مجلة جامعة بني وليد للعلوم الإنسانية والتطبيقية
Bani Waleed University Journal of Humanities and Applied Sciences
تصدر عن– جامعة بني وليد – ليبيا
Website:https://jhas-bwu.com/index.php/bwjhas/index
ISSN 3005-3900 الصفحات (293 -312) المجلد الحادي عشر – العدد الأول – 2026

Effects of MALL in Vocabulary Acquisition Among First-Year EFL Students

Salah Abdelhameed Adam [1]*, Ahlam Abdulhay Hassan [2]
[1] English Department, Faculty of Languages, Omar Al-Mukhtar University, Albayda, Libya.
[2] English Department, Faculty of Languages, Libyan Academy For Postgraduate Studies, Albayda, Libya.
ahlam.abdulhai@omu.edu.ly

أثر التعلم بمساعدة الهاتف المحمول في اكتساب المفردات لدى طلاب اللغة الإنجليزية كلغة أجنبية في السنة الأولى

صلاح عبدالحميد آدم[1]* ، أحلام عبدالحي حسن[2]
[1] قسم اللغة الانجليزية، كلية اللغات، جامعة عمر المختار، البيضاء، ليبيا.
[2] قسم اللغة الانجليزية، الكلية اللغات، الاكاديمية الليبية للدراسات العليا، البيضاء، ليبيا.

Received: 16-12-2025	Accepted: 14-01-2026	Published: 25-01-2026

Abstract:
This research examines the effectiveness of MALL via the use of WhatsApp application as a supplementary tool to enhance English as a Foreign Language (EFL) learners' academic vocabulary acquisition. It also investigates students' perceptions of MALL as an innovative learning method. The research, which utilized qualitative and quantitative methods, was conducted with 51 undergraduate EFL first-year students from the English Language Department at Omar Al-Mukhtar University. Students were divided into experimental and control groups. Students in the experimental group received vocabulary instruction and vocabulary lists through WhatsApp application, whereas the control group was taught using traditional classroom instruction. The study collected data through using pre- and post-tests, questionnaires, and semi-structured interviews. Analysis using an independent-samples t-test indicated that the experimental group did not achieve higher performance than the control group; consequently, the study discusses possible factors contributing to these findings. Nevertheless, questionnaire and semi-structured interview responses indicated that students perceived WhatsApp as motivating, encouraging, convenient, and conducive to collaborative technological learning. This research offers recommendations for integrating mobile applications into EFL teaching practices and provides pedagogical implications for language instructors.

Keywords: English as a Foreign Language (EFL), language learning, Mobile-Assisted Language Learning (MALL), vocabulary acquisition

الملخص
يفحص هذا البحث فعالية تعليم اللغة باستخدام الأجهزة المحمولة (MALL) عبر استخدام تطبيق الواتساب كأداة مساندة لتعزيز اكتساب المفردات الأكاديمية لدى متعلمي اللغة الإنجليزية كلغة أجنبية. كما يستقصي البحث تصورات الطلاب تجاه تعليم اللغة عبر الأجهزة المحمولة كطريقة تعليم مبتكرة. أُجري البحث، الذي استخدم المنهجين الكمي والنوعي، على 51 طالباً في السنة الأولى بقسم اللغة الإنجليزية في جامعة عمر المختار .وقد تم تقسيم الطلاب إلى مجموعتين: تجريبية وضابطة. تلقى الطلاب في

المجموعة التجريبية تعليم المفردات والقوائم الخاصة بها عبر تطبيق واتساب، في حين تم تعليم المجموعة الضابطة باستخدام التعليم التقليدي داخل الفصل. جمعت الدراسة البيانات باستخدام اختبارات قبلية وبعدية، واستبيانات، ومقابلات شبه منظمة . وأظهر تحليل اختبار t-test للمجموعات المستقلة أن المجموعة التجريبية لم تحقق أداءً أعلى من المجموعة الضابطة؛ وبالتالي يناقش البحث العوامل المحتملة التي أسهمت في هذه النتائج. ومع ذلك، أشارت الاجابات على الاستبيان والمقابلات شبه المنظمة إلى أن الطلاب يرون استخدام تطبيق الواتساب وسيلة محفزة ومشجعة، ومناسبة، وملائمة للتعلم التعاوني التكنولوجي. يقدم هذا البحث توصيات لدمج تطبيقات الهواتف المحمولة في ممارسات تدريس اللغة الإنجليزية كلغة أجنبية ويطرح دلالات تربوية لمعلمي اللغة.

الكلمات الدالة: اكتساب المفردات، اللغة الإنجليزية كلغة أجنبية، تعلم اللغة، تعلم اللغة بمساعدة الهاتف المحمول.

1 Introduction

In today's interconnected world, technology has become an indispensable force shaping nearly every aspect of human life. Its rapid evolution has not only transformed how we work, communicate, and access information but has also redefined the way we learn—particularly in the realm of language acquisition, where innovative digital tools and platforms are creating unprecedented opportunities for learners everywhere. Learning a new language is an essential requirement, where technology has made learning a new language more intuitive, immersive, and accessible than ever before. Consequently, learners are using different strategies that facilitate language learning, where mobile phones and their applications recently played a role in helping people to learn the language. For example, Alsied (2019) study has shown that Libyan English learners frequently use their phones to look up word meanings, listen to music, and practice all four language skills—demonstrating a strong positive attitude toward mobile-assisted language learning (MALL).

"The use of mobile devices makes it easy to acquire knowledge while on the move for the majority of educational activities, including foreign language acquisition" (Van & Thanh, 2021, p. 278). This mobility implies that learning occurs while on the move, means that learners can learn the language every time and anywhere inside the formal institution or outside of it. The greatest benefit of MALL lies in its availability and portability, which means that almost all people have their mobile devices, making them a ubiquitous tool for learning. Compared to computers, mobile phones are more cost-effective and user-friendly. Beyond hardware advantages, mobile technology fosters a highly motivating environment that allows students to learn at their own pace and convenience, free from the constraints of a traditional classroom. This flexibility enables "incidental learning" under reduced pressure, which can enhance students' self-esteem and encourage them to take greater ownership of their academic goals.

Notwithstanding its benefits, MALL has also posed some challenges. The small screen size and the one-hand use device make it difficult to write, and sometimes learners need to access the internet where there is no internet connection, or they face some technical problems that they cannot solve (Chinnery, 2006; Fageeh, 2012; Tengku-Paris et al., 2021; Van &Thanh, 2021).

In his synthesis of MALL research, Burston (2014) noted that smartphones are the most prevalent devices used in mobile learning studies. This technological shift aligns with the pedagogical necessity of vocabulary acquisition; vocabulary serves as the cornerstone of language proficiency. It is the fundamental building block upon which the four primary language skills—listening, speaking, reading, and writing—as well as grammatical competence, are constructed. However, educators, instructors and researchers need to explore new different methods of teaching vocabulary and greatly focus on the development of 21st-century skills. According to Lin and Lin (2019) "vocabulary learning is known as one of the major challenges foreign language learners confront during learning a second language" (p.2). Mastering vocabulary is essential for providing learners with the confidence and opportunities necessary to express themselves effectively.

1.2 Statement of the Problem

Students in the English language Department at Omar Al-Mukhtar University encounter scientific challenges in vocabulary acquisition, primarily due to limited resources, a lack of authentic input, and restricted opportunities for practicing the language using new vocabulary outside the classroom. While Mobile-Assisted Language Learning (MALL) offers a potential solution to these resource constraints, there is a distinct lack of empirical research regarding its effectiveness within the Libyan EFL context. Therefore, to gain a deeper understanding of MALL, this research investigates the role of MALL in enhancing vocabulary acquisition and explores participants' perceptions during this innovative intervention.

1.3 Research questions

The researcher aims to conduct an experimental study to answer these research questions:

Q1: To what extent does MALL influence students' vocabulary acquisition?

Q2: What are the students' perspectives toward the application of MALL at Omar Al-Mukhtar University?

1.4 Aims of the research

This research aims to

- Investigate the role of MALL in improving EFL students' vocabulary acquisition
- Enhance the understanding of MALL in the scientific literature

1.5 Significance of the research

- This study will support an innovative approach to learning the language in a setting that values advancement in technology and positive mindset, where the successful acquisition of vocabulary will greatly contribute to overall language proficiency.
- The learners will acquire an ample amount of vocabulary categories that are specifically relevant to their respective fields of study.
- This experiment will further enrich the field of Mobile-Assisted Language Learning (MALL) studies, particularly in vocabulary acquisition.
- The implementation of this experimental study will adhere to the latest techniques and approaches in 21st-century language learning.

1.6 Limitation of the study

This study is limited to the first-year undergraduate students in the faculty of languages in the English Department at Omar Al-Mukhtar University. The researcher selected those representative samples based on the requirements of the research, which investigates the impact of MALL in acquiring vocabulary. Consequently, vocabulary acquisition is among the subjects covered in the curriculum for First-year students in the English Department. Furthermore, the focus of the study will be on teaching certain vocabulary that includes Academic Word List (AWL).

1. Literature Review

2.1 What is Mobile Learning (m-learning)?

Mobile learning, commonly referred to as m-learning, is the process of accessing educational content while utilizing portable mobile devices. It facilitates learning the moment it is needed, allowing users to access content at their convenience and flexibility of use. M-learning provides learners the opportunity to access knowledge while "on the move", effectively enabling them the chance to learn anywhere and at any time.

Despite its popularity, the term 'mobile' remains somewhat ambiguous, as the field of mobile learning has been through rapid evolution. The ubiquitous nature of mobile technology has fundamentally influenced the way learners lead their education and engage in activities taking into consideration the condition of use and their personal needs. M-learning is characterized by its availability of the tools used "anywhere, anytime". At the first place, a primary distinction must be made between mobile technology and the actual mobility of the learner (Kukulska-Hulme, 2009). Some scholars argue that mobile learning (m-learning) can be defined by referring to the use of any portable learning materials which include books, audio CDs, DVD players, and portable radio. conversely, m-learning may refer to the most recent technological devices such as mobile phones, items characterized as being handheld mobile devices;

therefore, laptops are excluded from this list (Alzahrani, 2015; Kukulska-Hulme & Shield, 2008). Researchers define M-learning based on the focus on the mobility of the learners or mobile technology.

Kukulska-Hulme and Shield (2008) define m-learning as "learning mediated via handheld devices and potentially available anytime, anywhere" (p. 273). This definition suggests that learning occurs in both formal and informal learning institutions. Furthermore, they emphasize the mobility of technology itself, where the learning process is appropriate to happen through using mobile devices, and it is not restricted to a certain time or place. Similarly, Lashari et al. (2023) describe m-learning as an educational approach facilitated by mobile devices that allows students to participate from any location and access supplemental resources. Such tools are widely utilized by learners to enhance academic performance and track progress, enabling them to become more skilled and competent.

However, m-learning is not intended to replace formal education. Instead, offers new horizons that support learning outside the classroom, where individual can share knowledge and communicate freely anywhere and anytime. Rather, m-learning is considered a new area of learning the language that encourages learners to work collaboratively to finish the task also it enhances the chances to work harder and gets benefits from the teamwork environment. As Lashari et al. (2023) note, "…collaboratively doing educational assignments with mobile devices has been proven to be successful…" (p. 140).

2.2 Mobile-Assisted Language Learning (MALL)

Mobile-assisted language learning (MALL) has started in the mid-90s which is considered a relatively new field of study. The term was originally coined by Chickering and Ehrmann (1996), though it was Chinnery (2006) who first specifically applied the term MALL to refer to mobile phone technology. According to Chinnery (2006), mobile technologies possess the potential to serve as instrumental teaching tools that significantly enhance language acquisition.

However, MALL refers to the use of handheld mobile devices to facilitate language learning and is categorized as specific branch of Computer-Assisted Language Learning (CALL). Consequently, CALL is situated within the broader field of applied linguistics, where it examines how computer and digital technologies can be used to support language teaching and learning. While CALL historically focused on desktop or laptop computers, MALL represents the evolution of these pedagogical goals into the portable, handheld sphere.

CALL includes various technologies, software, and theoretical principles underlying its design, research, and practice. MALL specifically focuses on acquiring knowledge and skills through mobile technology, allowing for learning anywhere, anytime, and leading to a change in behaviour. In addition, MALL differs from CALL in that it emphasizes the use of personal, portable devices, providing quick, continuous access and interaction across various platforms and contexts. MALL and CALL are quite similar in that CALL helps in accessing knowledge that facilitates the language learning process. Simultaneously, MALL refers to handheld mobile devices that support learning a target language (Alzahrani, 2015). To distinguish the tools used in MALL, MALL tends to use technological devices such as mobile phones, smartphones, MP3/MP4 players, iPods, iPads, personal digital assistants (PDAs), and palmtop computers. These devices are the most employed in the area of mobile learning. In addition, Ben-Itzhak (2021) indicates ,while investigating the varying effectiveness of computer/mobile-assisted language learning, that "CALL remains the umbrella acronym for the use in language teaching and learning" (p.169).

2.3 Benefits and Limitations of MALL

Mobile-assisted language learning (MALL) represents a specific area where learners use mobile technology to study languages. Almost everyone has a mobile device, whether it is a smartphone, a personal computer (PC), or a tablet. The ubiquitous use of mobile technology has grown considerably, and this growth has influenced teaching and learning procedures. However, MALL has great criteria that enhances the development of learning; mobile technology has several advantages. When we mention the basic characteristics of mobile technology, Chinnery (2006) and Alkhudair (2020) emphasize that mobile devices are superior to other traditional technological devices due to their portability. Besides its portability, its availability, accessibility, convenience, and handheld devices characterize mobile technology. In addition, mobile technology is now available to learners with a low cost. However, by

using mobile technology, learners can manage their time to get knowledge wherever they are. The ubiquitous use of mobile technology allows learners to utilize it inside and outside of the classroom. Likewise, Loewen et al. (2019) indicate the diverse use of mobile tools to continue studying, where its flexibility is unconditioned by a particular time or location. Furthermore, Arvanitis and Krystalli (2021) point out to the powerful use of mobile technology encourages learners to create their learning framework; students can become independent learners, increase their autonomy, and self-direction. Similarly, Tengku-Paris et al. (2021) argue that MALL is considered an easy tool to use, while integrating MALL in the process of education could provide a supportive learning environment that encourages the learners to increase their self-esteem and confidence. Therefore, we can notice that the characteristics of MALL are classified into the benefits of the mobile technological device and the advantages of integrating it into the EFL classroom. In the same way, when involving mobiles in the EFL context, learners gain motivation and encouragement that enable communication between the students and the teacher as well as among the learners themselves.

However, Habibie (2021) conducted a study to investigate the importance of using smartphones as an English language learning tool among university students. The results of the study indicated that mobile phones have an important effect on the learners' daily activities, which found that 80% of the participants confirming that they obtain essential information through the use of smartphones. The study concluded that smartphones have a great impact on developing the four language skills and enhance students' linguistic competence, if these devices were used appropriately and wisely.

On the other hand, Alzahrani (2015) summarized four main points that are considered limitations of MALL. Firstly, the cost of money. Integrating technology into language learning is considered an expensive budget that lies on students' shoulders. This is considered a disadvantage where students will need to buy the mobile device and pay for the service. The second limitation is the small size of the mobile screen and the limited battery charge. These could be considered some drawbacks when conducting mobile technology in language learning, yet nowadays scrolling the screen is available for the learners to save a good view of the content viewed. Also, the battery could be charged with an external power bank. Third, people with limited knowledge of up-to-date technology will need effective training. This kind of training will involve both teachers and learners to remain on the same track. Finally, another drawback is the need for technical support to help the learning process continue when the students might face difficulties that sometimes need a technical expert to solve the problem.

Therefore, MALL's drawbacks could be summarized in the screen size, limited power, audio-visual quality, virtual keyboarding, internet connectivity, and some technological problems (Alkhudair, 2020; Chinnery, 2006).

2.4 Vocabulary in Education

Being the main core of the language, vocabulary acquisition can be significantly facilitated via the use of technology (Lei et al. 2022). With the existence of technology, learners could improve their vocabulary knowledge on their own, where some mobile phone applications have been designed to teach vocabulary. Burston (2014) pointed out that nearly 45% of all MALL implementations are dedicated specifically to vocabulary instruction. This reflects the importance of vocabulary acquisition in language proficiency.

The significance of vocabulary could be summarized in the most well-known saying of the linguist Wilkins (1972) “Without grammar, very little can be conveyed; without vocabulary, nothing can be conveyed” (p.111). This indicates that mastering vocabulary will affect the development of second language learning, and without sufficient vocabulary, learners cannot communicate effectively and will be unable to share knowledge and share their opinions, thoughts and feelings with others. Therefore, improving the vocabulary knowledge is related to language proficiency, where learners need to work on improving aspects of the language competence. In addition, teaching vocabulary is a hard task; instructors need to be aware of the learners' receptive skills and their productive skills. To clarify, learners might understand the word, its meaning, form, and use, yet they will not be able to create a sentence using this word. Therefore, instructors need to be careful about some techniques in teaching vocabulary. Nation and Newton (1996) explained some strategies for mastering vocabulary learning. Firstly, we need to know the meaning of the word either by giving a direct translation of it using the learners' first language or by using second-language synonyms. Otherwise, we can use an object that refers to the word or draw a picture to

give a simpler demonstration. Morphologically, we can break the word into several parts then we explain the meaning of each part separately. In addition, we can explain the meaning of a word by providing several example sentences to describe its meaning or referring to other referent words. Secondly, learners need to distinguish the form of the word, by drawing attention to its spelling, stress pattern, pronunciation, affixation, and highlight any spelling error in the word. Finally, word use is important to master, learners are required to distinguish the grammatical pattern of the word and be familiar with its collocations and any restrictions on the word use.

According to Nation (2001), learners when they learn new vocabulary, they encounter something known as the learning burden, which is " the amount of effort required to learn a word" (p.36). This indicates the similarities between the second, and the first language, and the background of the learners' knowledge. It means how familiar the word is to the learners' first language.

Teaching vocabulary requires the learning process to be straightforward and to draw attention to the utilization of high-frequency words that learners will meet in the future. Sometimes, learning some words will be difficult because there are some differences in the word's meaning, form and use in comparison to the learner's first language. This is known as a vocabulary learning burden. As Nation and Newton (1996) asserted, the purpose of identifying the learning burden is " to find what aspects will be difficult when learning a particular word" (p. 240). If the learner is familiar with the word's meaning, pronunciation and use the burden is "light". Conversely, significant differences between the two languages increase the burden, requiring more cognitive effort and instructional support.

1.5 Theoretical Framework

Mobile Assisted Language Learning (MALL) is an innovative domain educational technology; thus, researchers have adopted various methods that are related to Second Language Acquisition (SLA). These theories are tailored to reflect the objectives of the study. Various theories have been employed in different studies to pinpoint a specific theory for MALL. The most relevant theories to mobile learning, and those utilized in this study, are constructivism and activity theory. Both theories emphasize the significance of social interactions and cultural development in the learning process (Cobb et al., 1996).

This research study is fundamentally built upon adopting constructivist-learning theory. Piaget (1966, as cited in Bada, 2015) stated that learners are active participants in the learning process, and that true learning occurs when learners build upon their existing knowledge and skills. According to constructivists, learners are active participants, and the teacher works as a facilitator and guide. Therefore, knowledge and skills are built through collaboration and practice. Bensalem (2018) indicates that constructivist theory fosters student-centered learning, where learners are responsible for their learning progress. Additionally, learners share their experiences and knowledge with their instructor and peers.

Moreover, instructors should facilitate learning rather than only provide knowledge. In other words, students should be responsible for their learning. Vygotsky (1978) argued that learners need instruments to build their knowledge; thus, in this study, the researcher will utilize WhatsApp that is a useful tool to improve vocabulary-learning outcomes. By creating a learner-centered environment outside of the classroom, such tools help fostering cooperation among students and peers (Bensalem, 2018).

While Constructivism provides the pedagogical philosophy, Activity Theory (AT) offers the structural framework for analyzing human practices. Formulated by Vygotsky (1978) within the former Soviet Union, activity theory has been used to analyze human practices across various fields, including human-computer interaction, information systems, communication, and education (Uden, 2007). Vygotsky's classification of the activity theory consists of three primary components, which are subject, object and goal. In other words, subjects in the activity, which can be an individual or a group of people (in this study, the subjects refer to the students and the teacher) and the object of the activity, which refers to the main goal the learners want to achieve by the activity (e.g., learning new vocabulary). The tool, whether physical or intellectual, should mediate the subject and the object of the activity (here, the WhatsApp platform application serves to facilitate vocabulary acquisition). However, the activity theory framework employs activity as the fundamental unit for analysing human practices and highlights that the connection between the subject and the object is not immediate but instead mediated by the utilization of a tool.

Furthermore, terms such as rules and norms, community, and division of labour are all used in activity theory, outlining the social context in which collective activities take place.

To further explain these terms and describe their relation within the activity theory: rules define the conditions used in the activity under which the activity is performed (e.g. guidelines for using mobile technology). While community refers to the social setting of the activity (e.g. class or institution), and division of labour describes the distribution of task among community members (for instance, when the teacher assigns tasks, students must complete and submit it to receive feedback).

Zurita and Nussbaum (2007) point out that activity theory is oriented towards practical application. It represents a qualitative methodology that provides an alternative perspective for analyzing learning processes and their outcomes, focused on the activities in which individuals are involved. Furthermore, Jonassen and Rohrer-Murphy (1999) suggest employing activity theory (AT) as a framework for analyzing learning environments. Zurita and Nussbaum (2007) mention to apply activity theory-based analysis, certain conditions should be met: Firstly, the experiment of investigating human practice activities should occur for an adequately considerable length of time. Then, researchers should start with general patterns before narrowing them down to specific episodes. Lastly, a range of techniques to gather different data include observations, interviews, and video recordings. These strategies should be utilized, incorporating the viewpoints of the subject, community, and tools.

Recent empirical evidence supports this framework. Lei et al. (2022) adopted activity theory to explore the change in learners' interactive activities among peers to the gradual change of self-regulation over one academic year. They asserted that "activity theory fits well with mobile-assisted vocabulary learning" (p. 3). The findings of Lei et al. (2022) study indicated that applying AT alongside MALL yields positive results in the development of the learners' vocabulary knowledge, and it increases learners self-regulation and their attitude towards taking responsibility for their learning.

In conclusion, these theories explain the significant role m-learning plays in modern language learning environments and how these changes in theories reflect different views of explaining and supporting MALL. While Constructivism highlights the learner's active role, Activity Theory provides a comprehensive lens to analyze how tools like WhatsApp mediate the path to vocabulary mastery.

2.6 Previous Empirical Studies on Mobile-Assisted Language Learning (MALL)

MALL has explored various methods to improve vocabulary acquisition through the incorporation of innovative technology into language learning. One of the earliest technical contributions to this effort was the use of short message services (SMS). For illustration, Lu (2008) conducted a counter-balanced experimental study to investigate the effectiveness of SMS for vocabulary retention among approximately 30 vocational high school students. The procedure of the experiment required two groups to switch learning modes over a two-week trial. During the first week, SMS group received 14 target words via mobile messages, while the paper group received the same list of vocabulary in a traditional print format. In the second week, the groups switched methods. After each week, an immediate post-test was given, followed by a delayed post-test three weeks later. The results of the study indicate that both groups revealed a significant improvement compared to the pre-test; furthermore, the findings suggested that more frequent review was linked to stronger vocabulary gains (Lu, 2008). Overall, the mobile-based group outperformed much better than the paper-based group. However, the delayed post-test revealed a decrease in scores, highlighting the importance of regular engagement with vocabulary items and suggesting that lessons sent to the participants via SMS need to be frequently reviewed to maintain retention. When students' scores from mobile phone-based and paper-based tests were compared, a higher frequency of reading was associated with greater vocabulary gain. Moreover, post-experiment interviews indicated that participants viewed mobile-assisted language learning favourably and expressed a desire to continue learning vocabulary with mobile support.

In order to explore the advantages of MALL applications, Fageeh (2013) examined the capacity of WhatsApp to enhance vocabulary acquisition and learner motivation. The experimental study involved 58 participants, divided into 27 experimental students and 31 students in the control group. Both groups were administered to a pre-test simultaneously. During the first term of the academic year, learning sessions occurred three times a week, with each session lasting three hours. Participants in both groups received a list of vocabulary, which was a part of the curriculum of the academic year. They were required to provide a definition for the words and then create sentences for the vocabulary list. The experimental group submitted their assignment via WhatsApp, where they received their teacher and peer correction. In contrast, control group were asked to submit their assignment on paper. Finally, a post-test demonstrated

at the end of the course. Findings from the study confirmed the hypothesis that participants who utilized the mobile application-based experimental approach performed better on the post-test compared to their pre-test scores. Furthermore, a motivation questionnaire distributed to both groups revealed that the experimental group demonstrated higher levels of acceptance toward utilizing technology for vocabulary learning and maintained higher motivation levels throughout the course compared to the control group.

Furthermore, Alneyadi et al. (2023) conducted a study investigated the impact of smart e-learning applications—Alef, Boclips, and Connect—on the academic achievement of eighth-grade students in Al Ain, UAE. Using a quasi-experimental design with 120 students, the study compared an experimental group using these digital tools to a control group taught with traditional methods. Results showed that students using smart applications significantly outperformed their peers, with Alef being the most effective, followed by Boclips and Connect. These platforms enhanced understanding by simplifying abstract concepts through interactive content, promoting engagement, retention, and application of knowledge. The study underscores the effectiveness of constructivist concepts students should master. Overall, the study demonstrates that thoughtfully integrated digital tools can transform science education by fostering active, meaningful, and real-world-connected learning.

However, beyond vocabulary acquisition, Mobile- assisted language learning has also played a significant role in strengthening broader language skills. Specifically, Moayeri and Khodareza (2020) and Albogami and Algethami (2022) conducted studies to investigate the effect of MALL on improving oral accuracy. Both studies demonstrated the positive effect of MALL in order to enhance the speaking proficiency level of the students. Utilizing an interactive application such as ACO or integrating WhatsApp in the process of language teaching is positively effective. Albogami and Algethami (2022) have proven that WhatsApp has increased the motivation and confidence of the students and reduced their anxiety.

In consideration of action study, Van and Thanh (2021) integrated MALL into the classroom, which had a significant impact on students' vocabulary acquisition. In addition, it motivated the participants towards the use of MALL for their lexical knowledge. Through the experiment of this study and while investigating the role of the delayed post-test and comparing its results with the pre-test and post-test, the results of this study indicated that MALL had an influence on students' vocabulary acquisition. Although the results of the delayed post-test have decreased a little from the immediate post-test. An analysis of student perceptions regarding the use of MALL within the formal classroom setting highlighted its significance in developing vocabulary knowledge. These positive perceptions aligned with the empirical data, which revealed a significant increase in vocabulary retention during the delayed post-test. On the other hand, there were some obstacles faced the teacher when providing digital instructions to the students. Consequently, the researcher suggested implementing some training courses for the teachers to ensure the effective integration of mobile technology in educational settings.

2. Methodology

3.1 Participants

The participants in this research were 51 first-year English majors from the English Language department at Omar Al-Mukhtar University. This sample was purposively selected because vocabulary acquisition is a core subject students are required to study in their first academic year. Since the English department administration had pre-assigned these students into groups; thus, the participants were divided into two groups: an experimental group with 28 students and a control group with 23 students. Both groups received a list of 15 academic vocabulary words. They were instructed to understand the meanings and construct original sentences using each word. Participants in the experimental group received the academic vocabulary list via a WhatsApp group and submitted their sentences through the same platform. In contrast, the control group participants received the list during class and submitted their assignments in the following learning session using the traditional learning method of paper-and-pencil. Before the intervention, the researcher checked that all participants in the experimental group had a mobile device. The model and the feature were not essential; it was essential that they were capable of accessing WhatsApp and the internet. All participants consented to take part in the experiment and committed to complete the assigned tasks.

3.2 Vocabulary Materials

For the purpose of this research, the Academic word list (AWL) is one of the main tools used in this experimental design (Coxhead, 2000). This list is considered suitable as it provides participants with essential academic vocabulary needed for their academic journey. Additionally, the AWL aligns with the study's requirements, which involve participants checking the meaning and constructing complete sentences using the selected academic vocabulary. However, the AWL contains 570-word families and approximately 3000 words in total. These words represent around 10% of the total tokens in the Academic Corpus. The AWL included corpus of 28 subject areas represent four disciplines: arts, commerce, law, and science. Furthermore, the AWL is divided into 10 sublists, organized from the most frequently used academic vocabulary to the least used vocabulary. Each sublist contains 60 items, except the sublist 10, which includes 30 items. For this research, the academic vocabulary used in this experimental study was selected from the first five sublists, as they were deemed suitable for the participants, who are in their first-year college students.

3.3 Quantitative method

a. Vocabulary Test

The academic vocabulary test was designed to evaluate participants' ability to accurately select words that fit within a given context and correctly match words with their definitions. An academic vocabulary test was administered twice: once as a pre-test before the experiment began and once as a post-test after the final vocabulary list was sent.

The test consisted of 34 items and included two types of questions: question one includes 26 items requiring participants to choose the most suitable word to fit the context, while question two includes eight items requiring the participants to match words with their meanings. The test questions were selected from IELTS Buddy website https://www.ieltsbuddy.com, which was designed to examine the Academic Word List (AWL) sublists. Question options provided on the website were arranged according to the AWL sublists, making them unsuitable for direct use in the test. Instead, the best options were randomly chosen from the AWL sublist covered during learning sessions, ensuring they appropriately fit each test question. To obtain reliable results that are not affected by other exams, the researcher was required to conduct the post-test before the college begins their midterm exams, and the post-test was unannounced to ensure that the measurements reflected actual vocabulary knowledge rather than prepared responses.

3.4 Qualitative Method

a. Questionnaire

A questionnaire list was developed to assess the experimental group’s views on using WhatsApp based application for acquiring new academic vocabulary. Six statements were adopted from Bensalem's (2018) research, which investigated the impact of using Mobile-Assisted Language Learning (MALL) on vocabulary learning. The questionnaire items were rated on a five-point Likert scale, which used to measure the extent of participants’ agreement with the statement. The response options were classified into strongly agree, agree, neutral, disagree, and strongly disagree. The primary purpose of the questionnaire was to elicit the participants' perceptions of using WhatsApp as a learning tool for learning new academic vocabulary.

b. Semi-structured Interviews

In order to better achieve more thorough and detailed understanding of the participants’ perspectives, as well as to systematically incorporate their contributions to support the experiment understanding, The researcher carried out individual semi-structured interviews with five participants from the experimental group immediately after the treatment sessions and post-test were completed. Each interview lasted between 10 and 15 minutes, with the questions first presented to the participants and subsequently translated into Arabic. Upon obtaining participants’ permission, the semi-structured interview data were audio-recorded to facilitate later thematic analysis. The questions used in the interview were adopted from Albogami and Algethami (2022), these semi-structured interview questions were modified to suit the needs of this research. The questions included:

1. How do you feel about using WhatsApp for learning new vocabulary compared to traditional methods (e.g., textbooks, classroom activities)?
2. What are the things you liked about using WhatsApp to learn vocabulary?

3. What difficulties did you face while sending the vocabulary English list using WhatsApp messages?

2.5 Data Collection Procedures

Over the course of five weeks, 60 academic words from the Academic Word List (AWL) were introduced to first-year English learners. The English Department administration randomly assigned participants into two groups, the researcher sat one group as an experimental group which was (Group B), while (group A) placed as a control group. Prior to the intervention, both groups completed a pre-test (including consent forms) assessing their baseline academic vocabulary knowledge. Weekly vocabulary learning sessions were held at the end of regular lectures, lasting 30 minutes each. All 60 words were distributed in equal batches (15 per week) along with 15 example sentences per list. Participants inferred meanings, searched definitions, and constructed their own sentences. Participants in the experimental group used mobile-assisted resources (e.g., monolingual dictionary apps or the Longman online dictionary) and submitted assignments via a WhatsApp group. They engaged in discussion, posted their word lists, and received feedback (including pronunciation and usage corrections) through WhatsApp. To ensure engagement, participants confirmed receipt of the vocabulary list by reacting ("like") in the messaging group. While Participants in control group used paper dictionaries (or, when unavailable, an electronic monolingual dictionary) and completed their assignments by writing with pencil and paper in traditional format. Submitted assignments were collected in the next session.

After four sessions, an unannounced post-test similar to the pre-test but with reshuffled items—was administered to both groups to minimize recall bias. This evaluated vocabulary acquisition over the treatment period. Following the intervention, the experimental group completed a six-item questionnaire to evaluate their perceptions of WhatsApp as a vocabulary learning tool; subsequently, a subset of participants engaged in semi-structured interviews to provide deeper qualitative insights.

3.6 Pilot Study: Test Validity and Reliability

A pilot study was conducted with 12 first-year English majors (Group C) to test the reliability of the procedures and refine the research design before the main experiment. Over three weeks, students completed preliminary vocabulary activities, and their performance and classroom interactions were observed to identify necessary adjustments. Revisions included modifying the method of reviewing student contributions and improving feedback procedures. To prevent bias, these students were not included in the main study.

Test validity was assessed through expert review to evaluate face and content validity, including item clarity, difficulty level, sentence suitability, and allotted time. Based on expert feedback, several test sentences were revised and additional options were added. Internal consistency reliability was calculated using Cronbach's Alpha. Although the original test contained 40 items, six collocation-focused items were removed due to student misunderstanding, resulting in a 34-item test. The final reliability coefficient was **α = .858**, indicating strong reliability. Questionnaire item statistics (M = 4.14, SD = 0.52) reflected generally positive attitudes toward the mobile-learning component.

4. Data Analysis

Data were analyzed using **SPSS (Version 26)** to address both quantitative and qualitative strands. we first measured descriptive statistics (means and standard deviations) to profile the data, then evaluated the internal consistency of the questionnaire using Cronbach's Alpha. To assess group differences and treatment effects, we conducted independent-samples t-tests compared pre-test scores between control and experimental groups and post-test scores after the intervention, while a paired-samples t-test examined within-group changes in the experimental group. Qualitatively, semi-structured interview data were analyzed via Thematic Analysis following the framework proposed by Braun and Clarke (2006), which allows for flexible identification and interpretation of recurring themes in participants' perspectives.

5. Findings and Discussion

5.1 The performance of experimental and control groups

Table 1 presents a pre-test comparison of the experimental and control groups prior to the educational intervention. The experimental group achieved a mean score of $M = 14.36$ ($SD = 4.32$), while the control group scored $M = 12.74$ ($SD = 6.02$). An independent-samples *t*-test was conducted ($t(39) = 1.08$, $p = .29$) to determine whether the difference between groups was statistically significant.

Since $p > .05$, the result suggests no significant difference in pre-test performance, indicating both groups began at a comparable level before the intervention. This equivalence supports the internal validity of the experiment by confirming that no initial performance bias existed between groups before introducing the WhatsApp-based learning tool.

Table 1: Comparison of Pre-test Scores between Experimental Group and Control Group.

Group	*Test*	*n*	Mean	Std-Deviation	T-test	df	P-value
Experimental	Pre-test	28	14.36	4.32	1.08	39.00	0.29
Control	Pre-test	23	12.74	6.02			

Table 2 presents a comparison of post-test performance between the experimental and control groups following the educational intervention, aimed at evaluating the effect of using WhatsApp for vocabulary learning. The experimental group achieved a mean score of $M = 17.32$ ($SD = 6.06$), while the control group scored $M = 16.00$ ($SD = 5.07$). An independent-samples *t*-test was conducted to assess the significance of this difference, yielding $t(49) = 0.85$, $p = .40$.

As $p > .05$, the difference between the two groups was not statistically significant, indicating that the use of WhatsApp did not lead to a significant improvement in vocabulary performance compared to paper-based methods. Although the experimental group's mean score was slightly higher, the lack of statistical significance suggests that technology was not a decisive factor in enhancing performance, or that other variables such as not taking the experiment serious, or students' interruptions with the educational atmosphere may have influenced the results.

Table 2: Comparison of Post-test Scores between Experimental Group and Control group.

Group	*Test*	*n*	Mean	Std-Deviation	T-test	df	P-value
Experimental	Post-test	28	17.32	6.06	0.85	49.00	0.40
Control	Post-test	23	16.00	5.07			

Table 3 displays the comparison of pre-test and post-test scores within the experimental group. The pre-test mean was $M = 14.36$ ($SD = 4.32$), whereas the post-test mean increased to $M = 17.32$ ($SD = 6.06$). A paired-samples *t*-test assessed the significance of this change and revealed a statistically significant difference, $t(27) = -2.26$, $p = .03$, indicating $p < .05$.

These findings suggest that the implementation of WhatsApp for vocabulary learning led to a meaningful improvement in performance. The increase from pre- to post-test scores is unlikely to be due to chance alone, supporting the conclusion that the intervention had a genuine positive effect. However, the rise in standard deviation from 4.32 to 6.06 suggests increased variability in post-test performances, indicating that students responded differently to the intervention—some benefited more than others.

Table 3: A dependent sample t-test comparison of pre- and post-test scores of the experimental group.

Group	*Test*	*n*	Mean	Std-Deviation	T-test	df	P-value
experimental	Pre-test	28	14.36	4.32	-2.26	27.00	0.03
	Post-test	28	17.32	6.06			

5.2 Participants' perspectives about using WhatsApp to learn new vocabulary

Table 4 shows the distribution of participants' responses to six questionnaire questions related to the use of WhatsApp in learning new vocabulary. A five-point Likert scale was used to measure the extent of participants' agreement with the statements raised, where the answers were classified into strongly agree, agree, neutral, disagree, and strongly disagree.

The results of Table 4 indicate that the use of WhatsApp in learning new words was widely accepted among the participants, as most of the questions showed that a significant percentage of respondents agreed or strongly agreed with the educational benefits provided by the application. The factors that make WhatsApp an effective educational tool include ease of access, self-motivation, support for memorization, and enhancing interaction through writing activities. However, some participants still preferring traditional paper-based methods, suggesting that the best strategy may be to combine technology with paper-based method to achieve maximum educational benefit.

Table 4: Distribution of participants' responses about using WhatsApp to learn new vocabulary

Items		**Strongly agree**	**Agree**	**Neutral**	**Disagree**	**Strongly disagree**
• Learning new words using WhatsApp is an interesting method of learning.	Freq	5	12	7	3	1
	Percent	17.9%	42.9%	25%	10.7%	3.6%
• I feel more motivated to complete my vocabulary assignments using WhatsApp because it is convenient: I can complete it anytime anywhere.	Freq	4	17	4	1	2
	Percent	14.3%	60.7%	14.3%	3.6%	7.1%
• I enjoyed learning new vocabulary using WhatsApp	Freq	8	12	6	2	2
	Percent	28.6%	42.9%	21.4%	7.1%	7.1%
• If given the choice between using WhatsApp and paper-and-pencil method of learning new words in future courses I would choose using WhatsApp.	Freq	9	7	6	3	3
	Percent	32.1%	25%	21.4%	10.7%	10.7%
• Using WhatsApp helped me remember the new words.	Freq	5	17	3	2	1
	Percent	17.9%	60.7%	10.7%	7.1%	3.6%
• Writing sentences including the new words and sending them to the instructor via WhatsApp is a useful activity.	Freq	15	8	4	1	0.0
	Percent	53.6%	28.6%	14.3%	3.6%	0.0%

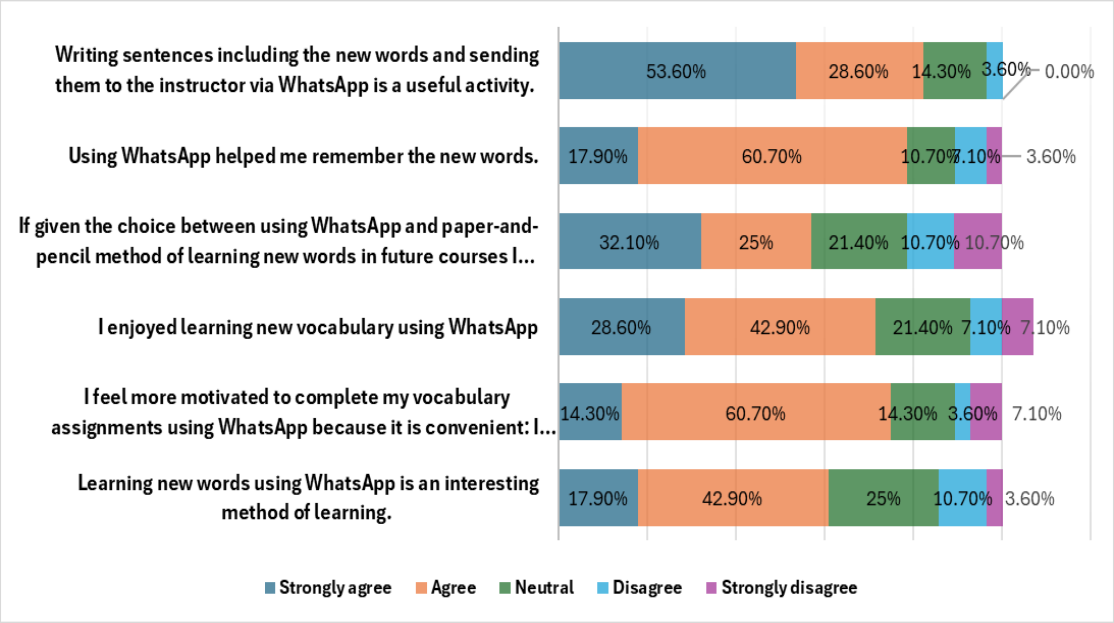

Figure (1): Distribution of participants' responses about using WhatsApp to learn new vocabulary

5.3 Learner Perceptions of WhatsApp-Based Vocabulary Learning

Question 1: Learning new words using WhatsApp is an interesting method of learning

The survey results indicate that a majority of participants view WhatsApp positively as a tool for vocabulary learning: 42.9% agreed the app is an "interesting" learning medium, and 17.9% strongly agreed—together representing approximately 60% of respondents. A further 25% remained neutral, suggesting that their engagement with WhatsApp was neither clearly positive nor negative. In contrast, 10.7% disagreed and 3.6% strongly disagreed, indicating a small minority found learning via WhatsApp either unattractive or difficult.

Question 2: I feel more motivated to use WhatsApp because it is convenient and I can use it anytime and anywhere

Table 4 shows that 60.7% of participants agreed that using WhatsApp enhances their motivation to learn, and 14.3% strongly agreed—meaning approximately 75% of respondents feel that WhatsApp boosts their motivation for learning new words, largely due to its flexibility and anywhere-anytime availability. The results show that 17.9% remained neutral, suggesting they did not perceive a strong motivational impact. Only 7.1% disagreed, signaling a small minority who did not find WhatsApp motivating.

The data indicates that the convenience and ease of access provided by WhatsApp can be a powerful driver of motivation. To maximize its impact, embedding engaging and interactive content—like multimedia quizzes, voice notes, or gamified tasks—could further sustain and deepen learners' autonomous motivation in line with self-determination theory and best practices in mobile learning.

Question 3: I enjoyed learning new vocabulary using WhatsApp

The results show that 42.9% of participants agreed and 28.6% strongly agreed that they enjoyed learning vocabulary via WhatsApp—meaning over 70% had a positive experience. Meanwhile, 21.4%

were neutral, indicating the experience was neither enjoyable nor unpleasant for them. Only 7.1% did not agree or strongly disagreed, suggesting an exceedingly small segment found the experience unenjoyable.

These findings align with broader research on mobile-assisted language learning (MALL), where learners consistently report positive attitudes toward apps like WhatsApp. For example, Sivabalan and Ali (2022) found a significant positive effect of WhatsApp on vocabulary learning among tertiary students, showing that WhatsApp had a significant role in assisting students to learn vocabulary. Further, Barzani and Omar (2024) reported that WhatsApp-based instruction significantly improved vocabulary gains and learner engagement compared to traditional instruction. In addition, Fageeh (2013) pointed out that learners in experimental groups exposed to WhatsApp-based vocabulary instruction report higher enjoyment and engagement than those in traditional settings. The app's flexibility, social collaboration, and ease of use are often highlighted as key factors boosting enjoyment and motivation.

Question 4: If I were given the choice between using WhatsApp and traditional methods (paper and pen) to learn new words, I would choose WhatsApp

This question highlights the extent to which participants prefer using WhatsApp compared to traditional paper-based methods. According to the results, 32.1% of participants strongly agreed that they prefer WhatsApp over paper and pen, while 25% agreed, meaning that more than half of the sample prefers technology over traditional methods. On the other hand, 21.4% reported that they were neutral, indicating that there is a group of participants who see the two methods as equally effective. Those who did not agree or strongly disagreed were 10.7% and 10.7% respectively, indicating that some participants still prefer paper-based methods. These results reflect that technology has become an essential part of learning, but there is still a need for integration between modern and traditional methods to meet the needs of all learners.

Question 5: WhatsApp helped me remember new words

Table 4 shows that 42.9% of participants agreed and 17.9% strongly agreed that using WhatsApp helped them remember new words—meaning roughly 60.8% believe the app enhances information retention. Meanwhile, 25% remained neutral, indicating they may not have perceived a clear difference between using WhatsApp and paper-based methods. Only 10.7% disagreed and 3.6% strongly disagreed, suggesting a small minority did not find WhatsApp effective for word recall. The percentage of those who disagreed was low, at 10.7%, while only 3.6% strongly disagreed. These results reflect that the use of technology in education can help improve learners' memory through interactive learning and constant repetition. However, more effective repetition strategies such as educational games may need to be incorporated to enhance the benefit of WhatsApp.

Question 6: Writing sentences containing new words and sending them to the teacher via WhatsApp is a useful activity

Table 4 highlights strong positive feedback on the activity: 53.6% strongly agreed and 28.6% agreed that writing sentences with new words via WhatsApp is useful—totaling over 80% of the participants. Meanwhile, 14.3% remained neutral, suggesting they may not have fully appreciated the method's impact. Only a small minority (≤3.6%) disagreed, indicating that most learners found this practical application beneficial for vocabulary consolidation. These results reflect that interactive methods, such as writing sentences, can be an effective strategy to enhance the learning of new words, and should be encouraged in e-learning environments.

5.4 Thematic Analysis of the Semi-Structured Interview

Qualitative Findings: Semi-Structured Interviews and Thematic Analysis

After the post-test, semi-structured interviews were organized with five participants of the experimental-group who had fully engaged in the WhatsApp sessions. To analyze their responses, the research utilized thematic analysis, guided by Braun and Clarke's (2006) six-phase framework for qualitative data interpretation: familiarization, coding, theme development, theme review,

defining/naming themes, and reporting. The interview data were recorded, transcribed and read carefully, coded into specific features, reviewing the themes to check coherences across the data, naming themes and producing the clear, compelling report. Braun and Clarke (2006) argue that thematic analysis is foundational, and flexible across theoretical framework, rich and precise method for qualitative research.

Therefore, the thematic analysis of the semi-structured interview composed six themes: 1) the effect of WhatsApp on students' 1) engagement and motivation, 2) application in daily life, 3) accessibility, 4) peer learning, 5) accuracy in translation, and 6) time constraints and technical issues.

1. **Engagement and Motivation**: Participants reported that WhatsApp made vocabulary learning more exciting and motivating than traditional methods. One learner said, “I feel really excited to use WhatsApp to learn new vocabulary, to empower my vocabulary knowledge.” while another participant described the experience as “easy and funny,” especially when constructing sentences. These positive responses suggest that WhatsApp not only raises learning motivation but also encourages students to actively engage with new vocabulary during the learning process.
2. **Application in Daily Life**: Several participants noted that writing and sharing sentences via WhatsApp helped them use new words in academic contexts and everyday conversations. One said, “Sharing sentences through WhatsApp enables me to use these new words in creating new sentences and being able to use these words in my study and in my daily life.” and another added that their reading and speaking improved in other subjects “Learning these academic vocabulary helped me in my other subjects like speaking and reading.”. These quotes illustrate that WhatsApp is not just a passive vocabulary tool—it encourages learners to integrate new words actively across both their academic studies and daily communication. This reflects findings from studies on blended and mobile-assisted learning, which highlight how apps like WhatsApp support learner autonomy by encouraging students to apply vocabulary in self-directed academic and informal activities.
3. **Convenience and Accessibility**: Learners appreciated the flexibility of using WhatsApp for learning. One participant noted: “It is more comfortable to use technology in learning new words, because I can read my sentences any time, step by step, and check my words.” In addition, another described the pedagogical value of learning through a familiar app: “Now this experience allows me to use it in a scientific way, because WhatsApp is a daily-used application. I really liked the experiment and learning the new words.” These observations show that students valued not only WhatsApp’s availability— “anytime, anywhere”—but also its seamless integration into their daily routines. This convenience supports continuous, self-directed engagement with new words in real-world contexts.
4. **Peer Learning**: The WhatsApp environment fostered peer interaction. As one participant put it, “Reading my other colleagues' list encouraged me to write different sentences by using different ideas because their sentences surprised me because they were really wow.” This response underscores how exposure to other peers' work can inspire learners to experiment with new ideas and engage more creatively.
5. **Accuracy in Translation**: Translating between English and Arabic posed some challenges. Some participants reported that their intended meaning shifted when converting sentences, noting, “The difficulties were in translating and switching the sentences from Arabic into English, so the sentences give different meaning, therefore, I need to correct them again.” Another participant added: “The difficulties were in translating the new words and knowing their meanings in Arabic, so, after I translate the sentence into English it gives a different meaning.” These errors occur often due to differences in syntax, semantic nuances, and cultural context. In this case , these translation errors are related to the strategies participants use in writing their assignment, it is not directly related to the WhatsApp and the vocabulary learning, though it is more related to writing techniques, where students can get over these issues when providing them with solutions to avoid such constraints.
6. **Time Constraints and Technical Issues**: Time management was a concern for some participants, affecting their ability to complete tasks effectively. One of the participants noted: "I don’t have many times to write it. And sometimes if I do something wrong, I must do it all again. I don’t have time during the week, so I find myself doing it just two hours before submitting the assignment." While

most participants did not face significant technical difficulties, some mentioned issues like internet connectivity. A participant stated "Sometimes weak signal of the internet connection, this is the only reason. Otherwise, there was no difficulties at all in using WhatsApp or using technology in general."

Overall, the interview data indicated a largely positive attitude toward using WhatsApp for vocabulary learning, with meaningful benefits in motivation, peer interaction, and real-life application. However, challenges such as translation accuracy, time pressure, and occasional technical difficulties must be addressed to fully optimize the learning experience. These results indicate that participants have positively benefited from using MALL both in academic and daily life, which support the innovative approach of integrating technology into the classroom context, and following the 21st century teaching skills.

6. Discussion

According to the results of the experiment conducted in the English language department at Omar Al-Mukhtar university, where the participants were of first-year students. There are two measures to answer the first research question, which is entitled To what extent does MALL influence students' vocabulary acquisition? Firstly, by considering the p- value which indicates that the use of MALL does not play a significant role in the improvement of the level of the participant, or by considering the mean score that indicates the m-learning positively effect on participants' improvement in vocabulary acquisition. However, integrating MALL into the EFL learning context is essential where teachers use technology as a potential assistive tool in the process of language learning (Taj et al., 2016).

The results of the statistical analysis showed that the experimental group obtained a higher average score (17.32) compared to the control group (16.00) in the post-test, but the difference was not statistically significant ($p = 0.40$), indicating that the use of mobile learning did not significantly affect students' achievement compared to the traditional method.These results are consistent with what Weerasinghe et al., (2022) found in their study on the impact of technology on vocabulary learning, where they found that students who used technology had higher mean scores ($M = 18.25$) compared to the traditional group ($M = 17.10$), but the difference was not statistically significant ($p > 0.05$).

In contrast, When comparing the performance of the experimental group that used MALL before and after the experiment, a significant improvement in the average scores was observed from (14.36) to (17.32), and the difference was statistically significant ($p = 0.03$), indicating that using M-learning helped students improve their achievement compared to their previous performance. This result is consistent with what Day et al. (2024) found, who conducted a similar experiment on students using educational applications, where they found that students' scores increased from (15.50) to (18.75) after using technology, and the difference was statistically significant ($p < 0.05$). The researchers explained that continuous interaction with new vocabulary via the application led to enhancing the process of recall and understanding.

In contrast, the differences between the pre- and post-tests in the control group were not statistically significant ($p = 0.06$), indicating that traditional learning did not contribute significantly to improving students' performance. This result is consistent with the study by Daulay et al. (2024), which found that students who used the traditional method did not show a significant improvement, as their average scores increased from (12.90) to (14.00) only, without statistical significance ($p > 0.05$).

After organizing and categorizing the questionnaire and the semi-structured interview data, the author uncovered several noteworthy findings. Therefore, in order to answer the second research question, which is entitled, What are the students' perspectives toward the application of MALL at Omar Al-Mukhtar University?

the results reveal that almost 60% of the participants indicated that using WhatsApp is an interesting learning method, while 75%of the participants feel more motivated and think MALL is convenient that can be used anywhere and anytime. Elaoufy's study (2023) found a similar result, showing that students who used digital learning applications felt more motivated compared to their colleagues who used traditional methods, with a positive correlation ($r = 0.402$, $p = 0.035$). The researchers confirmed that the

flexibility provided by technology in learning leads to greater student motivation compared to traditional methods.

In addition, when comparing the results of our questionnaire with Lashari et al. (2023), we found that both research confirms on the enjoyment of learning while using mobile phones where the mean score was 3.84, or while using WhatsApp the results revealed mean score 3.86. In addition, the convenience use of MALL anytime and anywhere is confirmed by the results of the questionnaire scoring 3.89 in Lashari et al. (2023) and 3.71 in our current results. Furthermore, the agreement of increasing motivation via the use of MALL is showed by the results of Lashari et al. (2023) where the mean score was 3.96. which is considered a little higher than our research results which was 3.71.

Not only questionnaire results improve the significant improvement of MALL on students' vocabulary acquisition, but the semi-structured interview data also explained that participants enjoyed this experiment and increased their motivation, where the use of MALL empower their language vocabulary learning. In addition, participants revealed the effect of MALL in their daily life, where participants start noticing the integration of the vocabulary used in the activities into their daily language. Furthermore, participants ensure the convenience and accessibility of MALL, where they were not strict with fixed time, but they could organize their routine the way suits them. Besides, peer learning is an effective factor in MALL, participants learn more if they are in a comfort environment surrounded by their colleagues that will give them more chances to improve and to learn more from different participants. Finally, some participants lack time-managements, therefore, they sometimes find some difficulties in finishing their assignment on the right time. Dai (2023) explains the importance mobile applications in vocabulary learning, confirming that using mobile technology is more effective than traditional learning methods. It increases students' motivations and builds strong self-discipline. Gael and Elmiana (2021) point out on the increase of motivation and perception of second language learning through applying MALL.

The results of the collected data indicate that MALL has met the main objectives of the research, which aims to design a mobile-based vocabulary intervention that leverages smartphone technology to facilitate learning. Furthermore, the research seeks to enhance affective factors—specifically motivation and self-esteem—while fostering self-directed learning habits by allowing students to engage with material in a flexible, 'anytime, anywhere' environment.

7. Conclusion and Implications

The purpose of this study was to examine how mobile-assisted language learning (MALL), with a focus on WhatsApp, influences academic vocabulary development among first-year EFL learners. While the experimental group did not demonstrate a statistically significant advantage over the control group on the post-test, the observed mean score increases and the participants' largely favorable perceptions imply that WhatsApp can meaningfully contribute to vocabulary learning. Participants reported greater motivation, enjoyment, and engagement, particularly valuing the anytime-anywhere accessibility of the app and the opportunity to compose and share sentences with peers and the instructor.

At the same time, participants highlighted some drawbacks such as translation inaccuracies, time-management difficulties, and occasional connectivity issues. These challenges reflect concerns raised in the literature about mobile learning's practical limitations and the need for thoughtful design and support. Theoretically, the WhatsApp environment functioned as a mediational tool in line with constructivist and activity theories: learners socially constructed lexical knowledge and gradually internalized self-regulation strategies within a community of practice. This confirms that mobile tools serve not only as delivery channels but as platforms that scaffold collaborative, meaningful, and contextually rich learning experiences.

Given these results, it is clear that technology should not supplant traditional methods, but rather be integrated in a blended manner that leverages the strengths of both approaches. Teachers can enhance vocabulary instruction by combining WhatsApp-based activities with in-class teaching, designing interactive tasks (such as micro-games, peer feedback, and sentence writing) that drive engagement and retention.

8. Recommendations

1. It is recommended to consider using WhatsApp as a language learning tool to learn vocabulary and integrate it into the curriculum that gives more chances to learn bigger amount of learning more vocabulary than it is planned to do in class.

2. Integrate technology with traditional methods and do not rely entirely on technology in learning to ensure achieving the best results.
3. Develop interactive educational content to include diverse activities such as language games and challenges that enhance interaction between students and teachers.
4. Consider using WhatsApp to submit assignments: participants in the experimental group consistently submitted complete homework, whereas control-group participants often turned in only partial work.
5. Motivate students through collaborative activities to work together using WhatsApp to share new vocabulary and create meaningful conversations using the words learned.

References

1. Albogami, A., & Algethami, G. (2022). Exploring the use of WhatsApp for teaching speaking to English language learners: A case study. *Arab World English Journal, 2,* 183–201. https://doi.org/10.24093/awej/covid2.12
2. Alkhudair, R. Y. (2020). Mobile assisted language learning in Saudi EFL classrooms: Effectiveness, perception, and attitude. *Theory and Practice in Language Studies, 10*(12), 1620–1627. https://doi.org/10.17507/tpls.1012.16
3. Alneyadi, S., Wardat, Y., Alshannag, Q., & Abu-Al-Aish, A. (2023). The effect of using smart e-learning app on the academic achievement of eighth-grade students. *Eurasia Journal of Mathematics, Science and Technology Education, 19*(4), em2248. https://doi.org/10.29333/ejmste/13067
4. Alsied, S. M. (2019). The role of mobile phones as effective tools for language learning by Libyan EFL learners. *JEELS (Journal of English Education and Linguistics Studies), 6*(2), 135–163. https://doi.org/10.30762/jeels.v6i2.1234
5. Alzahrani, H. (2015). Examining the effectiveness of utilizing mobile technology in vocabulary development for language learners. *Arab World English Journal (AWEJ), 6*(3), 108–119. https://doi.org/10.24093/awej/vol6no3.7
6. Arvanitis, P., & Krystalli, P. (2021). Mobile assisted language learning (MALL): Trends from 2010 to 2020 using text analysis techniques. *European Journal of Education, 4*(1), 13–22. https://doi.org/10.26417/461iaw87u
7. Bada, S. O. (2015). Constructivism learning theory: A paradigm for teaching and learning. *Journal of Research & Method in Education (IOSR-JRME), 5*(6), 66–70. https://doi.org/10.9790/7388-05616670
8. Barzani, S. H. H., & Omar, F. R. (2024). WhatsApp-mediated vocabulary learning: A study of Kurdish EFL learners . *Arab World English Journal (AWEJ), 15*(4), 364–376. https://doi.org/10.24093/awej/vol15no4.23
9. Ben-Itzhak, S. (2021). On the varying effectiveness of computer/mobile-assisted language learning. *International Journal of Education and Development Using Information and Communication Technology (IJEDICT), 17*(3), 167–183.
10. Bensalem, E. (2018). The impact of whatsApp on EFL students' vocabulary learning. *Arab World English Journal (AWEJ), 9*(1), 23–38. https://doi.org/10.24093/awej/vol9no1.2
11. Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3*(2), 77–101. https://doi.org/10.1191/1478088706qp063oa
12. Burston, J. (2014). The reality of MALL: Still on the fringes. *CALICO Journal, 31*(1), 103–125. https://doi.org/10.11139/cj.31.1.103-125
13. Chickering, A. W., & Ehrmann, S. C. (1996). Implementing the seven principles: Technology as lever. *AAHE Bulletin, 49*, 3–6.
14. Chinnery, G. M. (2006). Emerging technologies going to the MALL: Mobile assisted language learning. *Language Learning & Technology, 10*(1), 9–16.
15. Cobb, P., Perlwitz, M., & Underwood, D. (1996). Constructivism and activity theory: A consideration of their similarities and differences as they relate to mathematics education. In H. Mansfield, N. A. Pateman, & N. Bednarz (Eds.), *Mathematics for tomorrow's young children* (pp. 9–58). Mathematics Education Library. https://doi.org/10.1007/978-94-017-2211-7_2
16. Coxhead, A. (2000). A new academic word list. *TESOL Quarterly, 34*(2), 213-238. https://doi.org/10.2307/3587951

17. Dai, Q. (2023). A review of research on mobile-assisted vocabulary learning. *Lecture Notes in Education Psychology and Public Media*, *29*(1), 54–59. https://doi.org/10.54254/2753-7048/29/20231395
18. Daulay, S. H., Nabila, A., & Nasution, U. A. (2024). The effect of ICT use on the classroom management in language teaching. *Leksika: Jurnal Bahasa, Sastra Dan Pengajarannya*, *18*(1), 23. https://doi.org/10.30595/lks.v18i1.19718
19. Day, S., Hwang, J. K., Arner, T., McNamara, D., & Connor, C. (2024). Choose your own adventure: Interactive e-books to improve word knowledge and comprehension skills. *arXiv*. https://doi.org/10.48550/arXiv.2403.02496
20. Elaoufy, H. (2023). Using e-learning among EFL students at Moulay Ismail University: Perspectives, prospects, and challenges. *Zenodo*, *1*(3), 1–11. https://doi.org/10.5281/zenodo.8325337
21. Fageeh, A. (2013). Effects of MALL applications on vocabulary acquisition and motivation. *Arab World English Journal*, *4*(4), 420–447.
22. Gael, K. E., & Elmiana, D. S. (2021). Mobile-assisted language learning (MALL) in English language acquisition: A critical literature review. *Journal of English Language Teaching Innovations and Materials (JELTIM)*, *3*(2), 76–86. https://doi.org/10.26418/jeltim.v3i2.49813
23. Habibie, A. (2021). Exploring the use of mobile assisted language learning in university students context. *Scope: Journal of English Language Teaching*, *5*(2), 51–56. https://doi.org/10.30998/scope.v5i2.8537
24. Imsallim, R., Abouhajar, N., & Imsallim, W. (2025). Integrating the 5E Instructional Model with Vygotsky's Sociocultural Theory: Vocabulary Learning through Story-Based Instruction to EFL Libyan Year One Students. Bani Waleed University Journal of Humanities and Applied Sciences, 10(3), 272-283.
25. IELTS Buddy. (2022). *IELTS buddy - Free exam preparation to improve your test score*. https://www.ieltsbuddy.com
26. Jonassen, D. H., & Rohrer-Murphy, L. (1999). Activity theory as a framework for designing constructivist learning environments. *Educational Technology Research and Development*, *47*(1), 61–79. https://doi.org/10.1007/bf02299477
27. Kukulska-Hulme, A. (2009). Will mobile learning change language learning? *ReCALL*, *21*(2), 157–165. https://doi.org/10.1017/s0958344009000202
28. Kukulska-Hulme, A., & Shield, L. (2008). An overview of mobile assisted language learning: From content delivery to supported collaboration and interaction. *ReCALL*, *20*(3), 271–289. https://doi.org/10.1017/S0958344008000335
29. Lashari, A. A., Abbasi, F. N., Kurd, S. A., Mirjat, M. A., Mehmood, T., & Ahmad, S. (2023). The impact of mobile assisted language learning (MALL) on ESL students' learning. Onomázein Revista de Lingüística Filología Y Traducción, 60(3), 137–148.
30. Adbeeb, S. M. (2016). Pedagogical Philosophy (No One Should Left Behind) by. Bani Waleed University Journal of Humanities and Applied Sciences, 1(2), 163-179.
31. Lei, X., Fathi, J., Noorbakhsh, S., & Rahimi, M. (2022). The impact of mobile-assisted language learning on English as a foreign language learners' vocabulary learning attitudes and self-Regulatory capacity. *Frontiers in Psychology*, *13*, 1–14. https://doi.org/10.3389/fpsyg.2022.872922
32. Lin, J. J., & Lin, H. (2019). Mobile-assisted ESL/EFL vocabulary learning: A systematic review and meta-analysis. *Computer Assisted Language Learning*, *32*(8), 1–42. https://doi.org/10.1080/09588221.2018.1541359
33. Loewen, S., Crowther, D., Isbell, D. R., Kim, K. M., Maloney, J., Miller, Z. F., & Rawal, H. (2019). Mobile-assisted language learning: A Duolingo case study. *ReCALL*, *31*(3), 293–311. https://doi.org/10.1017/s0958344019000065
34. Lu, M. (2008). Effectiveness of vocabulary learning via mobile phone. *Journal of Computer Assisted Learning*, *24*(6), 515–525. https://doi.org/10.1111/j.1365-2729.2008.00289.x
35. Moayeri, M., & Khodareza, M. R. (2020). The effect of mobile-assisted language learning on speaking accuracy of EFL learners. *Technology in Language Teaching and Learning*, *2*(1), 22–35. https://doi.org/10.29140/tltl.v2n1.140

36. Nation, I. S. P. (2001). *Learning vocabulary in another language*. Cambridge University Press.
37. Nation, P., & Newton, J. (1996). Teaching vocabulary. In J. Coady & T. Huckin (Eds.), *Second Language Vocabulary Acquisition: A rationale for pedagogy* (pp. 238–254). Cambridge University Press. https://doi.org/10.1017/cbo9781139524643.017
38. Sivabalan, K., & Ali, Z. (2022). Effectiveness of WhatsApp in vocabulary learning. *Innovative Teaching and Learning Journal*, *6*(2), 16–23. https://doi.org/10.11113/itlj.v6.82
39. Taj, I. H., Sulan, N. B., Sipra, M. A., & Ahmad, W. (2016). Impact of mobile assisted language learning (MALL) on EFL: A meta-analysis. *Advances in Language and Literature Studies*, *7*(2), 76–83. https://doi.org/10.7575/aiac.alls.v.7n.2p.76
40. Tengku Paris, T. N. S., Manap, N. A., Abas, H., & Ling, L. M. (2021). Mobile-assisted language learning (MALL) in language learning. *Journal of ASIAN Behavioural Studies (JABs)*, *6*(19), 61–73. https://doi.org/10.21834/jabs.v6i19.391
41. Uden, L. (2007). Activity theory for designing mobile learning. *International Journal of Mobile Learning and Organisation*, *1*(1), 81–102. https://doi.org/10.1504/ijmlo.2007.011190
42. Van, T. N., & Thanh, H. N. T. (2022). The impacts of mobile-assisted language learning (MALL) on freshmen's vocabulary acquisition and their perspectives. *Proceedings of the 18th International Conference of the Asia Association of Computer-Assisted Language Learning (AsiaCALL–2-2021),621*, 278-290. https://doi.org/10.2991/assehr.k.211224.027
43. Vygotsky, L. (1978). *Mind in society: The development of higher psychological processes*. Harvard University Press.
44. Weerasinghe, M., Biener, V., Grubert, J., Quigley, A., Toniolo, A., Pucihar, K. C., & Kljun, M. (2022). VocabulARy: Learning vocabulary in AR supported by keyword visualisations. *IEEE Transactions on Visualization and Computer Graphics*, *28*(11), 3748–3758. https://doi.org/10.1109/tvcg.2022.3203116
45. Wilkins, D. A. (1972). *Linguistics in language teaching*. Edward Arnold.
46. Zurita, G., & Nussbaum, M. (2007). A conceptual framework based on Activity Theory for mobile CSCL. *British Journal of Educational Technology*, *38*(2), 211–235. https://doi.org/10.1111/j.1467-8535.2006.00580.x