1) and second language (L2) within discourse, significantly impacts vocabulary retention. Nguyen (2021) investigated 80 Arab English as a Foreign Language (EFL) university students, divided into English-only and Arabic-permitted classroom environments. After four weeks of instruction, students in the English-only environment significantly outperformed their counterparts in delayed vocabulary recall tasks. Nguyen concluded that mid-sentence switches to L1 interrupt cognitive encoding processes, hindering the consolidation of vocabulary into long-term memory. These results underscore the value of consistent L2 immersion, particularly during the early phases of vocabulary acquisition.

Similarly, Treffers-Daller et al. (2022) concluded that frequent code-switching between Malay and English disrupted lexical development, particularly when bilingual strategies were unstructured. Immanuel and Hameed (2023) suggested that multimedia-based code-switching activities in classrooms, if strategically aligned with learners' needs, could potentially enhance lexical flexibility and recall.

Retrieval-based practice has consistently demonstrated cognitive benefits for vocabulary retention. Tseng (2021) assessed the effectiveness of spaced repetition systems (SRS), such as Anki, among 60 Taiwanese high school students. Students using SRS retained 35% more vocabulary after four weeks than peers who used conventional note-taking methods. Tseng attributed this improved retention to repeated spaced exposure, underscoring the potential of self-directed digital tools to mitigate vocabulary attrition in limited-input

contexts.

Sneida, Yahya, and Husain (2023) similarly emphasized that vocabulary-focused speaking tasks, particularly those emphasizing lexical collocations, significantly enhanced long-term vocabulary retention and oral fluency among Arab EFL learners.

Al Fraidan (2023) conducted a longitudinal mixed-methods study involving 96 final-year Saudi EFL university students (65 completed the study) to examine the impact of structured social media interactions on vocabulary retention. Participants engaged in English-language activities via WhatsApp and Telegram for 18 months post-graduation. Vocabulary retention, evaluated through CEFR-aligned assessments, retrospective interviews, and questionnaires, significantly correlated with the structured and interactive use of these platforms. Thus, Al Fraidan concluded that structured, purposeful technological use, rather than mere exposure, facilitates enduring lexical retention.

In Saudi Arabia, Alzahrani (2023) examined the role of code-switching in high school classrooms, surveying and interviewing 122 English as a Foreign Language (EFL) students and 100 teachers across multiple schools. Although Arabic was commonly used to clarify difficult vocabulary and grammar points, frequent classroom code-switching had a negative impact on vocabulary recall. Alzahrani concluded that excessive reliance on L1 reduces deep lexical encoding, thereby limiting effective vocabulary retention.

Recent research by Al Fraidan (2025) further illuminates how educational psychology and test-taking strategies suggest that cognitive and motivational engagement significantly influence vocabulary retention, underscoring the importance of structured and deliberate vocabulary reinforcement activities (Al Fraidan, 2024).

Collectively, these studies present a comprehensive view of the factors influencing lexical attrition in EFL contexts. Continuous engagement with the target language, particularly through structured, text-oriented digital interactions, clearly promotes vocabulary retention. Conversely, frequent code-switching, reliance on visual media, and limited retrieval practice contribute to vocabulary deterioration. For Saudi high school learners, the findings suggest the need to shift from passive digital consumption to active, structured English engagement, both within and outside academic settings. The strategic integration of spaced repetition tools, digital content creation, and immersive conversational practices offers effective reinforcement to sustain robust L2 vocabulary knowledge.

3. Methodology

The present study employed a quantitative pilot survey to explore lexical attrition among Saudi high school EFL learners. The quantitative approach allowed us to systematically capture students' digital behaviors, language usage patterns, and perceptions concerning vocabulary retention.

A small-scale pilot survey was conducted to investigate lexical attrition among Saudi high school EFL learners by examining their digital activities, vocabulary usage patterns, and perceptions regarding vocabulary retention. The study involved 52 Saudi high school EFL students aged between 16 and 18, recruited from two public schools located in the Eastern Province.

Demographic variables such as gender and specific urban/rural distinctions were not distinguished in this pilot survey. Future research should incorporate these factors to explore potential demographic influences on lexical attrition.

Data were collected through a short, anonymous questionnaire administered in English during classroom sessions. Prior to participation, ethical approval was obtained, and informed consent was secured from all participants, ensuring confidentiality and voluntary involvement. The questionnaire examined students' social media behaviors, code-switching practices, and experiences related to vocabulary retention.

The survey comprised five key questions:

1. In which language do you usually communicate or comment on social media?
2. Which applications do you use most frequently (e.g., Snapchat, Instagram, WhatsApp, TikTok)?
3. How frequently do you alternate between Arabic and English in conversations?
4. Can you recall instances when you forgot a term learned in class?
5. Estimate the number of English vocabulary items you have forgotten or find challenging to recall.

The five-question survey was specifically developed for this study to closely align with our research objectives. The questions targeted key variables identified in the literature review—language preferences, frequency of social media use, patterns of code-switching, subjective vocabulary retention experiences, and self-assessment of vocabulary recall—to capture nuanced relationships between digital behaviors and lexical attrition. The five survey questions were specifically developed for this study to gather detailed information about participants' language preferences, social media usage, code-switching habits, and their subjective experiences regarding vocabulary attrition. These items were tailored to align closely with the research aims and context of Saudi high school EFL learners.

The sample size of 52 students was determined based on convenience sampling, reflecting the number of eligible and accessible participants from the selected classes in the two public high schools. Given the exploratory and pilot nature of this study, this sample size provided a manageable yet sufficiently diverse group to yield preliminary insights into vocabulary attrition among Saudi high school EFL learners.

Given the exploratory nature of this pilot study, the sample size of 52 students was appropriate. This manageable yet diverse sample

provided preliminary insights into vocabulary attrition, ensuring feasibility while allowing initial statistical exploration to inform future large-scale studies.

4. Findings

Results showed that 41 out of 52 students (79%) primarily posted in Arabic on social media, including on international platforms. Table 1 summarizes these findings. Only six students (12%) consistently posted in English; these individuals often had extrinsic motivations, such as ambitions to study abroad.

Table 1. Students' Primary Language Use on Social Media

Primary Language on Social Media	Number of Students	Percentage (%)
Arabic	41	78.8%
English	6	11.5%

Notably, although 38 students (73%) received daily English instruction, many frequently switched to Arabic during online interactions, even when initial communications began in English.

The most frequently used social media applications were Snapchat (n = 48), TikTok (n = 45), and Instagram (n = 38), all of which feature image- or video-based content. WhatsApp was primarily utilized for familial and educational interactions. The majority of students reported spending between 3 and 6 hours daily on social media. Figure 1 visually illustrates the clear correlation between increased social media usage and higher self-reported vocabulary attrition. These results align with findings by Liang (2022), who reported that visual-centric platforms impair vocabulary retention due to shallow semantic processing.
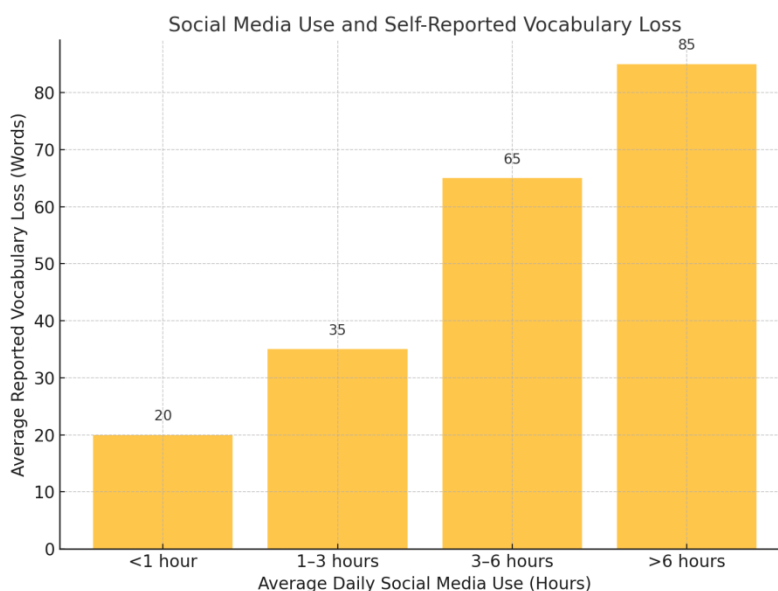

Figure 1. Relationship Between Daily Social Media Use and Self-Reported Vocabulary Loss

Regarding vocabulary retention, 31 students (60%) reported frequently forgetting vocabulary items learned during the school year, particularly academic or complex terms such as "environmental," "improvement," and "achievement." Additionally, 18 students indicated avoiding "difficult" vocabulary in writing tasks due to uncertainty about meanings or spellings. In response to the self-assessment question, the majority reported forgetting "more than 50 words," while a smaller group (n = 14) estimated this number to exceed 100.

These findings correspond closely to Schmid and Mehotcheva's (2020) assertion that low-frequency academic vocabulary is especially susceptible to attrition. Similarly, these results align with Al Fraidan's (2023) findings that unstructured or passive digital interactions are ineffective in enhancing vocabulary retention. This study also observed that students who actively engaged with English content, such as using YouTube channels or maintaining English diaries, experienced fewer challenges recalling vocabulary, supporting the protective effects of active linguistic engagement.

In examining code-switching behavior, students reported defaulting to Arabic when they "forgot the English word" or found it "easier to express emotions" in their native language. These behaviors are consistent with Nguyen's (2021) findings, which suggest that code-switching disrupts lexical encoding and retrieval processes. Students who used Arabic in online contexts reported higher levels of vocabulary deterioration.

Furthermore, several students (n = 7) reported extensively using Google Translate for writing assignments but acknowledged that vocabulary translated in this manner was often quickly forgotten. This supports Alghamdi's (2023) assertion that translation tools facilitate temporary comprehension but hinder long-term lexical retention.

Overall, the results indicate that the digital behaviors and language practices of Saudi high school students significantly contribute to vocabulary attrition. The predominant use of Arabic on social media, frequent code-switching, and reliance on translation tools—behaviors identified in the existing literature as negatively affecting lexical retention—are prevalent. However, a minority of students who regularly practiced English through digital writing or speaking reported higher confidence in vocabulary retention and fewer vocabulary-related difficulties.

Despite the limited scale of this survey, clear correlations emerged between students' self-reported experiences and theoretical models of lexical attrition, highlighting strong links between digital engagement patterns and lexical retention. These preliminary findings underscore the necessity for structured digital literacy initiatives in Saudi EFL education, emphasizing active English language production rather than passive consumption. Promoting English digital journaling, participation in English-only peer groups, and employing retrieval-based programs like Anki could effectively mitigate vocabulary attrition among Saudi high school learners.

5. Discussion

This study presents novel empirical insights into the differential effects of active versus passive digital engagement on lexical attrition among Saudi adolescent EFL learners. Unlike previous research that has predominantly focused on adult learners or general digital engagement, this study uniquely examines Saudi high school contexts, demonstrating that passive interactions—such as frequent viewing of videos, images, infographics, or diagrams on platforms like Snapchat and TikTok—significantly hinder vocabulary retention due to limited cognitive processing. In contrast, learners actively producing English content or engaging in structured vocabulary retrieval practices exhibited better vocabulary retention.

Our findings extend existing literature (e.g., Schmid & Mehotcheva, 2020; Liang, 2022) by explicitly highlighting how digital behaviors specifically shape vocabulary retention patterns in a Saudi bilingual educational environment. While prior studies have emphasized general engagement, our study provides clear empirical evidence underscoring the necessity of deliberate, structured digital interactions tailored to adolescent learners' unique linguistic and cognitive needs.

The pedagogical implications arising from these results are substantial. Educators are encouraged to integrate structured digital strategies, including spaced repetition software (e.g., Anki), digital journaling tasks, and structured peer discussion forums on digital platforms, to actively engage students in vocabulary practice and prevent lexical attrition. Emphasizing active linguistic production—such as composing English reviews, social media captions, or maintaining bilingual journals—can effectively bridge classroom learning and authentic digital language use, thereby significantly enhancing long-term vocabulary retention among Saudi EFL learners.

Factors Contributing to Lexical Attrition

Lexical attrition among Saudi English as a Foreign Language (EFL) learners is influenced by various socioeconomic and technological factors. In educational contexts where English application outside formal classrooms is limited, learners become especially susceptible to vocabulary loss. Recent research identifies five primary contributing factors: limited practical applications of L2, frequent code-switching, overreliance on visually oriented digital media, lexical simplification, and excessive dependence on AI-assisted translation tools.

A primary factor contributing to vocabulary loss is limited authentic use of English. Schmid and Mehotcheva (2020) found that learners lacking engagement with English beyond formal instructional contexts experienced substantial attrition, especially of low-frequency and academic vocabulary. Similarly, Quoc and Van (2023) demonstrated that EFL learners participating in authentic communicative tasks, such as journaling or delivering presentations, retained significantly more vocabulary than those relying exclusively on classroom-based memorization. These findings underscore the importance of intentional, meaningful language use and retrieval-based practice in sustaining long-term vocabulary retention.

Code-switching, particularly between Arabic and English, also negatively impacts vocabulary retention. Nguyen (2021) reported that Arab EFL learners who frequently engage in code-switching during digital interactions have poorer vocabulary recall due to disrupted cognitive processing.

Additionally, Read et al. (2021) observed that bilingual learners exposed to mixed-language materials retained fewer vocabulary items compared to those encountering monolingual English materials. Consistent with these findings, Alzahrani (2023) found that Saudi high school students regularly alternating languages in educational and social contexts exhibited diminished productive vocabulary skills.

An overreliance on visual or symbolic communication tools—such as emojis, memes, and short-form videos—reduces opportunities for meaningful linguistic interaction. Liang (2022) indicated that learners engaging primarily with visually dominated platforms, such as TikTok and Snapchat, recalled significantly less academic vocabulary than those interacting with text-based media. Similarly, Ali and Seghedin (2021) noted that learners actively producing English content on social media, including captions and blog entries, retained more vocabulary than those who consumed content passively. These findings highlight active linguistic production as essential for counteracting attrition.

Lexical simplification, characterized by learners avoiding complex or unfamiliar English terms in favor of basic or native language equivalents, further contributes to vocabulary loss. Isabelli (2022) observed that learners consistently simplifying their language usage cultivated restricted productive vocabulary over time. While not explicitly observing lexical simplification, findings from Al Fraidan (2023) imply that structured English-language use on digital platforms, such as Telegram and WhatsApp, significantly promotes productive vocabulary retention, indirectly suggesting that resistance to simplification benefits lexical retention.

Ultimately, relying on AI-assisted translation systems can adversely affect vocabulary retention. Alghamdi (2023) noted that Saudi university students who frequently use Google Translate struggle with the contextual recall of academic terms. Similarly, Aldukhayel (2023) reported that learners who are overly dependent on translation applications showed impaired independent vocabulary recall during delayed testing. These studies highlight the role of translation technologies in providing superficial comprehension while undermining the deep cognitive processing necessary for durable lexical retention.

In summary, lexical attrition among Saudi EFL learners is influenced by disengaged digital behaviors, inconsistent L2 exposure, and strategies that limit active vocabulary retrieval. Addressing these factors requires deliberate, structured English communication practices both within educational contexts and through extracurricular digital engagement.

Strategies to Minimize Lexical Attrition

To mitigate lexical attrition among Saudi EFL learners, implementing retrieval-based, socially interactive, and digitally integrated instructional strategies is essential. Recent research has identified several effective classroom and self-directed methodologies for enhancing vocabulary retention, emphasizing active recall, frequent exposure, and engaging in meaningful daily English usage.

Spaced repetition systems (SRS), such as Anki, represent evidence-based strategies for strengthening vocabulary recall. Tseng (2021) demonstrated that EFL high school students employing Anki retained 35% more vocabulary over a month compared to those relying on traditional note-taking methods. Likewise, Quoc and Van (2023) showed improved long-term vocabulary retention among learners engaged in structured, distributed digital self-study activities.

Producing English-language digital content, including social media captions, vlogs, or journal entries, further reinforces vocabulary retention. Ali and Seghedin (2021) reported that learners actively posting English content on platforms like Instagram and YouTube demonstrated superior vocabulary recall compared to their peers who engaged passively. Additionally, Rajayi and Maleki (2023) found that EFL learners who generated vocabulary-focused Instagram posts retained significantly more target vocabulary items than learners who were not engaged digitally. Educators might encourage students to compose brief reviews in English, write social media captions, or maintain bilingual journals, effectively integrating academic vocabulary into their daily interactions.

Active recall techniques, such as low-stakes quizzes, spoken prompts, and retrieval-focused games, are also highly effective in minimizing lexical attrition. Schmid and Mehotcheva (2020) underscored regular, substantial retrieval as essential for durable information retention. Thus, regular classroom activities such as weekly "vocabulary relaunch" events—including storytelling, peer debates, or collaborative quizzes—can effectively reinforce forgotten vocabulary items.

Integrating academic vocabulary into informal personal contexts promotes better vocabulary retention. Liang (2022) noted that learners who recontextualized academic terms in personal conversations or social media postings experienced improved retention. Consequently, educators could implement daily "Word of the Day" practices through WhatsApp groups or class presentations, effectively linking theoretical understanding with practical application.

Encouraging bilingual digital journaling enhances learner reflection, metacognitive awareness, and vocabulary acquisition. Research by Read et al. (2021) supports the use of reflective bilingual writing as beneficial for promoting language transfer and lexical processing. Saudi educators can facilitate multilingual journal practices on platforms like Google Docs or Notion, addressing relevant daily topics in multiple languages.

Structured peer discussion groups conducted in English further reinforce vocabulary retention. Alzahrani (2023) found that Saudi learners participating in English-only peer discussions demonstrated improved oral and written vocabulary performance. Digital platforms like Telegram or Discord can effectively support these interactive discussions, facilitating vocabulary retrieval and reinforcement.

Additionally, structured digital activities significantly enhance vocabulary retention. Al Fraidan (2023) revealed that Saudi EFL learners engaging systematically in vocabulary tasks on WhatsApp and Telegram, such as discussion prompts or word guessing games, showed substantially higher productive vocabulary retention than less engaged peers. These structured digital interactions, rather than mere platform usage, were identified as crucial for effective long-term retention of vocabulary. Educators may adopt similar structured small-group activities to replicate these digital strategies in classroom settings, thereby reinforcing vocabulary through deliberate and interactive practice.

Collectively, these strategies emphasize active, personalized, and contextually meaningful vocabulary use. Through consistent reinforcement and deliberate digital integration, Saudi EFL learners can effectively counteract lexical attrition and foster durable vocabulary resilience.

6. Limitations and Future Directions

Despite the valuable insights provided by this study, several limitations should be acknowledged. First, the study utilized a relatively small sample size of 52 participants, drawn from only two public high schools in the Eastern Province of Saudi Arabia. The limited sample size and geographic scope may restrict the generalizability of the findings to the broader Saudi high school population or other EFL contexts.

Additionally, the data collection method relied exclusively on self-reported measures, which can introduce participant biases such as social desirability bias or inaccuracies in memory recall. Self-report methods, while useful in exploring learners' subjective experiences, lack the objectivity and precision of standardized lexical proficiency tests or observational techniques, which may potentially influence the

reliability of the findings.

Moreover, this pilot survey employed a cross-sectional design, capturing vocabulary retention and digital behavior at a single point in time. The absence of longitudinal tracking prevents conclusions about how vocabulary attrition evolves or how specific digital behaviors influence long-term lexical retention.

Future research could address these limitations by incorporating larger, more diverse samples drawn from various educational contexts across Saudi Arabia. Such expanded sampling would improve the representativeness and external validity of the results. Additionally, employing objective lexical proficiency assessments, such as standardized vocabulary tests, performance tasks, or corpus-based analyses, would significantly enhance the accuracy and reliability of the findings.

Longitudinal research designs are also recommended to track learners' vocabulary development over extended periods of time. Such designs could clarify how sustained engagement with various digital platforms influences vocabulary retention and attrition patterns. Future studies might explore the effectiveness of specific intervention strategies discussed here—such as spaced repetition, bilingual journaling, and structured digital interaction—in experimental or quasi-experimental settings.

Furthermore, qualitative methodologies, such as interviews or focus groups, could be integrated to deepen understanding of learners' cognitive and emotional experiences related to vocabulary retention and digital practices. Investigating the psychological and motivational dimensions influencing lexical attrition could provide nuanced insights into learner behaviors.

Finally, exploring demographic variables such as gender, socioeconomic status, and specific motivational orientations toward learning English could further enrich our understanding of factors affecting lexical attrition. Addressing these research directions will significantly advance theoretical knowledge and provide comprehensive, evidence-based recommendations for educators and policymakers to combat lexical attrition among EFL learners effectively.

7. Conclusion

Lexical attrition remains a significant challenge for Saudi EFL learners, particularly in high school contexts where English is restricted to formal academic settings, resulting in limited opportunities for authentic language practice. The findings of this study demonstrate that vocabulary loss among Saudi adolescents is not random but follows identifiable patterns related to their digital behaviors and linguistic practices. Both existing literature and empirical insights from the current study indicate that passive interaction on social media platforms, overreliance on visually oriented communication, frequent code-switching to Arabic, and extensive dependence on AI translation tools significantly increase learners' vulnerability to erosion.

The influence of digital activities on vocabulary retention is profound. Structured and interactive engagement on text-based platforms, such as WhatsApp and Telegram, provides meaningful reinforcement of vocabulary. In contrast, passive consumption of visual-centric content on platforms like TikTok offers minimal benefits, as these activities do not support the deep cognitive encoding required for long-term vocabulary retention. Moreover, habitual simplification—replacing complex English terms with simpler Arabic alternatives—further hinders vocabulary consolidation, particularly when reinforced by consistent reliance on translation technologies.

Nonetheless, this research has identified clear and practical strategies to mitigate lexical attrition effectively. Deliberate digital engagement, characterized by consistent use of spaced repetition tools, active production of English-language content, structured participation in English-only online communities, and regular incorporation of academic vocabulary into daily interactions, significantly enhances lexical retention outcomes. Additionally, classroom interventions focused on retrieval-based practice, peer collaboration, and reflective bilingual journaling offer tangible pedagogical benefits supporting long-term vocabulary retention.

In conclusion, although lexical attrition is a prevalent issue, it can be effectively reversed through intentional and structured educational practices. By actively guiding Saudi EFL students towards purposeful digital language engagement and encouraging regular and meaningful use of English both within and beyond classroom settings, educators can foster robust lexical resilience. Ultimately, this approach will equip learners with the linguistic competencies necessary for sustained academic achievement and effective communication in increasingly bilingual and digitally mediated environments.

Authors' contributions

Prof. Abdullah Al Fraidan and Mr. Alaamri were responsible for study design and revising. Mr. Alaamri was responsible for data collection. Prof. Abdullah Al Fraidan drafted the final manuscript and revised it. All authors read and approved the final manuscriptthe study.

Competing interests

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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