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Exploring the Use of Mobile-Assisted Language Learning (MALL) in Enhancing Vocabulary Acquisition for EFL Learners: Case Study of Master One

A thesis submitted in partial fulfillment of the requirement for the degree of *Master`s* in Didactics.

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Declaration of Originality

I hereby declare that this submission is my work and that it contains no material previously published or written by another person, nor material that has been accepted for the qualification of any other degree or diploma of a university or other institution.

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Dedication

I dedicate my work to me, myself, and I. To my brain, my eyes, and my hands. To the people in GAZA and all the Palestinian students who left this earth before they got the chance to be called upon on the day of graduation. May their souls rest in peace. To my family, friends, and my favorite person, thank you for being there and believing in me. I LOVE YOU ALL SO MUCH.

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Abstract

This study investigates the impact of Mobile-Assisted Language Learning (MALL) on vocabulary acquisition among English as a Foreign Language (EFL) learners in Algeria. Against the backdrop of English's global significance and MALL's growing role in education, the research examines learner outcomes, attitudes, and teacher perceptions to evaluate MALL's pedagogical viability. A mixed-methods approach was employed, combining a quasi-experimental study (pre-test/post-test design using the Anki app over two months with 14 Master one didactic students), a semi-structured questionnaire (administered to 36 Master one students), and in-depth interviews (with 6 EFL teachers). Data analysis included descriptive statistics for test scores and questionnaire responses, alongside thematic analysis of qualitative insights. Key findings revealed, firstly, minimal vocabulary gains as the pre-test (mean = 82.61%) and post-test (mean 81.37%) scores showed negligible improvement, with increased score variability (SD = 18.76% → 26.06%) indicating divergent learner responses. Secondly, strong student endorsement as learners exhibited highly positive attitudes across cognitive (perceived utility), affective (enjoyment), and behavioural (usage intent) domains. Duolingo was the preferred app (75% adoption), while Anki users rated it highly (4–5/5) despite setup challenges. Thirdly, teacher ambivalence as educators acknowledged MALL's potential for vocabulary retention (e.g., via spaced repetition) but expressed concerns about distractions, AI over-reliance, and erosion of creativity. Only 50% supported enthusiastic classroom integration. The study underscores MALL's value as a supplementary tool for enhancing learner autonomy and motivation in vocabulary acquisition. However, its effectiveness hinges on addressing critical barriers such as institutional support for reliable infrastructure, professional teacher training, and balanced pedagogical integration that preserves human interaction. These insights offer practical guidance for educators and policymakers seeking to optimize MALL implementation in resource-constrained EFL contexts.

Keywords: Algeria, educational technology, EFL learners, language pedagogy, Mobile-Assisted Language Learning (MALL), vocabulary acquisition.

Table of Contents:

List of Tables

List of Bar-charts

List of Pie-charts

List of Column-charts

List of Abbreviations and Acronyms

AI: Artificial Intelligence

CALL: Computer-Assisted Language Learning

DID: Didactics

EFL: English as a Foreign Language

LIT/ CIV: Literature/ Civilization

M1: Master One

MALL: Mobile-Assisted Language Learning

m-Learning: Mobile Learning

PDAs: Personal Digital Assistants

PIM: Personalized Intelligent Mobile Learning

PEOU: Perceived Ease of Use

PU: Perceived Usefulness

SRS: Spaced Repetition System

TAM: Technology Acceptance Model

WLCR: Write, Look, Cover, Repeat

List of Figures

List of Appendices

Appendix

GENERAL INTRODUCTION

General Introduction

Ever since the COVID-19 pandemic hit the world, all domains have had to make changes and act according to what was happening in it, and the field of education was no different. Trying to adjust to the trends, many educational institutions all around the world adopted e-learning, which takes part either using computers or/and any handheld gadgets, and Mobile-Assisted Language Learning (MALL) was introduced. The latter is the latest trend and is a very important topic in the teaching/learning process, as its name suggests, it's how learners use phones, tablets, and other handheld gadgets to support learning languages, because it provides flexibility, accessibility, and practice with its anytime, anywhere dynamic feature.

The reason behind choosing this specific topic is based first and foremost on the researcher's observation, i.e. since nowadays the majority of students if not all are on most of the time using their phones, it is thought that it is high time we urge them to use their smart cellular in helping them to study and achieve their academic goals rather than just waste their time. Then, based on the humble experience of the researcher in teaching, it has been noticed how most learners ought to learn as much vocabulary as possible because to them, vocabulary acquisition is seen as a very essential part of any language learning /proficiency journey and is fundamental to both comprehension and communication.

The present study aim is to investigate and explore the effectiveness of MALL for vocabulary learning, as well as how the usage of MALL can enhance the process of vocabulary acquisition, it also examines specific MALL tools/ apps and their impact on EFL (English as a Foreign Language) learners, and it gathers and analyze the attitudes of students and teachers towards MALL and its usage in both the teaching and learning phenomena. This study is significant as it addresses a growing need to integrate technology effectively into language learning, particularly in vocabulary acquisition, which is a foundational skill in EFL education. By focusing on MALL, the research aligns with current educational trends where learners increasingly rely on mobile devices for learning beyond the traditional methods. Moreover, by including both student and teacher perspectives, the study provides a more holistic view of the acceptance, challenges, and educational value of MALL in real-world contexts. Ultimately, the study enriches the discourse on how mobile technologies can be leveraged not only for effective language learning but also for fostering a positive and sustainable digital learning culture in EFL contexts.

The objectives of this study are to investigate the effectiveness of Mobile-Assisted Language Learning (MALL) in enhancing vocabulary acquisition among EFL learners and explore how mobile devices and applications can be used as practical tools for vocabulary learning inside and outside the classroom. It also seeks to examine students' attitudes towards the integration of mobile phones in vocabulary learning and to understand teachers' perspectives on the use of MALL for vocabulary instruction in EFL contexts as well as to identify which specific MALL applications or tools are perceived as most useful and engaging by learners and finally to determine whether MALL contributes to improved learner motivation, autonomy, and engagement in the vocabulary learning process.

Those objectives reflect the intention to turn a common student habit (mobile phone usage) into a meaningful educational opportunity, while also focusing on vocabulary which is a core need for EFL learners.

In order to attain these objectives, the current study seeks to find answers to the following questions:

- How does the use of MALL tools impact vocabulary acquisition among EFL learners?
- What are students' attitudes toward using mobile devices for vocabulary learning?
- What are teachers' perceptions of using MALL tools in vocabulary instruction?
- Which mobile applications do students commonly use to learn vocabulary, and what are their experiences with them?

To answer these questions, the researcher crafted the following hypothesis

- EFL students who use MALL tools for vocabulary learning will demonstrate significantly higher retention rates.
- EFL learners will report predominantly positive attitudes towards using mobile devices for vocabulary learning.
- EFL teachers will acknowledge the potential of MALL tools to supplement vocabulary instruction.

The proses of investigation used a mixed method approach and went under two stages, the first stage was a quasi-experimental study in which an intervention took place after a pre-test was administered to 14 master one didactic students then the same group did a post-test.

A questionnaire was answered by 36 master one respondents and six interviews were done with six EFL teachers.

The outline of this study undergone three chapters, the first chapter deals with previously published literature that conducted and tackled vocabulary acquisition, MALL and its importance as well as teachers` and students' reaction and attitude. Chapter two was dedicated to research design and methodology in which a detailed report of the data collection process as well as the analysis of the data gathered took place. Moreover, within the third and final chapter an interpretation of the data findings was done alongside a discussion to findings and series of implications and recommendations were mentioned the latter were addressed to students, teachers and stakeholders and policy makers.

CHAPTER ONE: REVIEW OF RELATED LITERATURE

1.1 Introduction

English has emerged as one of the most significant languages in human history, with profound implications for global communication, economic opportunities, cultural exchange, and access to knowledge. With an estimated 1.5 billion speakers worldwide, English serves as the primary medium for international business, diplomacy, and, most importantly, education and technological advancement. This global language has achieved unprecedented reach, serving as both an official language in 53 countries and the most widely spoken second language worldwide. The importance of English extends beyond mere communication, as it influences economic mobility, educational opportunities, cultural identity, and international relations.

Thus, this literature review aims to comprehensively examine the relationship between vocabulary acquisition in English as a Foreign Language (EFL) context and the implementation of Mobile-Assisted Language Learning (MALL) approaches. It explores the theoretical foundations of vocabulary as a language subskill, analyses various teaching techniques and strategies, investigates the integration of educational technology in vocabulary instruction, and examines the specific affordances of mobile technologies for enhancing vocabulary development. Furthermore, it investigates students' and teachers' attitudes and readiness toward MALL implementation, the required technological infrastructure, and the broader implications for language pedagogy.

1.2 English as a Foreign Language

The term English as a Foreign Language (EFL) refers to the study and use of the English language by non-native speakers in regions where English is not the primary spoken language, such as in Algeria. Of course, as with any other language, English has a structure, i.e., skills and subskills required to achieve the objectives of fluency and accuracy, enabling the ideal use of the English language.

Starting with the primary four skills which are listening that is defined according to Gilakjani and Sabouri (2016) as the ability to recognize and understand spoken language through auditory discrimination, grammatical interpretation, and contextual meaning-making. While Leung (2023) states that speaking is a productive skill of verbal communication, where

individuals articulate thoughts and ideas using appropriate vocabulary, grammar, and pronunciation. It involves fluency, coherence, and interactional competence to engage in meaningful conversations or presentations. Reading is described according to The Vanderbilt University English Language Center (2019) as the cognitive process of decoding written symbols to derive meaning, evaluate arguments, and synthesize information. and finally Writing which is defined by Indeed editorial team (2023) as the formal production of text to articulate arguments, convey research, and communicate ideas with clarity and precision.

Then there are the four subskills that complement the main ones starting off with Grammar which has both Indeed editorial team (2023) and Gilakjani and Sabouri (2016) agreed on defining it as the system of rules governing sentence structure, word formation, and syntactic relationships in a language. Then Pronunciation which is described by the editors of Encyclopaedia Britannica as the act or manner of articulating words, involving the production of speech sounds in a way that is accepted or generally understood within a language or dialect. It encompasses the arrangement of segmental phonemes (speech sounds) in patterns of pitch, loudness, and duration. Also, Spelling that is according to Indeed editorial team (2023), the conventional arrangement of letters to form written words according to standardized orthographic rules. Finally, vocabulary.

1.3 Vocabulary as a Subskill

Soon after we are born, we begin to distinguish between the words spoken around us and eventually develop the ability to produce these words ourselves (Webb & Nation, 2017). Vocabulary encompasses the collection of words and phrases that are known and utilised within a particular language. It is divided into active vocabulary, which includes the words that individuals can readily use in speaking and writing, and passive vocabulary, which encompasses words that individuals can recognise and understand when encountered in text or speech but may not use actively.

1.3.1 Different Definitions

The term vocabulary is defined differently across many sources; according to the Oxford Learner's Pocket Dictionary (Bull, 2008), it is understood as all the words that a person knows or uses. Alongside this definition is the one proposed by Brown (2000), who asserts that vocabulary is a list or collection of terms that language speakers may employ. Benettayeb (2010) agrees with Brown's definition, as she

defines vocabulary as the total number of words in a language; the learner would be unable to use and understand the target language without it.

So, what does a word mean? As cited in Bouzidi (2015), Lado (1955) claims that "a word is a combination of sounds acting as a stimulus to bring into attention the experience to which it has become attached by use." I do not have the page number Thus, vocabulary is the combination of all the words that are essentially sounds brought together, resulting in having a meaning. However, Larsen-Freeman (1997) views vocabulary as an integral part of language competence; hence, it cannot be separated from the other aspects of language. Following the same path, Soltani (2011) argues that vocabulary is the essential factor connecting the four language skills in EFL. Having a good vocabulary helps you to understand what you hear, read, and write.

1.3.2 Importance of Vocabulary Acquisition

"In all stages of our education, Vocabulary is central to learning content" (Webb & Nation, 2017). As it connects all four skills of EFL, the significance of vocabulary acquisition can be portrayed in many ways, whether in our first native language or any other foreign and/or second language. Each word learnt is not just a term but also a tool that enables the learner to articulate thoughts, expressions, and understandings. The importance of vocabulary acquisition cannot be overstated, as it forms the foundation of all communication and is a crucial element in acquiring a second language.

According to Webb and Nation (2017), "the focus on developing vocabulary knowledge emphasises the fact that words are views as being key to communication," i.e., having a rich vocabulary forms the basis of all communication. Moving on, Schmitt (2000) emphasises that "lexical knowledge is central to communicative competence and to the acquisition of a second language" p. 55). This knowledge refers to the size – breadth, and depth – of the vocabulary, which includes spelling, pronunciation, syntax, morphology, context, whether a word has multiple meanings, and how a word combines with other words (Qian, 1999). Hence, A rich vocabulary aids in faster retrieval of words, thus enhancing communication and comprehension (Ellis, 1994). Rivers and Nunan (1991) further argue that acquiring an adequate vocabulary is essential for successful second language use. Without an extensive vocabulary, we

cannot effectively utilise the structures and functions we have learned for comprehensible communication. Lastly, vocabulary acquisition contributes to metalinguistic awareness, enabling learners to think about and manipulate language more effectively (Bialystok, 2001).

1.3.3 Teaching Techniques and Strategies

Vocabulary is a crucial skill and a fundamental component of language acquisition and academic achievement, and it needs strategies and techniques to be taught. The way we learn words in our native language differs from the way we learn words in other languages. Whether learners are still in school or heading up a corporation, the better command they have of words, the better chance they have of saying precisely what they mean, understanding what others mean, and achieving their goals in the world.

One widespread and basic strategy that many learners use is the use of dictionaries, which are considered a valuable resource that enhances vocabulary knowledge, as they provide structured pathways to lexical knowledge that complement other learning approaches. There are many types of dictionaries, and the key is for the learner to select the one that best matches their specific needs and learning objectives. Among these types, there are bilingual dictionaries, monolingual dictionaries for learners, bilingualized ones, and electronic dictionaries. Additionally, vocabulary notebooks serve as a personalised repository for new vocabulary, enabling learners to systematically collect, organise, and review words over time.

Another strategy that is more applicable in classrooms as an activity is vocabulary role-play, i.e., building vocabulary through dramatization, which is described by Herrell (1998) and Zwiers (2014) as a method that helps learners connect their past experiences with the current content being studied and with vocabulary that is either new or used in unfamiliar ways. Students are introduced to new terms and allowed to discuss and utilise the vocabulary in context through role-playing activities. Multiple researchers, including Jordan & Herrell (2002), Lyster (2007), Snow & Katz (2010), and Spada & Lightbrown (2008), have highlighted the importance of exposing English learners to new vocabulary multiple times. Typically, groups of students are given the same set of vocabulary words and asked to create and perform skits using these words. Each group performs their skits in varying contexts, demonstrating

different usages of the same vocabulary. This approach allows English language learners to see the vocabulary in context and understand its application in various situations (Echevarria, Vogt, & Short, 2010).

An even more prevalent strategy is Collecting and Processing Words (Herrell & Jordan, 2001; Gibbons, 2015), i.e. Making Vocabulary Your Own. It aims to enhance children's vocabulary in speaking and writing. It also aids in their comprehension of word nuances and synonyms. According to research, developing a broad vocabulary and a solid understanding of word meanings is crucial for fluent and effective reading and verbal communication (Allen, 2000). Through collecting words, students continuously build a repertoire of vocabulary and word meanings, thereby enhancing their understanding of spoken language and stories and ultimately strengthening their spoken vocabulary and writing skills.

Moving on to the mnemonic keyword method, a technique formally developed by two cognitive psychologists, Richerd Atkison and Michael Raugh, in 1975. It is designed mainly to learn vocabulary words that are unfamiliar or foreign. It involves establishing a strong cognitive link between unfamiliar, new words and already existing knowledge and information through visual imagery or word association, creating memorable mental connections that enhance retention. The mnemonic keyword method requires learners to associate target vocabulary words with familiar concepts. The process typically begins with identifying a familiar-sounding word (the keyword) that resembles part of the unfamiliar word to be learned. Next, the learner creates a visual image connecting the keyword with the meaning of the unfamiliar word. This visual connection serves as a memory bridge, making it easier to recall the word's meaning later.

Additionally, spaced repetition represents another powerful approach to vocabulary acquisition. This technique involves reviewing vocabulary at progressively increasing intervals rather than cramming during a single study session. Even though the principle behind spaced repetition is straightforward, it is powerful: if a learner reviews a vocabulary word multiple times with increasing intervals between reviews (for example, reviewing today, tomorrow, next week, and next month), retention becomes dramatically more effective than reviewing the same word multiple times in a single sitting.

Furthermore, a much more classical approach would be the WLCR method (write, look, cover, repeat). This technique mainly benefits those who learn best through physical action and writing, yet it engages multiple learning modalities. The basic process involves writing vocabulary words and their definitions or translations, studying them, covering one side of the information, attempting to recall the covered information, and then repeating the process, emphasising challenging words.

1.4 Teaching/Learning Vocabulary Using Educational Technology

Educational technologies have transformed vocabulary teaching and learning, offering innovative tools and methods that enhance lexical acquisition across diverse educational contexts. Integrating educational technologies into vocabulary learning has garnered significant attention due to their potential to enhance language acquisition. This approach leverages various digital tools and platforms to facilitate vocabulary learning, making it more engaging and effective compared to traditional methods.

Research indicates that technology-assisted vocabulary learning is more effective than traditional methods. A meta-analysis by Hao et al. (2021) found that technology-enhanced learning significantly improves vocabulary retention and acquisition, with mobile devices and on-the-go learning being particularly beneficial. Additionally, a study by Karaaslan et al. (2018) demonstrates that using synchronous and asynchronous games and activities can also maintain intrinsic motivation and improve vocabulary learning performance. Mobile learning tools have been demonstrated to effectively support vocabulary acquisition and cater to individual learning needs (Zhai, 2021).

The landscape of technology-enhanced vocabulary instruction encompasses diverse digital tools, platforms, and approaches designed to address various aspects of lexical development. These technological solutions range from dedicated vocabulary applications and web-based platforms to AI-powered systems and digital reading environments, each offering unique affordances for vocabulary teaching and learning.

1.5 Mobile-Assisted Language Learning

Mobile-Assisted Language Learning (MALL) has emerged as an extension of Computer-Assisted Language Learning (CALL), adapting to the increasing capabilities

of mobile devices and the Internet. It has evolved significantly over the past two decades, driven by advancements in mobile technology and shifting educational paradigms.

According to Panagiotis and Krystalli (2021), MALL represents a specialised subset of both Mobile Learning (m-learning) and Computer-Assisted Language Learning (CALL). In this regard, Hubbard and Stockwell (2013) present the overlapping relationship between the three concepts in Figure 1.1.

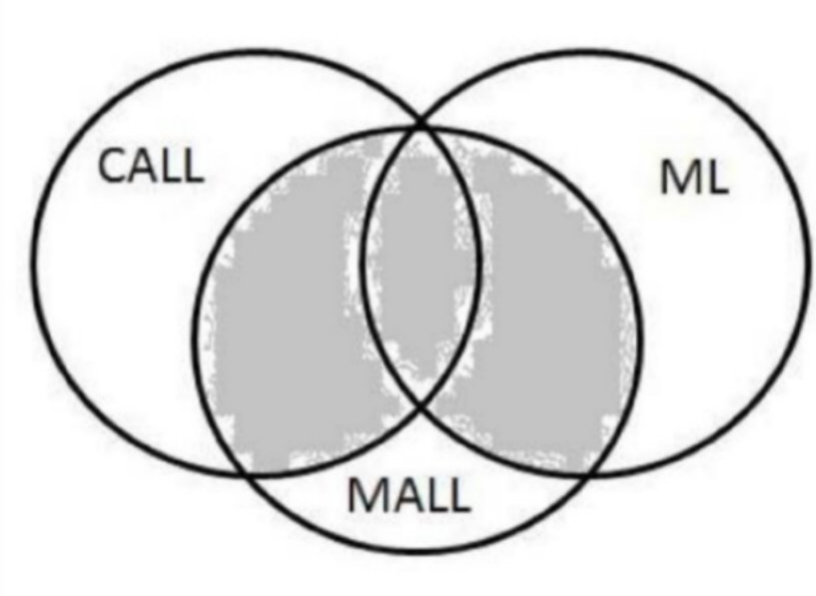


Figure1.1. Cross-field relationship between CALL, M-learning, and MALL

(Hubbard & Stockwell, 2013, p. 5).

The earliest foundations of what would eventually become MALL emerged in the 1980s when researchers began exploring telecommunications technology for language instruction. Isa and Banu (2023) claim that the pioneering work in this field is attributed to Twarog and Pereszlenyi-Pinter, who researched telephone-assisted language study. Their innovative approach utilised telephones to provide feedback and assistance to distance language learners, establishing the first connection between mobile communication technology and language education. In other words, the telephone offered a means of synchronous communication between instructors and students who were geographically separated, creating new possibilities for language practice and feedback. However, the phone could only transmit voice at that time, lacking visual elements, text-based interaction, or automated feedback systems. The focus during that period was primarily on connecting distant learners with

instructors rather than on automated or self-directed learning experiences that would characterise later developments in MALL.

Furthermore, as educators began to move beyond basic telephone use and toward more advanced technical approaches, the 1990s marked a turning point in the development of MALL. During this time, Brigham Young University-Hawaii instructors used a combination of computer and phone technology to teach a distance education English course from Hawaii to Tonga. This hybrid approach represented an important step forward, combining the synchronous communication capabilities of the telephone with the emerging potential of computer-based instruction. Although the term "Mobile Assisted Language Learning" had not yet been formally coined, the foundations for mobile learning were being established. The technological landscape was rapidly evolving, with the emergence of early mobile phones, personal digital assistants (PDAs), and portable computing devices that would eventually transform language learning approaches. These developments were occurring in parallel with the growth of Computer-Assisted Language Learning (CALL), which was already gaining traction in educational contexts.

According to Arvanitis and Krystalli (2021), the 2000s represented a period of significant expansion and formalisation for Mobile-Assisted Language Learning (MALL). The term was coined by Chinnery in 2006, who proposed that mobile devices could function as effective pedagogical tools for language learning. Furthermore, Isa and Banu (2023) claimed that between 2002 and 2005, Japanese researchers Thornton and Houser made particularly significant contributions to the discipline by creating several groundbreaking mobile phone-based English teaching initiatives at a Japanese university. According to their research, students who learnt via SMS were able to master twice as many words as those who used conventional paper-based approaches.

Additionally, Levy and Kennedy (2005) conducted research similar to Thornton and Houser's work, sending vocabulary words and idiomatic expressions to language learners via mobile devices. These studies consistently demonstrated improved learning outcomes and positive student attitudes toward mobile-based learning approaches, helping to establish the educational credibility of MALL. Then came the 2010s, which marked a period of accelerated development in MALL, characterised by

widespread smartphone adoption, the emergence of app ecosystems, and increasingly sophisticated mobile technologies. This decade saw MALL evolve from a specialised approach to a mainstream component of language education. The technological landscape during this period was characterised by the rapid advancement of smartphones and tablets, which provided unprecedented capabilities for language learning applications. These devices combined high-quality audio and video playback, touch interfaces, internet connectivity, location awareness, and sophisticated sensors, enabling far more immersive and interactive learning experiences than previous generations of mobile technology. Application marketplaces provide centralised platforms for distributing language learning applications, increasing the availability of both commercial and educational MALL resources.

The pedagogical approaches to MALL also underwent significant evolution during this period. Earlier implementations had often focused on drill-based vocabulary acquisition and grammar practice, but newer approaches emphasised communicative competence, cultural understanding, and authentic language use in context (Arvanitis & Krystalli, 2021). Mobile technologies facilitated more personalised learning experiences, adapting to individual student needs, preferences, and proficiency levels through increasingly sophisticated algorithms and user modelling.

1.5.1 Definition of MALL

According to Arvanitis and Krystalli (2021), Mobile-Assisted Language Learning is defined as language learning that is assisted or enhanced through handheld mobile devices. It represents a specialised subset of both Mobile Learning (m-learning) and Computer-Assisted Language Learning (CALL). In addition, Isa and Banu (2023) claim that the fundamental characteristic of MALL is its ability to facilitate language learning beyond traditional classroom settings, enabling students to access educational materials and communicate with teachers and peers at any time and place. MALL encompasses a wide range of devices, including mobile phones, smartphones (such as iPhones and Android devices), MP3 and MP4 players, personal digital assistants (PDAs), and tablet computers. According to Chinnery (2006, p. 9), those portable devices are referred to in common and scholarly literature as "mobile, wireless, handheld, or nomadic" and are now social staples. Figure 1.2 showcases some types of mobile devices.

Figure1.2. Illustration of some mobile devices, http://www.eportfolios.ac.uk/mobile

The defining feature of these technologies is their portability, which removes temporal and spatial limitations on learning. As Kukulska-Hulme & Shield (2008) defined it, MALL is formal or informal learning mediated via handheld devices that are potentially available for use anytime, anywhere. Kukulska-Hulme et al. (2007) describe MALL as learning mediated by the assistance of small portable devices available most of the time, and that can be adapted to the learner's immediate context. This emphasises the role of devices in creating a personalised, flexible learning ecosystem.

Furthermore, as cited in Fathurrahman et al. (2022), Baleghizadeh & Oladrostam (2010) position MALL as a branch of technology-enhanced learning that supports face-to-face, distance, or online modes, reflecting its versatility across educational paradigms. Moreover, Sharples et al. (2007), as cited in Mulatu Bachore (2015), define mobile learning as a process of gaining knowledge through conversations across multiple contexts among people and the personal use of interactive technologies, which inherently aligns with MALL's interactive and context- aware nature. Additionally, Naely Muchtar (2018) claimed that Mobile-Assisted Language Learning (MALL) is related to students' mobility, enabling them to connect to educational activities without restrictions in a closely surrounded physical location.

1.5.2 Importance of MALL

The importance of Mobile-assisted Language Learning stems from several key characteristics, including portability, connectivity, and contextual adaptability. The "anytime, anywhere" nature of mobile learning represents a fundamental advantage over traditional educational approaches that require physical presence in specific locations. Learners can access educational content during commutes, lunch breaks, or whenever they have a few spare minutes, effectively integrating language learning into their daily routines rather than treating it as a separate activity (Miangah & Nezarat, 2012)

Starting with portability, in which Miangah & Nezarat (2012) claims that it enables MALL's reliance on lightweight, easily transportable devices, allowing learners to engage in language practice during fragmented moments, such as commuting, waiting in queues, or studying remotely. This mobility breaks down spatial and temporal barriers, enabling continuous learning opportunities that align with modern lifestyles.

Along the same lines, Miangah & Nezarat (2012) states that connectivity in Modern mobile devices facilitates real-time communication and access to digital resources. Learners can participate in synchronous activities (e.g., voice or video calls, instant messaging) or access asynchronous materials (e.g., pre-recorded audio lessons, e-books) via platforms like WhatsApp, Google Meet, or specialised language- learning apps. Connectivity also supports collaborative learning, where peers exchange feedback or practice conversational skills. Finally, contextual adaptability is where MALL thrives in diverse learning environments, including formal classrooms, blended settings, and fully remote scenarios. For instance, during the COVID-19 pandemic, MALL tools like WhatsApp and Google Meet became critical for maintaining language instruction despite physical distancing. The adaptability extends to tailoring content to learners' immediate needs, such as using location-based apps to teach vocabulary related to local environments.

The second reason for MALL's effectiveness hinges on the integration of various mobile technologies that participate in the learning and teaching process, each offering unique pedagogical advantages. Smartphones are the most prevalent tool, enabling access to apps (e.g., Duolingo, Memrise), multimedia resources, and communication platforms. Tablets and laptops offer larger screens for complex tasks, such as writing or video analysis, although they are less portable than phones. MP3/MP4 players that

are useful for listening practice and audio-based language exercises. PDAs and e- readers, which support focused reading and vocabulary building with digital flashcards or eBooks. Those devices enable learners to connect and learn through various means. Language apps, such as Anki or Quizlet, offer gamified vocabulary drills or grammar exercises. Social media and messaging: Platforms such as WhatsApp or Instagram enable authentic communication, allowing learners to practice conversational skills or share media content in the target language. Multimedia tools, including audio and video recordings, facilitate listening and speaking practice, while cameras enable real-time interaction and image-based storytelling. Collaborative platforms, such as Google Meet or Zoom, support virtual classrooms and peer-to-peer interactions.

Besides that, the adoption of MALL introduces several advantages to language education, which are, according to Miangah & Nezarat (2012) and Mulatu Bachore (2015), enhanced accessibility and flexibility. That is done by eliminating the need for fixed learning environments; MALL caters to learners with busy schedules, remote locations, or preferences for self-paced study. For example, commuters can use travel time to review pronunciation via audio recordings. Another one is personalised learning experiences mobile devices allow content customisation to individual needs. Learners can select topics, set difficulty levels, or choose interactive formats (e.g., quizzes and flashcards) that align with their learning styles (ibid). Besides that, it improves engagement and motivation with interactive features such as gamification, multimedia content, and social media integration, making language practice more dynamic and enjoyable. For instance, learners might compete in app-based vocabulary challenges or share creative projects, such as videos and stories, with their peers (ibid). Also, Mall enhances authenticity by facilitating exposure to real-world language use through social media, podcasts, and authentic materials (e.g., news articles and YouTube videos). This contrasts with traditional classroom materials that may lack cultural or contextual relevance (ibid). Finally, it creates collaborative opportunities. As mobile tools enable both synchronous and asynchronous interaction, they foster peer feedback and teacher-learner dialogue. For example, students might record audio responses to assignments and share them via messaging apps for immediate correction(ibid).

1.5.3 Usage of MALL in Education

MALL is designed primarily for language learning facilitated by mobile usage, yet its principles may also benefit other educational domains, that vary from exact sciences like mathematics to approaches leaning more towards creativity and imagination such as art.

Miangah & Nezarat (2012) claims that MALL can be found initially in mathematics under the name Mobile-Assisted Mathematics Learning, where the personalisation aspect of mobile learning could be particularly valuable in mathematics education. Similar to how personalised intelligent mobile learning system (PIM) automatically discovers and retrieves unknown vocabularies based on learner abilities, mathematics applications could identify knowledge gaps and provide tailored problem sets that adapt to individual learning progress. The multimedia capabilities that help language learners with pronunciation could be repurposed to visualise complex mathematical concepts and procedures, making abstract ideas more concrete and accessible.

Secondly, in Mobile-Assisted Science Education, Science education could benefit from MALL's mobility aspect, allowing students to conduct field observations and experiments outside traditional laboratory settings. Mobile devices equipped with sensors could facilitate data collection and analysis in real-world contexts. The immediate feedback mechanism prevalent in MALL applications could be implemented in science learning apps to guide students through experimental procedures and help them interpret results without requiring constant teacher supervision.

Thirdly, in the Arts and Humanities, under the term Mobile-Assisted Arts and Humanities, the recording and self-assessment capabilities used in language pronunciation practice can be adapted for music education, allowing students to record performances, receive feedback, and track their improvement over time. In history or literature, the contextual learning approaches used in MALL can help students explore historical sites or literary settings through location-based learning activities, thereby connecting academic content to physical environments.

1.5.4 MALL in Grammar, Pronunciation and Spelling

MALL is characterised by its potential to provide personalised, spontaneous, informal, and ubiquitous learning experiences (Bagus et al., 2023), thus making it a

vital tool for education, especially for languages where many skills exist, and they may tend to intercede, just like the case in the English language with grammar, pronunciation, and spelling.

Starting with grammar, which remains one of the most challenging aspects of language learning for many students. One way MALL addresses this challenge is through Interactive digital games. A case study done by Paris et al. (2021) examined the use of a digital board game designed to teach grammar to TESL students. The game utilised the Theory of Variation (developed by Marton & Booth, 2012) to structure grammar exercises in an engaging format. Another way is through AI-powered grammar-checking applications, and a perfect example of this is Grammarly. Which is an AI-powered writing assistant that helps improve various grammatical elements, including spelling, pronoun usage, verb agreement, punctuation, and word choice. A study conducted by Ghufron and Rosyida, as cited in Bagus et al. (2023), found that Grammarly effectively assisted teachers and learners in correcting grammatical mistakes in writing classes within EFL contexts. The investigation demonstrated that the application successfully improved punctuation and spelling errors, indicating that automated grammar-checking tools can serve as valuable supplementary resources for both independent learners and classroom instruction.

Moving on to Pronunciation, which is a critical component of second language acquisition that often receives insufficient attention in traditional classroom settings. Mobile applications specifically designed for pronunciation training have demonstrated effectiveness in helping language learners improve their speaking skills. These applications typically utilise speech recognition technology to provide immediate feedback on pronunciation accuracy. An excellent example is the ELSA Speak application, which has been found to be quite effective in helping EFL learners train and improve their pronunciation. It was praised for being easy to operate and containing numerous features that facilitated pronunciation practice, supporting distance language education by providing models from native speakers and allowing for independent practice.

Spelling accuracy is fundamental to written communication, and MALL offers various tools to help learners improve this skill. These tools include automated spelling checkers, which are integrated into MALL applications, providing immediate feedback

on orthographic errors through repetition and practice. Grammarly, for example, includes features that distinguish between punctuation errors and spelling mistakes, including those related to proper nouns. (ibid). Thus, these tools are particularly valuable for second language learners who may struggle with the often inconsistent spelling rules of languages like English.

1.5.5 Popular Vocabulary Learning Applications and Websites

Language-learning apps have become increasingly sophisticated, adapting to user preferences while incorporating gamification, AI technology, and immersive experiences to maintain engagement and accelerate learning. Modern language apps cater to diverse learning styles through various modalities, including visual, auditory, and interactive exercises, making language acquisition more accessible to a broader audience than ever before.

This hybrid approach to language learning combines self-directed mobile learning with traditional educational methods, and it has proven particularly effective for vocabulary retention, pronunciation practice, and building foundational language skills. One of the most well-known language-learning platforms is Duolingo, which is renowned for its vibrant user interface and addicting, game-like exercises. Brown (2025) argues that the software does not limit the number of languages users can study simultaneously and provides lessons in over 40 languages. Even with a hectic schedule, practising regularly is made simple by its bite-sized lessons, which are meant to be finished in a matter of minutes. Yet Duolingo is mainly used to supplement formal schooling. Thus, it is better not to be utilised as a stand-alone learning tool.

Moving on to Rosetta Stone, which has been around since the 1990s, it has transitioned from physical disc sets to a comprehensive mobile application. By avoiding translation and teaching through association with sounds and sights, the platform adopts an immersive approach to language acquisition. Its classes are more in-depth than those of some of its rivals, and they usually take at least 30 minutes to finish. "Seek and Speak," a scavenger-hunt-style activity where users can aim their camera at items to gain translations, is one of the augmented reality elements that Rosetta Stone debuted in 2021. With membership choices ranging from quarterly payments to lifetime access, the app now supports 25 languages (Brown, 2025). Another permanent app is Busuu, which differentiates itself through its community-based

learning approach, connecting learners with native speakers for conversation practice and feedback. This social component adds an authentic dimension to language learning that many purely algorithmic apps lack. Users can submit writing and speaking exercises for review by native speakers, creating a collaborative learning environment that mimics real-world language exchange.

More vocabulary-focused applications include Drops, which utilise vibrant patterns and image correlations to teach vocabulary in an aesthetically pleasing manner. After greatly expanding its course offerings in recent years, the app now offers classes in 50 languages. Both the English and target language alphabets are used to display each word, accompanied by audio pronunciation and illustrative pictures. Even languages with complex writing systems, such as those with disparate writing systems, become more comprehensible through the app's interface. Memrise employs an approach that helps learners understand natural pronunciation, tone of voice, and cultural context, which textbook learning often overlooks, by using short videos that feature real native speakers expressing different phrases in conversational contexts. Thus, enabling users to identify language patterns and facilitating faster improvement.

1.6 Learners and Teachers

The teaching and learning process has two significant players: teachers and students. The roles each play have been redefined in recent years, particularly with the COVID-19 pandemic, during which remote learning became essential and gained widespread popularity. MALL creates an environment where students can engage with language learning beyond physical classroom boundaries while teachers adapt their practices to facilitate this new learning modality.

According to Cholis et al. (2021), teachers have identified four primary roles that students assume when learning English through MALL: participant, initiator, performer, and passive receptor. Those roles transform the students from passive recipients to active participants. Niño (2015) claims that perhaps the most transformative aspect of student roles in MALL is the enhancement of learner autonomy. The portable and readily available nature of mobile devices enables students to take control of their learning process, leading to greater motivation and engagement. According to Hsieh and Tsai (2023), research examining the MALL experiences of Taiwanese high school English teachers categorises student roles

based on the structuredness of activities. In well-structured activities, students function as content performers (11%) and worksheet doers (68%). In contrast, in less- structured activities, they act as content organisers (19%), information searchers (65%), idea sharers (88%), content creators (47%), comment givers (40%), question
raisers (5%), and problem solvers (1%).

When it comes to teachers, Barcomb et al. (2018) argue that teachers in MALL environments assume the role of "MALL engineers" who adapt, modify, and create mobile materials tailored to their students' needs. This engineering role enables teachers to develop custom-made activities that increase target language input exposure specifically designed for their students. Building on this, Niño (2015) suggests that in MALL environments, teachers transition from knowledge transmitters to facilitators who guide students' independent learning journeys. While MALL promotes student autonomy, teachers' monitoring and guidance remain essential for connecting independent practice with classroom content and social contexts for meaningful interaction.

1.6.1 Attitudes of Students and Teachers

Students and teachers generally hold positive attitudes toward Mobile-Assisted Language Learning, although various factors shape their perspectives. Students appreciate MALL for its flexibility, collaborative opportunities, and novel learning experiences, while teachers' attitudes are significantly influenced by institutional support, particularly administrative assistance and access to professional development opportunities.

Research consistently demonstrates that students generally hold positive attitudes toward Mobile-Assisted Language Learning (MALL). Mergany et al. (2021) concluded in their research that the positive reaction of learners appears to stem from several perceived advantages of MALL, particularly its flexibility, as they widely agreed that mobile learning offers a more flexible method of learning that can be conducted at any time and place, freeing them from the constraints of traditional classroom settings. Another factor that contributes significantly to the positive view of students is convenience(ibid). According to Ye et al. (2023), Mobile devices enable students to access language learning resources at their convenience, regardless of location or time, which aligns with the modern lifestyles and learning preferences of students. This

accessibility has made MALL an increasingly popular method for language learning, particularly for English as a Foreign Language (EFL) learners who may have limited exposure to authentic language environments outside the classroom (Xu, 2020).

When it comes to teachers' attitudes, it has been found by Ye et al. (2023) that their perception is strongly influenced by the level and type of institutional support they receive, alongside other factors such as learner persistence, flow experience, and interest in educational technology. Institutional support encompasses various elements, including the availability of mobile devices, technical assistance, and training programs, all of which can significantly influence teachers' adoption and integration of mobile learning methods. The quality and comprehensiveness of this support directly impact how teachers perceive and implement MALL in their classrooms.

1.6.2 Readiness of Students and Teachers

The readiness of both students and teachers to integrate MALL effectively depends on three critical factors: access to appropriate tools, openness to mobile learning methodologies, and sufficient digital literacy. Students generally demonstrate considerable readiness regarding access to mobile tools required for MALL implementation. Solodka et al. (2022) argue that today's students are characterised as being accustomed to multitasking, active, connected, and comfortable in technology-enhanced learning environments. Nonetheless, Adewumi et al. (2023) claim that Teachers generally acknowledge the potential benefits of MALL tools, with research indicating that educators recognise mobile devices can "play an important role in education". However, recognition of value does not necessarily translate to implementation. Studies reveal a gap between theoretical appreciation and practical application, with one finding that "even though participants recognise the potential MALL devices can provide, most participants did not use MALL devices within their classroom" (Waldren, 2019, pp. 11–24).

1.6.2.1 Tools (software and hardware)

Mobile-Assisted Language Learning (MALL) leverages a variety of software and hardware tools to create flexible, interactive, and personalised language learning experiences. Both hardware and software are interdependent; hardware needs software to operate, while software requires hardware to execute its instructions.

Starting with the hardware tools that are defined as physical components of a computer that you can touch and see, such as the monitor, keyboard, CPU, and hard drive, it includes smartphones and tablets; over 90% of people in developed countries own at least one of the two or both. Additionally, wearable devices such as smartwatches and fitness trackers are being increasingly explored for language-learning purposes; there are also MP3/MP4 players, laptops, and hybrid devices.

While the software tools are defined as intangible programs and data that instruct hardware on what tasks to perform. It includes language learning apps, and social media platforms like WhatsApp, Facebook, or Instagram that can be adapted for language learning by encouraging interaction in the target language through messaging, commenting, or content creation, in addition to educational platforms like Google Classroom or Moodle that can host MALL activities by integrating mobile-friendly resources like quizzes, videos, and collaborative tasks.

1.6.2.2 Openness

Due to the fact that students and teachers appear to have predominantly a positive attitude towards MALL. Students, in particular, value out-of-class practice and the opportunity to learn English whenever they wanted (Solodka et al., 2022). This appreciation for learning autonomy suggests an openness to integrating mobile technologies into their language learning journey. Research also indicates that students find MALL approaches engaging and motivating. Many students reported that mobile applications and activities motivated them to study the language, even without the presence of a teacher (Solodka et al., 2022).

Although teachers are willing to adopt m-Learning (Adewumi et al., 2023), they still express some hesitation about its practical implementation. They "rate themselves above average on the technology adoption stage" (Adewumi et al., 2023). This self- perception indicates confidence in their ability to integrate new technologies, which may translate to greater readiness for MALL implementation.

1.6.2.3 Digital literacy

Digital literacy refers to the ability to confidently, critically, and effectively use digital technologies to access, evaluate, create, and communicate information

(UNESCO, 2022). It encompasses both technical and cognitive skills and is essential for navigating the increasingly digital world.

While students often possess basic technological skills, their digital literacy, particularly in relation to language learning applications, varies significantly. Hence, instructors should consider students' technology skills when creating MALL programmes, as not all students possess equal levels of readiness regarding the particular skills needed for educational mobile applications. This means that the gap in digital literacy necessitates targeted support, i.e. instructors should also train and motivate learners to use mobile-assisted language learning resources by improving their technology skills.

As for teachers, their digital literacy emerges as a significant barrier to the implementation of MALL. As Waldren (2019, pp. 11–24) directly attributes limited classroom use of mobile technologies to "teachers' lack of digital literacy and competency", this finding highlights a critical gap in teacher readiness that requires targeted support and training. The level of technological proficiency varies considerably among educators. In Adewumi et al. (2023) work, only 43.75% identified as being able to create content using technologies. This variation indicates uneven readiness across the teaching profession regarding the digital literacy required for effective MALL implementation.

1.7 MALL and Vocabulary Teaching & Learning

MALL provides innovative, engaging, and effective ways to enhance vocabulary learning among English language learners. The integration of mobile technologies not only facilitates personalised learning experiences but also promotes learner autonomy, collaboration, and motivation.

There are types in which MALL can be used for vocabulary acquisition. One study that supports this claim is done by Mijan and Hashim (2023) throughout mobile games and interactive applications. Educational mobile games provide an engaging platform for vocabulary acquisition. Studies indicate that game-based applications create an immersive learning environment that motivates students while reinforcing vocabulary retention. These games typically incorporate elements such as points, levels, and rewards to enhance student engagement with vocabulary learning tasks.

Another way suggested by the same researchers is that specialised vocabulary learning platforms, such as Quizlet and Quizizz, have been widely implemented in MALL contexts. These applications offer features such as digital flashcards, vocabulary quizzes, and interactive learning activities that support systematic vocabulary acquisition. The structured approach of these platforms enables targeted vocabulary development across various proficiency levels. Moreover, Lei et al. (2022) stated that dictionary applications constitute a significant component of MALL-based vocabulary learning. Studies have employed various dictionary applications, including the Longman Dictionary of Contemporary English and Merriam-Webster Dictionary, to facilitate vocabulary acquisition. These applications provide learners with comprehensive word information, including definitions, pronunciations, parts of speech, idioms, and collocations, enabling a deeper understanding of vocabulary items. Khalil (2023) claims that social media and messaging applications enable students to exchange vocabulary-related information, complete tasks collaboratively, and provide peer feedback. The social interaction facilitated through applications such as WhatsApp and others enhance vocabulary learning through authentic communication contexts.

The implementation and effectiveness of MALL for vocabulary acquisition are supported by several theoretical frameworks, such as Engeström's activity theory, which provides a framework for understanding how MALL facilitates vocabulary learning through mediated activity. According to Lei et al. (2022), the theory emphasises how the interactions between learners, mobile tools, and the learning community contribute to vocabulary development. Within this framework, MALL creates an activity system that utilises various mediational tools, including mobile applications and community members, such as teachers and peers, to support vocabulary acquisition. Another one is self-regulated learning, which MALL promotes by enabling learners to become "meta-cognitively, motivationally, and behaviourally active participants" in their vocabulary learning process. Lei et al. (2022) argue that the flexibility and learner control provided by mobile applications facilitate the development of self-regulation skills essential for effective vocabulary acquisition. As learners develop these skills, they become more capable of managing their vocabulary learning independently. The final one is student-centred learning where MALL represents a shift from teacher-driven to student-driven learning approaches. Mobile

applications empower learners to control their learning process, learn at their own pace, and address their specific vocabulary needs without being confined to fixed class schedules and physical settings. This student-centred approach acknowledges the individual nature of vocabulary acquisition and accommodates diverse learning preferences and needs.

1.8 Conclusion

Mobile Assisted Language Learning offers significant advantages for vocabulary teaching and learning. The diverse types of mobile applications, including mobile games, vocabulary platforms, dictionary applications, and social media tools, provide multiple pathways for vocabulary acquisition. Research consistently demonstrates the effectiveness of MALL in enhancing vocabulary acquisition, fostering positive learning attitudes, improving self-regulation, and promoting collaborative learning. These benefits are supported by theoretical frameworks that emphasise mediated activity, self-regulation, and student-centred learning. As mobile technology continues to evolve, MALL presents increasingly sophisticated opportunities for vocabulary teaching and learning. By leveraging the affordances of mobile technology, educators can create more engaging, efficient, and effective vocabulary learning experiences for language learners.

This review contributes to the scholarly understanding of how MALL approaches can be leveraged to address the enduring challenge of vocabulary acquisition in EFL contexts, ultimately advancing the broader goals of language education in an increasingly digital and interconnected world.

CHAPTER TWO: RESEARCH METHODOLOGY AND DESIGN

2.1 Introduction

This investigation aims to explore the potential impact of using Mobile-assisted language learning (MALL) to enhance the vocabulary acquisition of English as a Foreign Language (EFL) learners.

This chapter is dedicated to first presenting the collected data from both students and teachers, starting with a quasi-experimental study where a pre-test and a post-test were employed, as well as a questionnaire and an interview in order to measure the attitudes of both the teachers and the learners. Then, the data will be analysed with the research methods, participants, and data collection tools mentioned.

2.2 Research Methodology

In an effort to investigate the possible impact that MALL has on the process of vocabulary acquisition of Master One (M1) EFL students, a mixed-method approach was used. The latter is defined by Tashakkori and Creswell (2007) as research in which the investigator collects and analyses data, integrates the findings, and draws inferences using both qualitative and quantitative approaches, as cited in Östlund et al. (2020). i.e., this approach involves the systematic collection and analysis of both numerical (quantitative) and narrative (qualitative) data to understand research problems and complex phenomena better.

The researcher has used a methodological approach called triangulation in the data collection process. This method is defined by Carter et al. (2014) as a comprehensive technique that involves using more than one data source, method, theoretical perspective, or investigator to develop a more complete understanding of the phenomenon under study. i.e., it facilitates the validation of data through cross-verification from multiple sources, enhancing the reliability and validity of research findings (Better Evaluation, 2022).

As an attempt to gather information regarding the attitudes and perspectives of students and teachers on the usage of MALL in education in general and vocabulary specifically, a semi-structured questionnaire was administered to the students. In contrast, a semi-structured interview took place with several teachers. Additionally, a quasi-experimental study that aims to distinguish the usage of a specific MALL application among the M1 learners of both specialities i.e., didactics, as well as literature/civilisation, were put into action from the month

of December 2024 till February 2025, using a post- and pre-test in order to monitor and track students' progress and advancement.

2.3 Participants

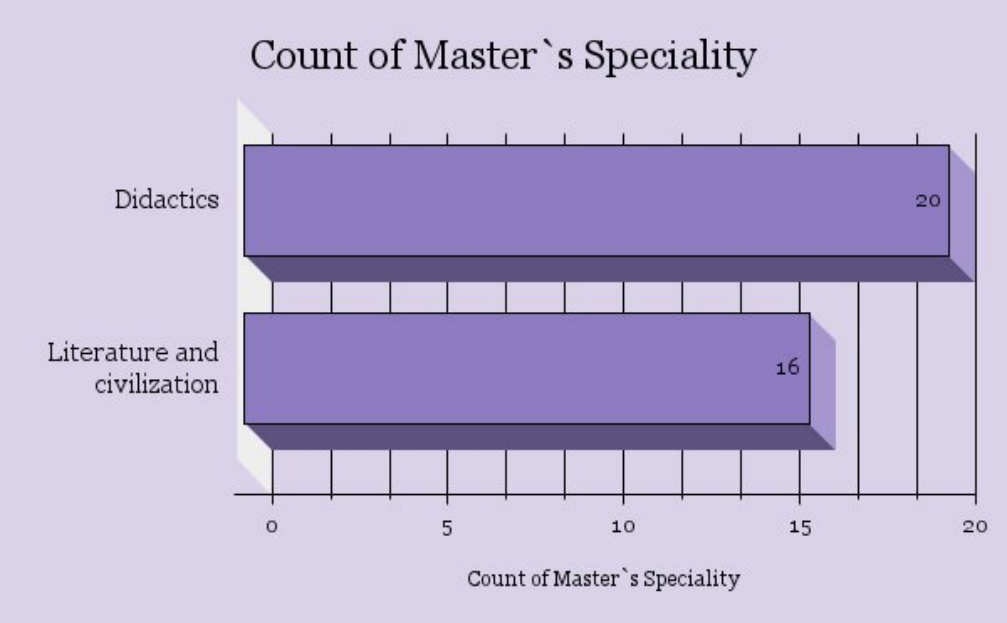
A big part of any research is the participants, who are defined by Stewart (2024) as individuals who voluntarily take part in a study by providing data or information that researchers collect and analyse. The investigator of this study randomly chose six teachers as well as M1 students of both specialties (didactics and literature/civilisation) in the Department of the English Language of Saida University, Dr. Moulay Taher, as a target population for this study.

The reasoning behind the selection of M1 students is due to the fact that they are considered to be pretty much very concerned with their studies and are very aware of the current trends in the teaching and learning domain. Because of the fact that the research went under two separate stages of data collection, the estimated number of students varies, starting with stage one, which is a quasi-experimental study where students from both specialties were randomly selected at first to do the pre-test, and then the same group did the post-test. Table 2.1 showcases the number of participants.

Table 2.1: Number of Participants in Stage One

	Did	lit/civ
Pre-test	14	11
Post-test	14	6

Furthermore, in the second stage of data collection, where students were asked to answer a questionnaire, the number of participants was 36 and their count from each speciality is portrayed by the following bar chart.



Bar Chart 2.1: The Count of Master`s Specialties

2.4 Limitations

It is well known that researchers face several limitations when it comes to carrying out their investigations, and the current study is no different and went down the same path, thus facing some limitations and constraints.

First of all, time constraints proved to be a major challenge, especially in relation to the quasi-experimental study. Although the study was initially intended to last six months, it was reduced to only two due to the time limit, which consequently affected the depth of the research, The same happened with the questionnaire and interviews being done online, as the latter was done using a video conferencing platform (google meet) and the other was done using an online forum (google forms).

Another major limitation that the researcher encountered was the level of engagement of the respondents, as learners were apathetic and not collaborative, and that affected the motivation of the investigator as well as it weakened the generalizability of the findings. For instance, the low level of incorporation of Master 1 literature and civilization led to dropping them out totally from the quasi-experimental research.

2.5 Research Instruments

Another crucial part of any study is the research tools that are used to collect, measure, and analyse data systematically and objectively. These instruments are essential for ensuring accurate and reliable data collection, which is critical for answering research questions or testing hypotheses effectively. The devices that the researcher used in this study are both qualitative tools, such as the interviews done with the teachers, and quantitative ones that were administered to students only, which are a pre- and post-test as well as a questionnaire.

2.5.1 Pre-test

A pre-test is an initial assessment administered before the implementation of an intervention or treatment in a research study (Majka, 2024). Its purpose is to establish a baseline measurement of participants' knowledge, attitudes, behaviours, or other variables under investigation. This baseline helps researchers evaluate changes or outcomes after the intervention (Budert-Waltz, 2023).

Within this study, the pre-test took place on the 9th and 10th of December 2024 as a part of a quasi-experimental study. The pre-test was a login point that would be used later on in the process of measuring and determining the level of vocabulary acquisition of the sample that is the students.

2.5.1.1 Description of the Pre-test

The pre-test administered in this study was two pages long, in which the respondents encountered a series of multiple-choice questions, designed to assess their vocabulary knowledge within the context of tourism. Which has been discussed beforehand with the presence of the researcher and the sample population, and was agreed upon as a theme for stage one of the data collecting process, that is, the experimental study. Within the same meeting, consent was given regarding the need for students to mention their names in the response sheets.

Each question of the 23 given to them presented a randomly selected word or a phrase from the pre-made list done by the researcher, and is related to the agreed-upon theme, alongside three possible definitions or descriptions of the term under questioning. Participants were clearly asked to select the option that, in their opinion and under their judgement, correctly matches the term, demonstrating their understanding of tourism-related vocabulary, using the following format: ‘Choose the right answer’

While the format of the questions was as follows:

1. **Boarding pass** means:
    a. A type of pass for entering an amusement park.
    b. A document provided by an airline during check-in, giving permission to board the plane.
    c. A voucher for free meals at restaurants.

2.5.1.2 The App Anki

ANKI is a powerful, open-source flashcard application designed to help users memorize information efficiently using the spaced repetition system (SRS). It is widely used for various learning purposes, including language acquisition, exam preparation, and skill development.

Due to the scope of the study being in the domain of Mobile-assisted Language Learning (MALL), and because of the fact that the goal for the latter was to measure how well students are with acquiring vocabulary using the app, the investigator selected the app ANKI as the best choice for stage one of data collection i.e. the quasi-experimental study. And that's because of the many features that the app provides.

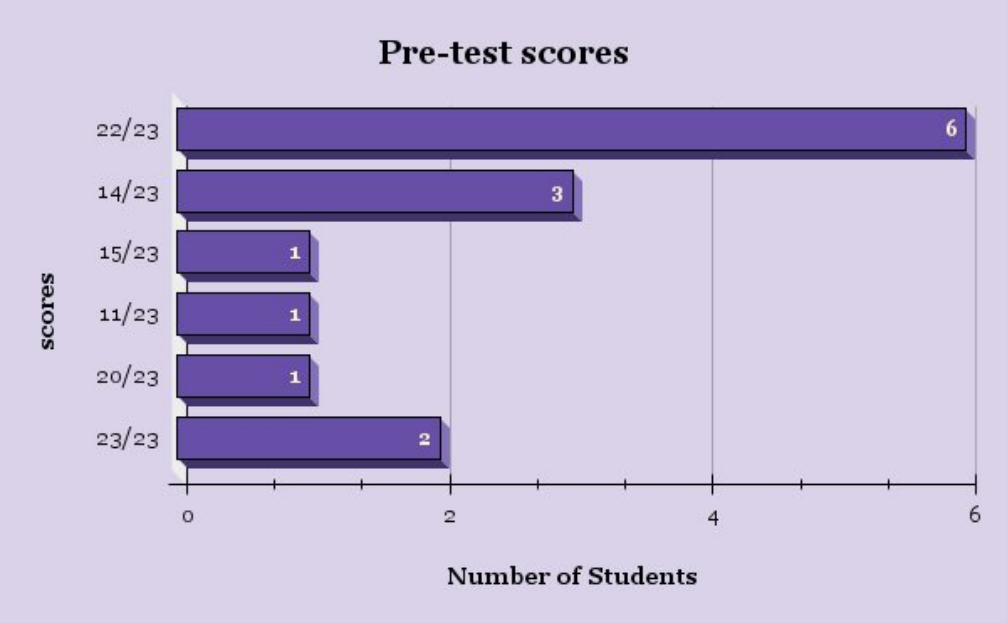
Starting off by the fact that Anki is an available open-source app that works across different platforms thus providing flexibility to the respondents as well as the investigator, another feature that was very important is the ability to customise learning as Anki enables users to create flashcards with text, images, audio, and even videos which in the case of this study was a must have feathers in the selecting process of the app.

Lastly the most significant note is the spaced repetition system (SRS) that the app is built around so that the chances for the learning to occur are high as it schedules flashcards for review at optimal intervals to ensure long-term retention, cards found difficult are shown more frequently, while easier ones are spaced out further and that is based on the rating system that the app provides for the users to rate their own learning and their recall difficulty using adjectives like "easy," "hard," etc. which first determines when the card will appear again and then help them measure their own progress by providing statistics on study performance and retention rates.

A tutorial on how to use the app properly was provided to the students as well as a presentation that explained the aim of the study alongside how to use the app and its basis.

2.5.1.3 Analysis of the Pre-test Data

In order to answer the research questions of the present study and to investigate how the usage of MALL enhances vocabulary acquisition, a pre- and a post-test were administered.

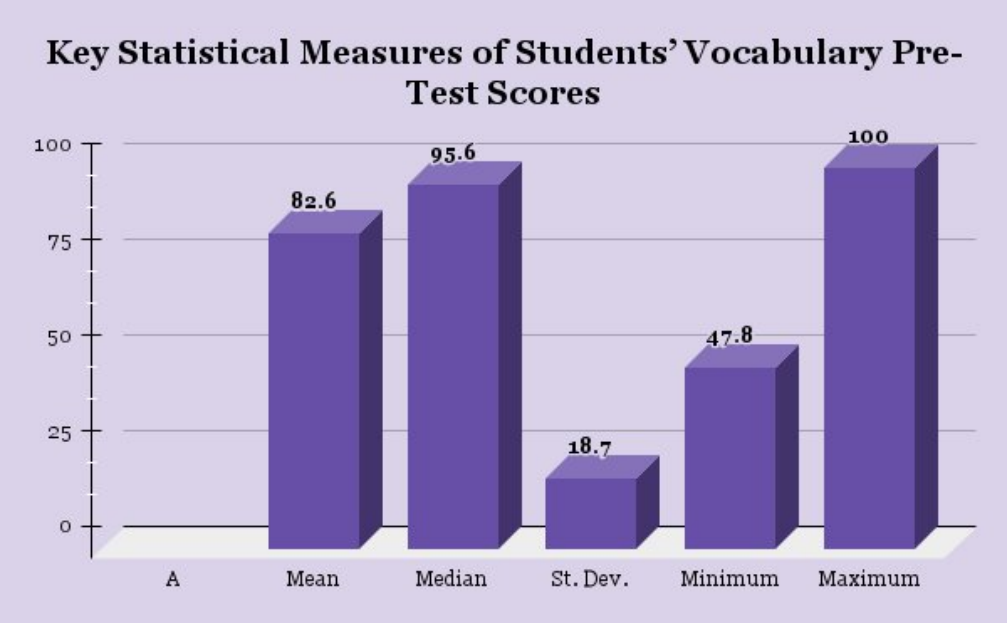


Bar Chart 2.2: Students' Pre-test Scores

Bar chart 2.2 showcases the scores of the 14 students that participated in the pre-test, six students had the mark of 22/23 which means they only had one mistake, while two had the full mark. 20/23 was obtained once only by one student, the same goes for the marks of 11/23 and 15/23 while three scored 14/23.

Table 2.2: Key Statistics of the Pre-test Data

Descriptive statistic	Pre-test %
Mean (the average)	82.608 %
Median	95.652%
Standard Deviation	18.758%
Minimum	47.826%
Maximum	100%



Column Chart 2.1: Key Statistics of Students` Vocabulary Pre-test Scores

According to Table 2.2 and column chart 2.1, the analysis of the pre-test results, conducted before the vocabulary learning intervention, shows a moderate level of performance among the participants. The mean score was 82.61%, indicating that students, on average, had a relatively good grasp of tourism-related vocabulary prior to the intervention. The median score was 95.65%, suggesting that at least half of the students performed at a high level. However, the standard deviation was 18.76%, reflecting a wide variation in scores among the group. The lowest score recorded was 47.83%, indicating that some learners had significant gaps in their vocabulary knowledge, while the highest score was a perfect 100%. These statistics suggest that while many learners had a strong starting point, there was considerable variability in vocabulary knowledge across the group.

2.5.2 Post-test

A post-test is defined by Majka (2024) as an assessment conducted after the intervention or treatment has been implemented. According to Budert-Waltz (2023) It measures the outcomes or changes in participants compared to the baseline established during the pre-test.

The role that the post-test plays in the current investigation is to check and evaluate the level of advancement and progress that the students have made regarding tourism-related vocabulary using the app ANKI. The post-test was administered on the 9th and 10th of February 2025.

2.5.2.1 Description of the Post-test

The post-test utilised in this research is the same two pages pre-test only this one the respondents will encounter a series of multiple-choice questions that are designed to measure and assess the vocabulary they have gained with the context of tourism. The arrangement of the questions was changed as well as the options that demonstrated the answers.

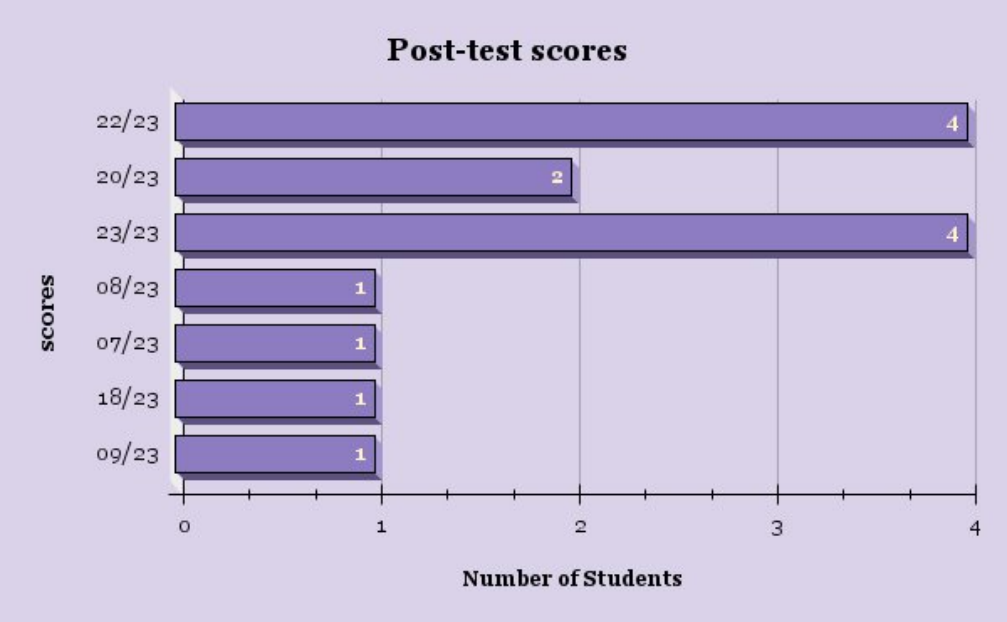
The 23 questions present a word related to the previously mentioned theme, and students are required to choose the correct answer that matches what they have already studied using the app ANKI, which will demonstrate the level of their acquisition of tourism-related vocabulary.

The format of the questions was presented as follows:

1. What is a **boarding pass?**
   a. A pass for entering amusement parks.
   b. A document from an airline allowing you to board the plane.
   c. A voucher for free meals at a restaurant.

2.5.2.2 Analysis of the Post-test Data

The post-test data is fundamental when it comes to the researcher as it helps in determining whether the quasi-experimental study initial question that this 'will students' level of vocabulary acquisition increase or decrease?' was answered or not.



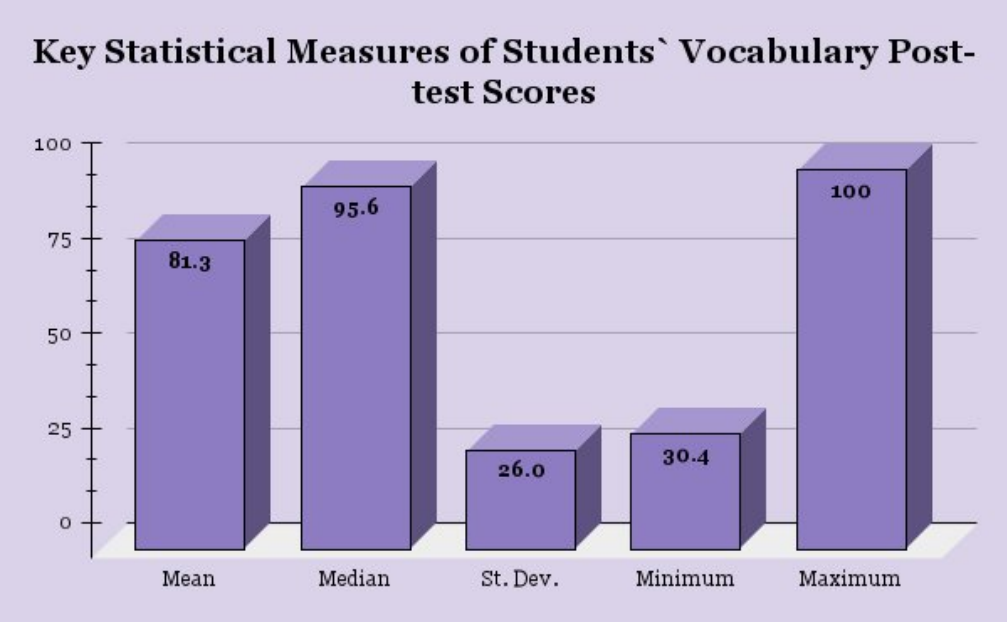
Bar Chart 2.3: Students` Post-test Scores

In bar chart 2.3 the scores of the students in the post-test are portrayed; as it can be seen, four students got the full mark, which is 23/23, the same number of students got the mark 22/22.

While two out of the 14 students who initially participated got the third best mark 20/23. In contract, each one of the remaining students got each of the following marks 07/23, 08/23, 09/23 and 18/23.

Table 2.3: Key Statistics of the Post-test Data

Descriptive Statistic	Post-test %
Mean (the average)	81.366%
Median	95.652%
Standard Deviation	26.055%
Minimum	30.434%
Maximum	100%



Column Chart 2.2: Key Statistical Measures of Students` Vocabulary Post-test Scores.

As it is shown by Table 2.3 and column chart 2.2, the post-test results, administered after the vocabulary learning intervention, reflect a slightly lower average performance compared to the pre-test. The mean score was 81.37%, suggesting that overall student performance remained relatively consistent, though with a marginal decrease in average achievement. The median score was again 95.65%, indicating that at least half of the students scored near the top range.

Notably, the standard deviation increased to 26.06%, pointing to a greater spread in the scores

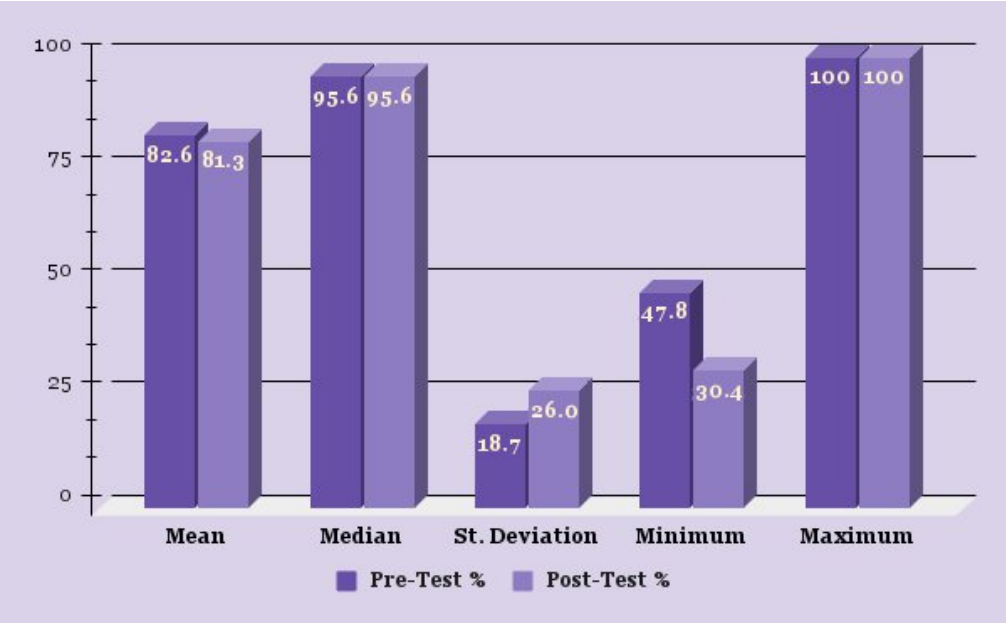
and suggesting that performance varied more widely after the intervention. The lowest score dropped to 30.43%, while the highest score remained at 100%, showing that while some students excelled, others may have struggled with the post-test content. These results highlight increased variability in student outcomes following the intervention.

2.5.3 Analysis of the Pre- and Post-test Data

A Comparison between the pre- and the post-test data of the quasi-experimental study is done under this title, as the differences between the two will be portrayed.

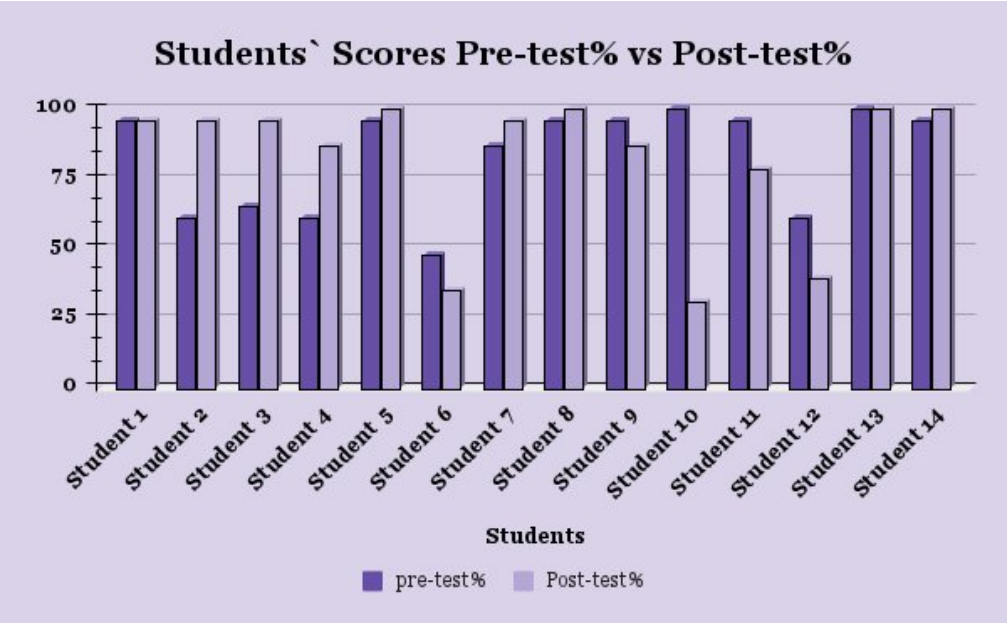
Table 2.4: Key Statistics Pre-test% vs Post-test%

Descriptive Statistic	Pre-test%	Post-test%
Mean (the average)	82.608 %	81.366%
Median	95.652%	95.652%
Standard Deviation	18.758%	26.055%
Minimum	47.826%	30.434%
Maximum	100%	100%



Column Chart 2.3: Key Statistical Measures Pre-test% vs Post-test%.

Table 2.4 and Chart 2.3 represent the difference in the key statistics between the pre- and post-test. As it can be seen, the mean score slightly decreased from 82.61% in the pre-test to 81.37% in the post-test, suggesting a minimal overall change in average performance. Interestingly, the median remained the same at 95.65% for both tests, indicating that at least half of the students continued to perform at a relatively high level. However, the standard deviation increased from 18.76% to 26.06%, highlighting greater variability in post-test scores and suggesting that some students improved while others declined. The minimum score dropped from 47.83% in the pre-test to 30.43% in the post-test, while the maximum score remained constant at 100%, showing that top-performing students maintained their high achievement. These statistics point to mixed results in student progress, with some benefiting from the learning intervention more than others.



Column Chart 2.4: Students` Scores Pre-test% vs Post-test%.

Chart 2.3 visually compares individual student performance on the pre-test and post-test, expressed as percentages. Overall, the chart reveals a mix of improvements and declines in scores following the intervention. While some students, such as Students 2, 3, and 4, show significant gains in their post-test performance, others, like Students 6, 10, 11, and 12, demonstrate declines, with Students 10 and 11 showing particularly notable drops. Several students, including Students 1, 5, 8, and 13, maintained consistently high performance across both tests. The data reflect individual variability in how students responded to the vocabulary instruction, indicating that while the intervention was effective for some learners, it may not have been equally beneficial for all.

2.5.4 Questionnaire

Bhat (2024) describes the questionnaire as a research instrument consisting of a set of questions or prompts designed to collect information from respondents. It can include both open-ended questions (allowing respondents to elaborate) and closed-ended questions (providing structured responses). It can be structured where it consists of predefined, closed-ended questions with fixed response options (e.g., multiple-choice, yes/no, Likert scales). It is designed to collect standardized data that can be easily quantified and compared. Or semi-structured that includes both closed-ended and open-ended questions, allowing for a mix of quantitative and qualitative data collection. It provides some structure but also flexibility for respondents to elaborate on their answers. And finally, unstructured that consists entirely of open-ended questions, allowing respondents complete freedom to express their thoughts without constraints.

2.5.4.1 Description of the Questionnaire

The present research used the tool questionnaire as a part of the second stage of the data collection process, where the primary focus was to gain data regarding the attitudes of the students about the usage of MALL for vocabulary acquisition.

The questionnaire implemented in this project was a semi-structured one done via an online forum (google forms) and had three major sections in which the participants were asked to read each statement carefully and indicate the extent to which they agreed with the mentioned statements by marking the appropriate number.

The type of questions used in this questionnaire were a mixture of multiple-choice questions as well as Likert scales and open-ended questions.

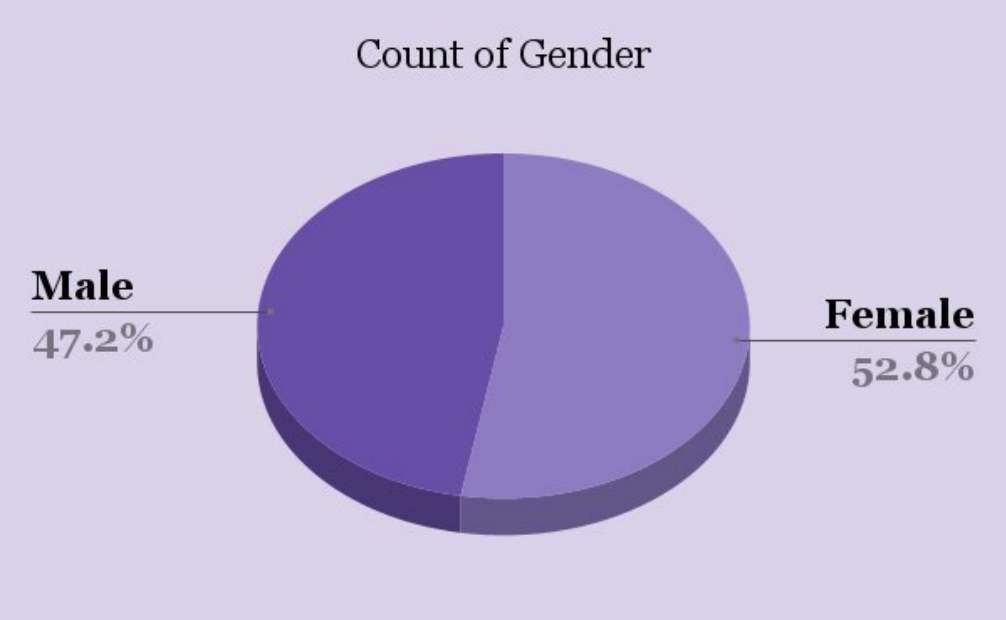
2.5.4.2 Analysis of the Questionnaire

The proper analysis of the data plays a crucial role in any study as it sats the corner stone for the process of reporting the findings, drawing conclusions and generating responses for the research questions as well as to test the correctness of the hypotheses.

Section One: General Information

Within this section, the researcher asked the 36 respondents to answer a set of three questions regarding their gender, master`s speciality, and how often they use mobile applications for learning purposes, in this specific order.

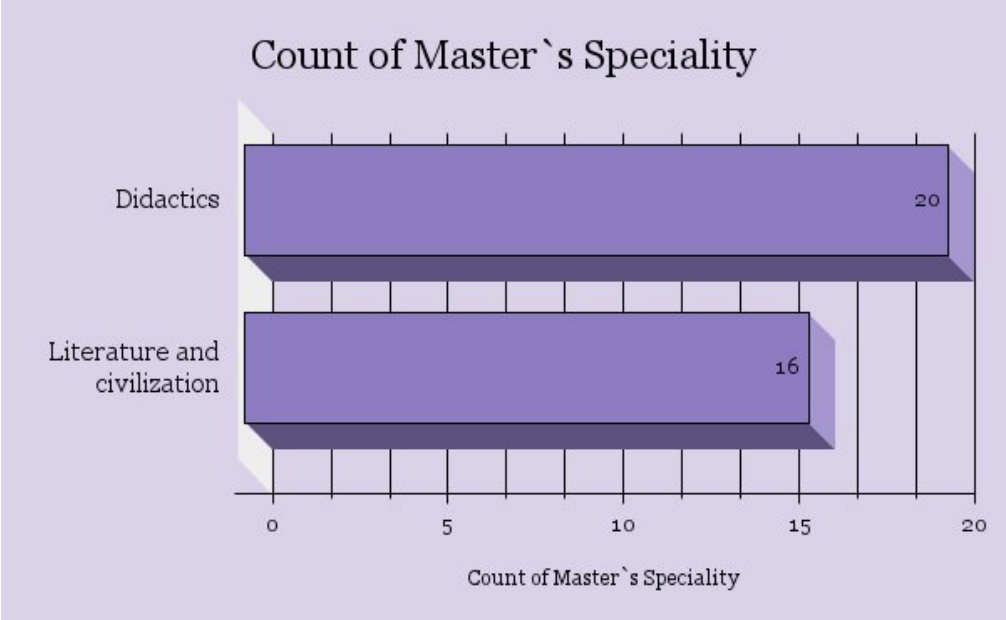
Q1: To which gender do you belong?



Pie chart 2.1: Students' Gender.

The present pie-chart demonstrates the answer for the question that aimed to know if gender has an effect on using mobile devices. 52.8% of the total population are females that is to say 19 respondents out of the 36, whereas 17 students chose male as an option, resulting in it being 47.2% out of the total.

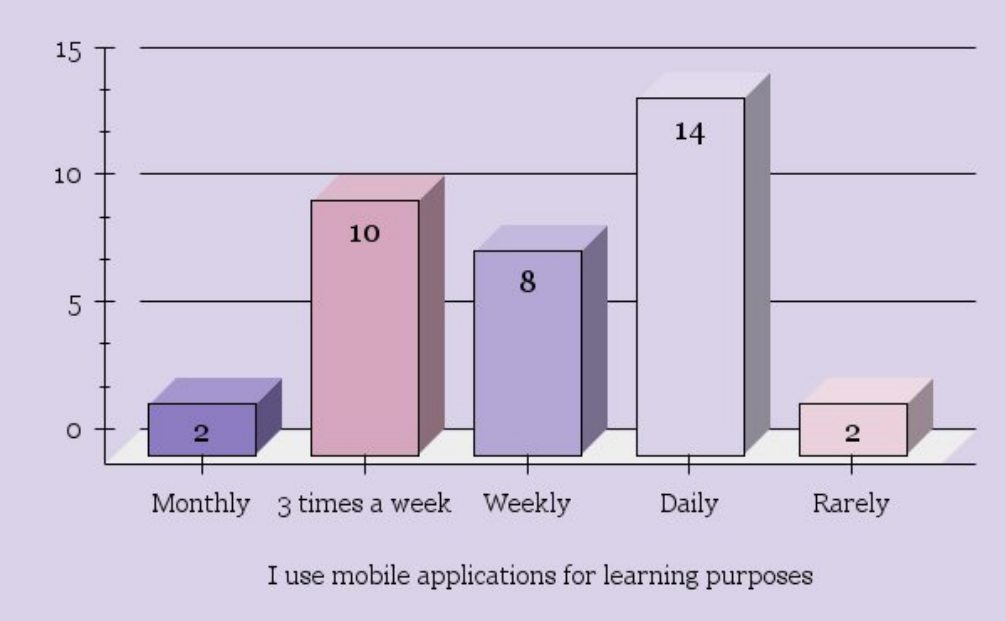
Q2: Please specify your master`s specialty.



Bar Chart 2.1: The Count of Master`s Specialty.

According to bar chart 2.1, 16 students from Literature and Civilization participated in the questionnaire, whereas 20 from the specialty of Didactics answered the questionnaire.

Q3: How often do you use mobile applications for learning purposes?



Column chart 2.5: Frequency of Mobile Application Use for Learning Purposes.

This column chart demonstrates how frequently respondents use mobile applications for learning purposes. The majority of students who count to be 14 stated that they use their phones for the purpose of learning daily, followed by 10 others who claimed they use it three times a

week and 8 respondents selected weekly as their choice. In contrast, only a small number use them monthly or rarely 2 respondents each, indicating a general preference for regular mobile learning engagement.

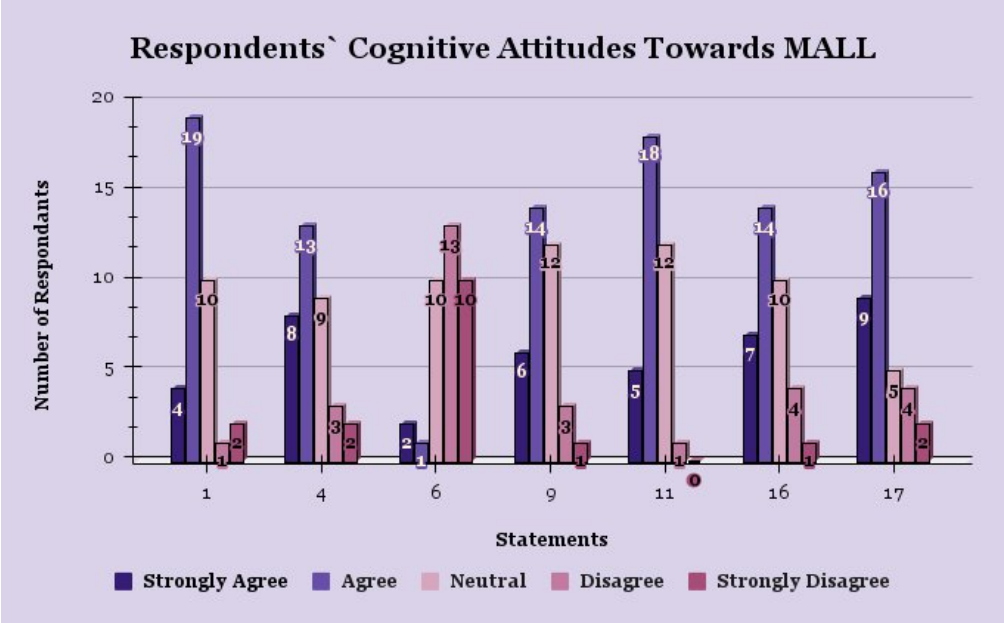
Section Two: Attitudes Towards MALL

In this section, students went through a series of 20 statements rated on a Likert scale (from Strongly Disagree to Strongly Agree) that evaluate how effective, enjoyable, motivating, and beneficial they find mobile applications in their language learning experience. The statements under questioning are divided into three sub-attitudinal themes which are cognitive attitudes that has seven statements, and it reflect beliefs about the usefulness and effectiveness of MALL, then behavioural attitude with also seven statements reflecting actions, preferences, and intentions, and finally effective attitudes with six statements that reflects feelings, emotions, and motivation toward MALL. The following table showcases the statements.

Table 2.5: Sub-attitudinal statements.

Cognitive Statements	
Statement 1	Learning vocabulary with mobile applications is practical.
Statement 4	I find it easier to remember vocabulary learned through mobile apps than through traditional methods.
Statement 6	Using mobile apps for learning vocabulary is a waste of time.
Statement 9	I believe that MALL has improved my vocabulary acquisition skills.
Statement 11	Mobile applications help me learn vocabulary faster.
Statement 16	Mobile applications provide an efficient way to track my vocabulary progress.
Statement 17	The vocabulary I learn through mobile applications is applicable in real life. Life situations.
Behavioural Statements	
Statement 7	I would recommend mobile-assisted language learning to other students.
Statement 8	Mobile applications should be integrated into language learning courses.
Statement 10	I would rather use traditional learning methods than mobile applications.
Statement 14	I prefer using mobile applications over textbooks for vocabulary learning.

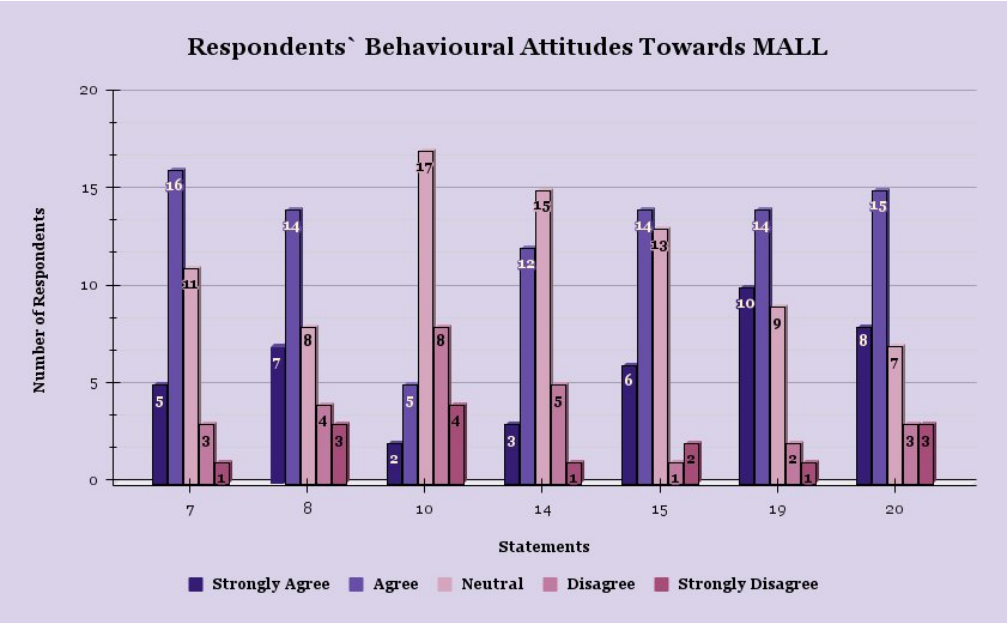
Statement 15	I actively use mobile applications to expand my vocabulary.
Statement 19	I will continue using mobile applications for vocabulary learning in the future.
Statement 20	If I had the opportunity, I would invest in premium language learning apps.
Affective Statements	
Statement 2	I enjoy using mobile applications to learn new words.
Statement 3	Mobile applications make language learning more engaging.
Statement 5	I feel motivated to study vocabulary when using mobile applications.
Statement 12	I feel frustrated when learning with mobile applications.
Statement 13	Mobile applications allow me to practice vocabulary in a fun way.
Statement 18	I feel more confident using the new vocabulary learned through mobile apps.



Column chart 2.6: Respondents` Cognitive Attitudes Towards MALL

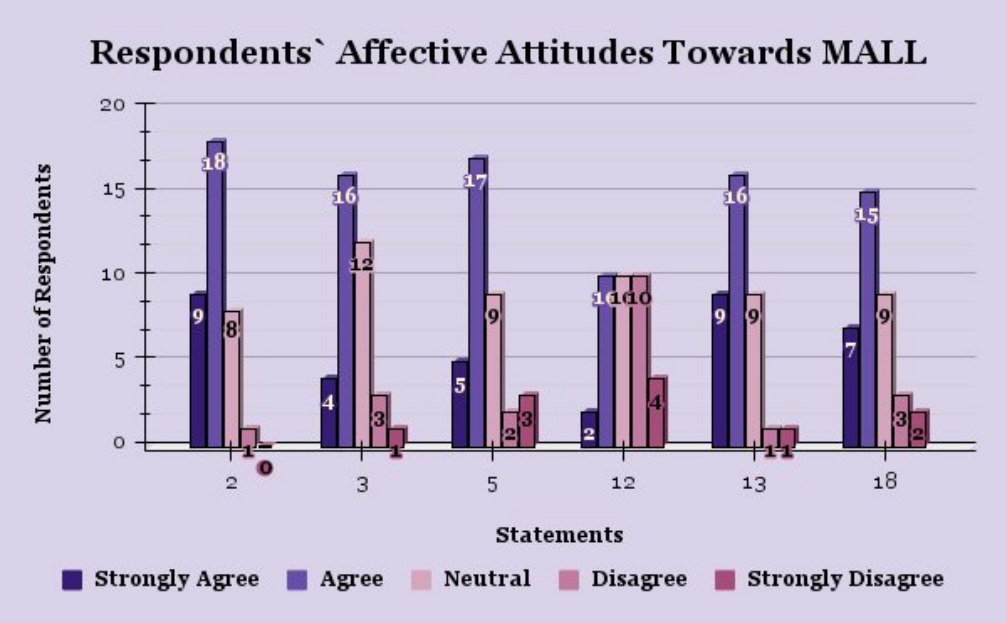
Chart 2.6 illustrates respondents' cognitive attitudes toward Mobile-Assisted Language Learning (MALL) based on their responses to seven Likert-scale statements. Overall, the data reflect a strong positive perception of MALL in terms of its perceived usefulness and cognitive value. Statements 1, 11, and 17, in particular, received high levels of agreement, with the majority of participants selecting either “Agree” or “Strongly Agree.” For instance, Statement 1 saw 19 respondents agree and 4 strongly agree, indicating a shared belief in the effectiveness

of MALL. Conversely, Statements 6 and 9 showed a more varied distribution of responses, with a noticeable presence of neutral and negative views, suggesting that while the general attitude is favourable, there are specific areas where learners may have reservations. Nonetheless, the overall frequency of "Disagree" and "Strongly Disagree" responses remains low across all statements, reinforcing the conclusion that respondents generally acknowledge the cognitive benefits of incorporating mobile technology into language learning.



Column chart 2.7: Respondents` Behavioural Attitudes Toward MALL

Chart 2.7 displays respondents' behavioural attitudes toward MALL, indicating a predominantly positive engagement with mobile learning practices. Most participants either agreed or strongly agreed with statements reflecting behavioural actions like using mobile devices regularly for vocabulary learning, practicing language skills, and incorporating MALL into their routine. This suggests that MALL tools are not only accepted but actively utilized. However, the relatively high neutral response in statement 10 reveals some uncertainty or inconsistency in specific behavioural aspects, possibly pointing to practical limitations such as time management, access to quality apps, or varying levels of digital literacy. Overall, the chart underscores that learners are behaviourally inclined to adopt MALL in their language learning journey.



Column chart 2.8: Respondents` Affective Attitudes Toward MALL

Chart 2.8 highlights the respondents' affective attitudes toward MALL, demonstrating generally positive emotional responses. Most participants expressed enjoyment, motivation, and comfort with using mobile technologies in language learning, as shown by high levels of agreement in statements 2, 3, 5, 13, and 18. These affective responses indicate that learners are not only intellectually and behaviourally invested in MALL but also emotionally engaged and enthusiastic. However, the mixed results in statement 12 suggest a level of emotional ambiguity or discomfort associated with a specific aspect of MALL use, potentially linked to dependency, distraction, or stress, which should be explored further. Overall, these findings affirm that MALL tools are effectively well-received, enhancing learner engagement and satisfaction.

Table 2.6: Sub-attitudinal Domains Scores.

Sub-attitudinal Domain	The Mean	The Standard Deviation
Cognitive Attitude	2.35	1.12
Behavioural Attitude	2.53	1.08
Affective Attitude	2.47	1.07

The lowest mean score of the cognitive attitude among the domains implies the strongest endorsement comes from the cognitive angle, respondents believe in the value and effectiveness of MALL. However, the higher standard deviation shows that while many participants see clear cognitive benefits, others remain more cautious or unconvinced. While the behavioural attitude

score suggests that participants are behaviourally inclined to adopt or continue using MALL. Slightly more variation was observed here, possibly reflecting differences in motivation or accessibility. Nevertheless, the overall response trend is positive, indicating a willingness to take action in favour of MALL. And finally, the affective attitude score indicates that respondents tend to agree emotionally with the use of MALL. The relatively low standard deviation suggests that emotional attitudes were fairly consistent among the group. This reflects a general sense of emotional comfort and enjoyment with mobile-assisted learning.

Section Three: Experience With Specific Applications

Within this section, the students were faced with four questions mainly targeting which apps are most popular or effective among them as well as how learners interact with the app ANKI as participants were asked whether they have used it, how they would rate their experience, and were given the opportunity to provide open-ended comments about its effectiveness or usability.

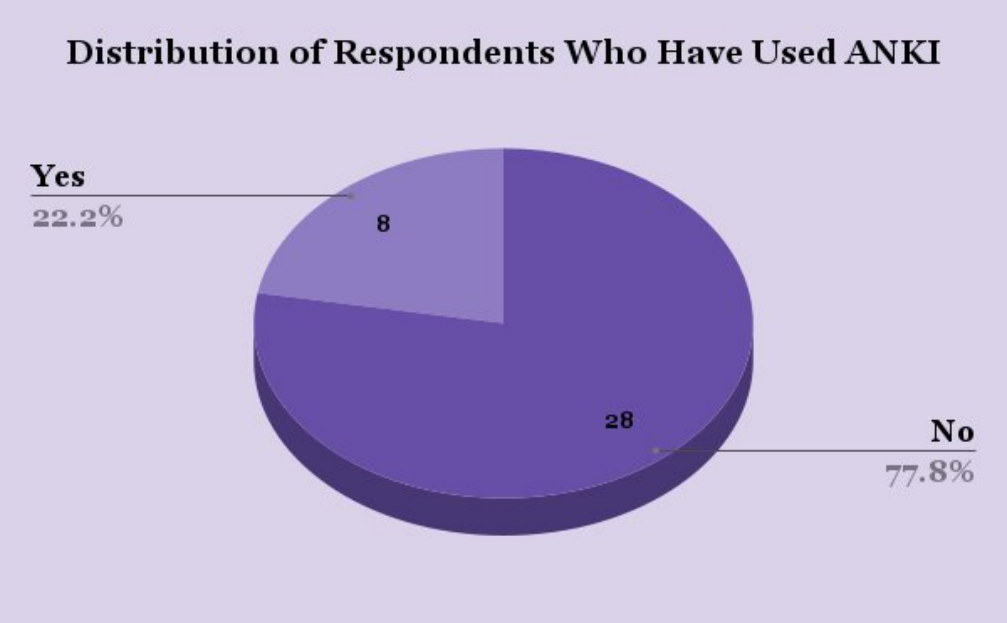
Q1: Which mobile applications do you use for vocabulary acquisition?

Table 2.7: Overview of Mobile App Preferences for Vocabulary Learning

Application Name	Number of Usars	Percentage %
Duolingo	27	75%
Speak & Learn English: Learna	8	22.2%
Cake - Learn English & Korean	6	16.7%
Lingutown - Learn Languages	3	8.3%

As Table 2.3 illustrates, the majority of students that is estimated to be 27, picked the app Duolingo as their go-to most commonly used application, with a percentage of 75%, followed by Speak & Learn English with a percentage of 22.2%, and only 6 respondents chose Cake where even fewer chose Lingutown. 3 other students suggested their applications like Memrise, Hilokal, and EzyUse, while three others stated that they use either YouTube, or learn via browsing, and/or from social media.

Q2: Have You Used the App ANKI?



Pie chart 2.2: Distribution of Respondents Who Have Used ANKI.

According to pie-chart 2.2, only 22.2% resulting in 8 respondents out of the 36 have been part of the quasi-experimental study thus have used the app ANKI, while the vast majority did not use the app, and that is concluded from their choice of the option No as an answer.

Q3: If yes, how would you rate your experience? (1 is bad, 2 is somehow bad, 3 is fine, 4 is good, and 5 is excellent)?

When asked to rate the app, the eight respondents who did use the app and were part of the experimental study rated range from 4 to 5 stars, as three out of the 8 rated their experience as excellent, while the remaining five rated it with 4 stars. i.e. good.

Q4: Do you have any comments regarding the app Anki?

Under this question, all 8 respondents agreed upon the fact that their app is good and helpful, as one of them wrote *'it is a good app, it helped me a lot'* while another claimed that *'it is a good and effective app, the method of learning is very amusing'*. Two out of the eight students made a remark regarding the setup of the app as one described it saying *'unique concept but a little bit difficult to setup still amazing once that is sorted out'* and another explained *'it is a good app, but I have a problem of how to open it'*.

2.5.5 Interview

An interview is according to Hamill (2014) a qualitative research method involving a structured or semi-structured conversation between an interviewer and interviewee to elicit detailed information. It can be conducted face-to-face, over the phone, or online. Interviews allow researchers to probe deeper into responses, uncover meanings, and explore themes in participants' experiences, perspectives and attitudes.

2.5.5.1 Description of the Interview

In this study, the interview was used as the last tool in the second phase of the data collection process. With the purpose of gathering data regarding English language teachers' perspectives on Mobile-Assisted Language Learning (MALL), with a particular focus on its role in vocabulary acquisition. The questions aim to explore teachers' cognitive, affective, and behavioural attitudes toward integrating mobile devices and applications into language instruction.

The semi-structured interview with the six teachers begins by assessing their familiarity with MALL and their overall opinion on using mobile tools for educational purposes. It then delves into how they perceive MALL's role in vocabulary development, how they feel emotionally about incorporating it into teaching, and how they have practically applied or plan to apply MALL in their classrooms.

Further questions address the effectiveness of MALL, challenges and limitations faced, as well as the support or training teachers might need. The final questions explore the feasibility of implementing MALL in Algerian EFL classrooms and whether teachers would recommend its broader inclusion in EFL curricula.

2.5.5.2 Analysis of the Interview Data

A thematic analysis took place regarding the six interviews conducted with the teachers from the Department of the English Language at Saida University, Dr. Molay Taher. The approach used to identify the themes is called a deductive one, where the codebook approach was utilized. The latter means analysing interview transcripts using predefined codes based on existing theories, frameworks, or research questions. In this case, based on the research

questions, the themes defined by this thematic analysis are seven, starting off with familiarity and understanding of MALL.

Q1: Are you familiar with Mobile-Assisted Language Learning (MALL)? If so, how would you describe it in your own words?

Five out of the six teachers seem to be familiar with the term MALL and do understand it from several point of views as interviewee 2 stated when asked about MALL *'I am familiar with the term as far as I am concerned as a teacher of English at university level',* while interviewee 6 said that s/he are familiar with the term because '*I already wrote an article regarding MALL'*. In contrast, interviewee 3 was the only one who was not familiar with the term as they stated, *'to be honest this is the first time am hearing it*'. Yet all the teachers were able to describe and define the term using their own words.

Q2: What is your overall opinion on using mobile devices and applications for language Learning?

Under this question the opinions of the teachers split in half as three out of the six teachers held a positive attitude towards the usage of MALL. interviewee 1 reported *'I think it is the most logical and the most accessible tool out there',* on the same line interviewee 2 stated *'as long as they serve something positive, I think there is no harm in using those tools',* and interviewee 6 claimed that *' as teachers if we resist this change then we will going to lose'.*

On the other hand, the remaining three teachers held somewhat neutral standpoints, as interviewee three explained that MALL *'can be a double edge sword'* then s/he carried out and explained that in a classroom context, *'I do not like when students use their phones a lot'*. While interviewee four and five came to the same conclusion about the usage of MALL, as interviewee four commented *'technology always offers a plus to learners... the rapidness and readiness of this device is giving students the opportunity to do fast learning... it is a good tool but at the same time it will erase the creativity of the learner',* interviewee five shared the same point of view stating *' this kind of tools has become an important tool, however, I think they are gathering and most importantly they are taking part out of our ability to think, concentrate, and create'.*

The second theme that this interview questions is the attitudes of the teachers toward MALL, starting off with the cognitive attitude that had two questions, a main one and a follow-up.

Q3: How do you perceive the role of Mobile-Assisted Language Learning (MALL) in language acquisition, particularly in vocabulary development?

Under this question, again the attitudes of the teachers split up, four teachers perceive the role of MALL positively as interviewee 1 stated '*once again, it is a very good tool. It is effective as long as we know how to use it... it is a very effective tool that we failed so far to harness its full potential'*, while interviewee 2 explained that the role of MALL *'depends on the very particular student, on how the student is... if students are fully autonomous at that time... because not everything is fine, not everything is relevant... yes it helps but we cannot generalize'.* Interviewee 5 revealed that s/he has used and is still using certain mobile apps in their daily life as well as a part of their teaching practice, additionally interviewee 6 reported that *'for vocabulary acquisition, I used it with my students... but some teachers do not know where they need to use the mobile as an assistance'.*

Whereas the perception of rest two teachers was neutral to somehow resistant regarding the role of MALL in vocabulary acquisition as interviewee 3 expressed *'to be honest, I am not against it... however, my one and only condition is that I have to set my mindset appropriately on what concerns the use of MALL.',* following the same path, interviewee 4 announced that *' I think it is not the primary means to rely on in order to learn vocabulary'.*

Follow-up question: Can you share any specific examples or experiences that shaped your perception?

Interviewee 1 stated that the reason behind his/her positive perspective was *'it is just the ease of use, the accessibility, the fact that it is used by everyone.',* besides that interviewee 2 added *'smartphones are kind of a safety belt for students... they use it fully to a full extent... however the only negative thing that I did not like is that when they use the AI generators and get the work done from A to Z, this is the only negative point.'*. interviewee 6 shared his/her experience and reported back the results of it saying *'when I started integrating technology in*

the classroom that somehow boosted the learning experience... the outcomes were significant. The students are always motivated'.

Then the affective attitude that also had a central question and its follow-up.

Q4: How do you feel about incorporating MALL into language teaching? Would you say you are enthusiastic, indifferent, or hesitant about it?

Similar to the previous question, there was a split in the teachers' feelings about incorporating MALL into language teaching, half of them were enthusiastic as interviewee 1 explained *'I think it is underused, it must be used more, we should be more clever, more proactive, and more systematic in the way we incorporate the use of mobile phones in the day-to-day activities and tasks that we do with our learners inside and outside the classrooms... It is cost effective because students already have mobile phones',* alongside this interviewee 2 declared that s/he is fully enthusiastic but *'as long as they do not use AI generators in a negative way',* while interviewee 6 tackled a different point of view *'I am very enthusiastic but we need to assess the different types of modules and whether they have the ability to use MALL in class... there are some modules that are MALL-free like civilisation'.*

The remaining half held a mixture of careful and hesitant feelings, as interviewee 3 noted *'I do not encourage the use of mobile phones as other teachers do'* and that is due to '*sometimes I do not trust my own students... they use it for their own interest... trying to connect over social media... they are easily driven out by any chance given to them and that is why I am careful... I allow the use of MALL but with very specific access and very specific conditions.',* interviewee 4 was hesitant in implementing it in vocabulary as s/he explained *'I think MALL should be implemented in a separate basic skill which is advanced reading.',* and finally interviewee 5 stated that s/he was very enthusiastic but only a year ago their opinion changed which is because *' with the rise of AI and its integration with everything nowadays it feels like a burden... I feel like I am not speaking to a student but to a tool and that is kind of disappointing, there is no relationship between students and teachers.'.*

Follow-up question: What specific aspects of MALL influence your feelings toward it?

Regarding this question interviewee 1 stated *'if we want to incorporate educational technologies into our educational system, we should start with the things that we already have and almost every student and teacher have a mobile phone... so instead of trying to incorporate*

computer educational technologies, the phones are our way to incorporate it without breaking the bank.', while interviewee 2 said that what makes them believe in the utility and efficiency of MALL is *'number one when you see students who are usually not engaged in learning activities and then when you allow them using their mobile phones... then they start to become engaged in what you asked them to do... number two is when you see the result, you see your learners have done something good through the use of their smart phones or tablets.'* and interviewee 6 said that students autonomy is one of the reasons behind his/her feeling.

On the other line, interviewee 3 shared that his/her somehow hesitant reaction is caused and due purely by students *'plus there is one thing that MALL cannot provide and it can never provide, which is the context and that is the most important thing in getting the vocabulary.'* interviewee 4 claimed that their hesitant feeling is a result of the phenomena of *'erasing the creativity of the students... it is sad when you see someone not even bothering themselves to think.'* and interviewee 5 said that AI is the sole reason behind that feeling.

Lastly is the behavioural attitude that followed the same structure with two questions a main and a follow-up.

Q5: In what ways have you integrated, or would you consider integrating, MALL into your teaching practices?

Four teachers stated that they did integrate MALL in their teaching, as interviewee 1 shared *'so far, I used it number of ways, the first one is to share documents with my learners... I tried it a couple of times but the learners, they need some training, there is some websites that allow you to make polls in order to check understanding, so I use it a lot of times when I was teaching at the amphitheatre.',* on the same line interviewee 2 revealed that they would integrate MALL in *'skills development, developing the reading, the writing skill even in specific subject matters like linguistics and educational psychology, we have plenty of application and students are really well versed into the applications world',* interviewee 3 said that *'first sometimes during the course when I am explaining I say any given word... the effective method is to tell them, check it out, use dictionary, second is I provide sometimes some practices especially in translation course... and of course sometimes I encourage the use of some apps outside the classroom... anything except AI.',* interviewee 6 sated that s/he has integrated MALL in oral expression activities like puzzle building and role plays.

The remaining two teachers did not integrate it, yet interviewee 5 announced since they teach literature *'I would love if I find something that is a MALL tool that may help me bring*

better clarifications for the things that I want to clarify to my students. Also, it's beautiful that these kinds of tools, they can bring images, they can bring a history in front of them via mobile... However, what I'm against is that they just replace this relationship and this kind of interaction between the teacher and the student'.

Follow-up question: What factors would encourage or discourage you from using it more frequently?

In this regard interviewee 1 communicated that the factors that would discourage him/her are *'first factor is learners ability to learn how to use the apps and the websites that I need them to use, because the class time is so limited I cannot spend that much time on training them... second factor is learners access to the internet... the third factor is the high number of the learners... phones are good but they can also be distracting because once the learners are connected to the internet they start getting all sort of notifications from all types of social media, the forth inconvenient is the use of mobile phones for cheating.',* while interviewee 2 mentioned that the factors that discourage him/her into using MALL is *'when you see some students divert from the vary objective of using mobile phones at that time you start rethinking and reconsidering the use.'*

Interviewee 3 proclaimed that the factors that discourage him/her are mainly personal *'simply because my students are not aware enough on the exact or the appropriate use of it... I prefer to go old school... outside I cannot control it but, in my classroom, I am somehow carful.',* interviewee 4 stated that they do not integrate it because it erases the creativity and students get distracted easily. While interviewee 5 said that the factors that encourage them into using it are *'their portability, they can be personalised, they can help learners to interact with each other, also learners have access to authentic material'.* Interviewee 6 mentioned a different point of view which is teachers and what they should do in order to have a pleasant learning atmosphere.

The third theme is the perceived effectiveness of MALL that was tackled in one question.

Q6: In your opinion, how effective is MALL for vocabulary acquisition? What specific benefits have you observed, or do you anticipate?

Interviewee 1 said that '*it is so effective especially in the comprehensible input phase. Like learners can be exposed to large amounts of comprehensible inputs either through videos like YouTube, or through audio like podcasts or even reading, Though I don't really advise*

reading on mobile phone device or computer. And for the output phase, they can also be used if we put the learners in an environment where they have to communicate with someone, express a certain message, relying on certain vocabulary that they learned. But like if we want to be realistic about it, the input phase is the Most powerful aspect of MALL right now.' interviewee 2 said in this point '*I'm not really well versed into the names of applications, but students are. If we have applications that are, as I said, relevant, reliable, I think they would fully help learners. But still, we need the traditional and the classical way of doing things. Mobile or smartphones alone are not really enough. They cannot suffice. We have to invite our learners to read as much as they can.'*

interviewee 3 declared '*Well, on my own perspective, I think that it is very, very effective. But it is only effective if it is used in the perfect or in the appropriate manner. So, for instance, there are some online and offline dictionaries that we can find on our mobiles, they provide not only a definition, but a historical terminology.'* interviewee 4 explained their point of view saying students just look for a means to answer the question but what really should be done is *'the teacher can accommodate the learning and make it like a game in order to use MALL because students like entertainment',*

while interviewee 5 said that *'the use of MALL can kind of strengthen the learner's vocabulary acquisition. Because as I told you, it can remind you consciously or unconsciously... There is a kind of flexibility that had not been found in years ago. Also, there is a kind of support. The more they are using it, the better their language becomes, the stronger their vocabulary becomes... Also, it helps in the spaced repetition for vocabulary acquisition. You can improve on a long term for the retention of the vocabulary, Also, it gives you feedback, which is very useful.'* interviewee 6 stated in this regard '*it is very important. If we use MALL in class, especially for vocabulary acquisition, and I use this with etymology, whenever I teach students, I ask them to go back and see the different usages of words. Because if we know the source of the word, if we know the origin of the word, whether it is Greek or Latin, the word is going to be, like, engraved in the memory of students... So, we cannot, actually, we cannot do without MALL. You cannot do this outside classroom. If we know how to integrate MALL in class, students' vocabulary acquisition is going to be boosted significantly... smart students got smarter, and average students were smart. Like, somehow, I have noticed a huge change in students' level, especially when we use MALL'.*

The fourth theme was barriers and challenges and that was questioned using just one question.

Q7: What are the biggest challenges or limitations you have encountered (or foresee) in using MALL for vocabulary acquisition?

Interviewee 1 explained their view saying *'Finding the right app or the right website. This is the first one. The second one is for the teachers to be knowledgeable enough about educational technologies to use those websites effectively... Training the learners... And as far as the Algerian learners are concerned, is the Internet access. As teachers, whenever we want to use their mobile phones, we share our own Internet with them for them to do whatever we need them to do.'*. On the same hand interviewee 2 announced *'Honestly, I don't see any. Except the one. a very small problem with that tendency to be distracted and pretending to use mobile phones. It's a kind of a personal orientation, you see. But as long as we have smartphones, as long as we have applications that are relevant and reliable, as long as we have motivated students, as long as we have engaging content. I mean the content of the activity. I don't see problems in this story.'*

Interviewee 3 proclaimed *'there must be some human touch in order for us to get the exact meaning or to acquire the exact meaning of that vocabulary. If not, if a human being wouldn't or did not explain it well in a given way, in a certain manner, I don't think we will ever be able to acquire effectively.'* interviewee 4 shared *'laziness of the students is what disturbs me the most... the absence of collaboration between students,'* interviewee 5 said in this regard 'I *think that the most important one is the over-reliance on these kinds of tools... We are becoming dependent on the machine. It limits our understanding... Also, they create a lack of human interaction. Nowadays, we find that our, our interaction has become limited to a student, a phone, a student, a laptop... there was this kind of social interaction, this is kind of becoming very rare to see amongst students.'*

Interviewee 6 said *'For me as a teacher, I didn't have any challenges because I am used to the use. But the challenge, the only challenge is how to design a lecture that can be beneficial to students. At the same time, that can also have an effective and positive feedback... The challenge is if the teacher is not willing to create new strategies for his learners. The only challenge is that teachers are not doing efforts using technology in their classes. And also pushing students... So, the only challenge is teachers' resistance to technology. Some teachers may find it not hard, but they will not try new methods with their learners.'*.

The fifth theme was training and support needs that was investigated using one question.

Q7: What training or support do teachers need to effectively use MALL for vocabulary instruction? Have you received any training on this?

Interviewee 1 explained that '*Teacher, they need training. Yeah, they need to be provided by the right tool. When I say tools, I talk about software or applications or websites... Though I am against the idea of being provided with like we are in an age where we have access to everything. As a teacher I don't have to rely on the university to provide me with anything except like the tools themselves and the environment in which I employ those like... Internet connection for the learners, proper classroom. the right number of the learners, but as far as the software is concerned or how to use it, I think that's the responsibility of the teacher It's part of our continuous professional development... So I think it's the responsibility of the teacher as an individual and the teachers as a community to move in that regard... I personally, I try to incorporate educational technologies whenever possible. So, I do my own research. I try to stay on top of what's going on in the field.'.* main while interviewee 2 assisted '*Yes, why not? Training? It's good to have training, especially training in how to use different applications and how to invite learners or to share those applications with learners'* when asked if s/he have had training their response was *'Unfortunately, no. But I have attended a conference in 2012, some 12 years ago, 13 years ago, where the participant focused on this point of, you know, mobile assisted learning using applications, and in particular, applications revolving around the mastery of vocabulary. And it was interesting. It was really interesting.'.*

Interviewee 3 said that s/he did have training as was explained *'Me personally, I have, because it was somehow part of my PhD dissertation... it opened my eyes to the use of any technological tool in order for us to acquire or analyse any linguistic item.'* interviewee 4 said that s/he did not receive any training '*Yeah, in general. Not only for vocabulary acquisition. I think that teachers should be well-cultivated. I think that teachers should have plenty of competencies. Linguistic, cultural, grammatical... Second of all, I think that the teacher should be updated with the new methods or the new strategies, especially nowadays within this invasion of technology. We can no more rely on traditional teaching... I think that the teacher should be updated, and they should look for new methods in teaching vocabulary.'.*

Interviewee 5 stated *'I think that the better we know, the less challenging it becomes for us in any way... If we take the challenge, we become familiar with, for example, any tool that*

helps us understand to see its positives and negatives. The more, the better we know about something, the better we know how to deal with its positives and negatives.' when asked if s/he received ant training their response was *'No, not at all. I'm always trying to find my way, It's always a personal. This is why I told you that there are teachers who try their best to kind of become updated with what's new.',* interviewee 6 stated *'we need workshops, we need to establish connections... I don't know how to explain but we have this resistance to technology. Other teachers would say, I would simply teach the classical method... but I think that if we care about students, we would experiment on new strategies that are beneficial to them.'*

The sixth theme under investigation was the feasibility of MALL in the Algerian EFL context with one question.

Q9: Do you think it is doable in Algerian EFL classrooms? And why?

Interviewee 1 explained *'So doable. It is the most doable option because as I said, mobile phones are ready there, we just need to use them... We just need to have the needed software or find the needed software and employ it in the right and the most effective way.'* following the same path interviewee 2 said *'I think it's doable, yes. Because it's easy. All students have smartphones... The students are equipped with smartphones and Internet, and then we have just to ask to invite them and to let them.'*

Interviewee 3 commented *'I think it is doable. Nothing is impossible. This is a fact. But it requires a lot of effort, and it requires mainly a lot of organisation, before we apply it, although we are enthusiastic, we are really delighted to use it, we have to set the appropriate context and the appropriate atmosphere, if we may say, for it... I wouldn't say that only students are reluctant on what concerns the use of the MALL in the classroom, but also some teachers, to be honest, it has to do with the knowledge of ICTs and so on and so forth... So, you see, it is a spectrum and, it needs a collaboration between different parts in order for it to succeed.'* adding on this interviewee 4 said that the whole process depends on the motivation of the teachers and the efforts of the stakeholders and decision makers.

Interviewee 5 explained that it is difficult but still doable while interviewee 6 said *'It is very much doable... the only problem we could have is with a teacher, not the student. Because the student will follow the instructions and the objectives. if the teacher is willing to provide the students with new strategies, with a new lecture... And it is very much doable. Everything is possible now, and also most students are now equipped with smartphones. so, if the internet is*

available that I think it's very doable, incorporating MALL. A teacher used to be the source of knowledge, and nowadays he should be the source of internet.'

In the end, teachers were asked to provide recommendations and future integrations by being asked one question.

Q10: Based on your experience or knowledge, would you support a broader integration of MALL into EFL curricula? What factors influence your recommendation?

Interviewee 1 shared *'I'm in Favor... You include it as educational technique, you use it as a strategy... but I don't know if the curriculum is designed in a way that relies on a software or an application that can be installed on the mobile phone. Maybe that can be part of the curriculum.'* while interviewee 2 said '*But why go into the curriculum? Why not just within the syllabus or within the different syllabi we introduce, and we incorporate the use of mobile, smartphones. Why give the curriculum and make it official? I think it does not really need big administrative steps to incorporate something very useful and very easy to be used... I would say that we would tackle the problem of curricular design to talk about the incorporation of other subject matters like pragmatics, like semantics, like stylistics, for example, but not to talk about the incorporation of smart or mobile assisted learning. Because we can do it before going to those steps and those procedures.'.*

Interviewee 3 reported yes, they would definitely support it *'But the most important thing is that we need to find the exact formula for it. that it is not something that needs to be done randomly, but it needs careful attention, it needs a lot of effort, and it needs a lot of organization and collaboration between different members in the academic field.'*, interviewee 4 said they would support it only to a certain extent. Interviewee 5 shared that they would love to and that it would add a new dimension to the teaching/ learning experience. Finally, interviewee 6 said '*If you're talking about curriculum coming from the ministry. The ministry would never... There are seminars, blogs where teachers meet and propose new methods and techniques. But the ministry would never suggest the use of MALL in the curriculum.'*

Table 2.8: Teachers` Responses to Key Themes

Key Themes	Teachers` Responses
Familiarity with MALL	Positive
Cognitive Attitude	Mixed
Affective Attitude	Mixed
Behavioural Attitude	Mixed

Perceived Effectiveness	Positive
The Feasibility of MALL	Positive

2.6 Conclusion

This chapter outlined the methodological framework employed to investigate the role of Mobile-Assisted Language Learning (MALL) in enhancing vocabulary acquisition among EFL learners. By adopting a mixed-methods approach and integrating quantitative tools such as a pre- and post-test and a semi-structured questionnaire with qualitative interviews, the research ensures both breadth and depth in data collection.

The carefully selected participants and thoughtfully designed instruments allowed the study to address its central questions with both statistical and narrative evidence. While the results from the pre- and post-tests offered measurable insights into student progress, the questionnaire and interviews enriched the findings with nuanced perspectives from both students and teachers. Despite limitations such as time constraints and uneven student engagement, the research tools proved effective in highlighting learners' attitudes, performance, and the perceived effectiveness of MALL.

Ultimately, this comprehensive methodological design lays the foundation for a well-rounded analysis of how mobile applications can support vocabulary development in the Algerian EFL context.

CHAPTER THREE:

DATA INTERPRETATION AND DISCUSSION

3.1 Introduction

Data interpretation is yet another vital part of any conducted research as it transforms it into knowledge that others can learn from, apply, and build upon. Within this chapter, the researcher will interpret the data from the pre- and post-test. A discussion of students' perceptions of MALL and insights into teachers' attitudes, experiences, and concerns about MALL are going to be provided alongside practical suggestions for teachers, curriculum designers, institutions, and stakeholders as well as decision-makers on how MALL can be better integrated into EFL classrooms as well as possible areas for further research.

3.2 Data Interpretation

Data interpretation constitutes the phase where researchers synthesize and analyse information to answer core research questions (School, 2023). As articulated in Creswell's methodology, it requires moving beyond statistical outputs or thematic codes to explore why patterns emerge and how they relate to broader phenomena.

3.2.1 Pre and Post-Test Data Interpretation

To assess the impact of MALL on vocabulary acquisition, students completed a pre-test and post-test, which consisted of 23 multiple-choice questions focused on tourism-related vocabulary. The scores were converted into percentages for comparison.

The mean pre-test score was 82.61%, indicating that half of the participants scored near-perfect results even before the intervention. This suggests a ceiling effect, where high baseline performance left limited room for measurable improvement, while the mean post-test score was slightly lower at 81.37%. The median score remained stable at 95.65% across both tests. The standard deviation increased from 18.76% to 26.06%, indicating a wider range of scores and greater variability in post-test performance, with some students improving and others declining sharply. The minimum score decreased from 47.83% to 30.43%, while the maximum score remained at 100% for both assessments.

The persistently high median (95.65%) across both tests implies that many learners already possessed strong vocabulary knowledge, reducing the intervention's observable impact. This aligns with studies noting that high-proficiency learners may benefit less from short-term vocabulary interventions (Schmitt, 2010). These results suggest that while the overall average remained consistent, the distribution of scores widened, with some students improving and others performing lower than expected. Factors contributing to this variability may include individual learner motivation, engagement with the mobile application ANKI, or external factors such as access to technology or/and internet.

3.2.2 Questionnaire Data Interpretation

To investigate the attitudes of the students, a questionnaire was administered to 36 Master one students. The questionnaire had three sections, each catering to a different purpose and aiming to answer a different question.

Starting with section one, which was entitled general information, which shows that students are digitally active and comfortable with using smartphones regularly for educational purposes, thus making them well-positioned to benefit from MALL-based interventions as the gender balance was nearly equal (52.8% female, 47.2% male), suggesting a fairly representative sample. While the discipline distribution leaned slightly toward Didactics (20 students) versus Literature/Civilization (16), which is expected given the troubles faced with the latter specialty. And finally, the Mobile learning frequency shows high engagement as 14 students use mobile apps daily, and 10 use them three times a week, confirming that mobile device use for learning is already normalized among participants.

The second section which deals with the attitudes of the learners towards MALL and that was divided into three sub-attitudinal domains that are first the cognitive attitudes that was the most positively rated with a mean that is 2.35 and a standard deviation that is estimated 1.12, meaning learners conceptually understand and value the educational potential of MALL and overwhelmingly believe in the effectiveness of mobile applications for vocabulary learning. Second is the behavioural attitude that measures how often learners use mobile apps, whether they recommend them, and whether they plan to continue using them. The results of the mean, that is

2.53, and the standard deviation, that is 1.08, showcase that students are behaviourally inclined to adopt MALL, though they don't entirely abandon traditional resources. This suggests openness to blended learning models. The third attitude and the final one is the affective attitude that was consistently positive, with a mean of 2.47 and a standard deviation of 1.07, confirming that MALL enhances engagement and motivation, with minor emotional barriers such as app difficulty or distraction.

The experience with specific applications is the name of the third section in which the results are as the following students appreciate structured, gamified, and visual tools like Duolingo that was used by 75% of the whole population then but when exposed to more pedagogically advanced tools like Anki that was used only by 8 of 36 students (22.2%) they also report strong satisfaction as they rated it very positively (3 "excellent," 5 "good"), with comments praising its effectiveness, spaced repetition, and multimedia features. Yet, minor technical difficulties with setup were reported, suggesting a need for more onboarding support.

These findings show that students cognitively trust MALL's ability to support vocabulary learning, they use mobile apps actively and plan to continue doing so, as well as they enjoy and feel confident while engaging with MALL tools, and even though they prefer user-friendly platforms (e.g., Duolingo), still value deeper tools like Anki when guided.

These results offer strong evidence that MALL is both effective and well-received among Algerian EFL students and that minor concerns (frustration, tool setup, and over-reliance) suggest opportunities for improved app onboarding and blended integration.

3.2.3 Interviews Data Interpretation

The interviews done in this research aimed to collect data regarding the attitudes of EFL university teachers and instructors regarding MALL and its usage, as well as integration in the teaching/ learning process.

The data gathered from the interviews revealed nuanced and multifaceted perspectives among the six EFL teachers regarding the use of Mobile-Assisted Language Learning (MALL) for vocabulary acquisition. Starting with familiarity with MALL, most teachers were familiar with

MALL and able to describe its core principles, though the depth of knowledge varied. As for the cognitive attitudes, teachers recognized MALL's potential for vocabulary enhancement, especially when supported with appropriate apps and autonomy-promoting practices. Yet, some expressed reservations about over-reliance and lack of context. The affective attitudes were mixed as emotional responses to MALL were divided. Enthusiasts appreciated its engagement potential, while sceptics feared the erosion of student creativity and teacher-student relationships. When it comes to the behavioural attitudes, several teachers had already implemented MALL in classrooms, citing its effectiveness in activities like oral expression. Others indicated interest but expressed concerns over student distraction, cheating, and lack of resources.

The teachers` consensus regarding the perceived effectiveness held that MALL can be effective, especially in input-heavy tasks, if applied thoughtfully. When asked about the feasibility of MALL in Algerian Classrooms, most teachers viewed MALL as highly feasible due to widespread smartphone ownership. However, issues like internet access, institutional support, and teacher training remain barriers. And finally, teachers underscored that there are support needs as they explained that there is a need for ongoing training, collaborative learning environments, and better infrastructure (internet access, devices) to ensure success.

3.4 Data Discussion

Under this section, a general understanding of the data will be presented, in which an attempt to answer the four research questions as well as confirming the hypothesis, that would be supported with already existing literature.

The data concluded from the quasi-experimental study, supported by the qualitative feedback provided by the 22.2% of questionnaire respondents that used the app ANKI and were part of the study, as well as teachers note on MALL`s potential in vocabulary instruction and learning does only partially confirm the first hypothesis that suggests that EFL students who use MALL tools for vocabulary learning will demonstrate significantly higher retention rates.

The increased variability in the post-test scores suggests that while some learners benefited from MALL (notably Anki), others struggled. These divergent learner responses are potentially due to differences in motivation or app usage consistency. While Anki’s spaced repetition system

(SRS) is theoretically effective for retention (Nakata, 2011), the short intervention period (2 months) and low participant engagement may have diluted outcomes. This lack of significant improvement aligns with studies noting that MALL's effectiveness depends on learner engagement and app design (Kukulska-Hulme & Viberg, 2018). Furthermore, teachers' notes on MALL's potential in vocabulary development, especially when integrated thoughtfully, confirm that MALL shows potential for enhancing vocabulary acquisition, but its effectiveness varies depending on learner autonomy, instructional support, and implementation strategy. Which partially answers the question of How does the use of MALL tools impacts vocabulary acquisition among EFL learners?

Students strongly endorse MALL for vocabulary learning, which is found as a result of the questionnaire done to cater to their attitudes regarding the use of MALL in vocabulary acquisition. They reported predominantly positive attitudes across cognitive, affective, and behavioural domains, aligning with literature on gamification and learner autonomy (Stockwell & Hubbard, 2013).

The cognitive attitude that had a mean of 2.35 showcased that students strongly agreed that MALL is practical, efficient, and applicable to real-life contexts (e.g., 75% used Duolingo). While the affective attitudes, with a mean of 2.47, portrayed that most enjoyed MALL's interactivity and found it motivating. The same can be said regarding the behavioural attitudes that had a mean of 2.53, the latter resulted by 75% who used apps daily or weekly and 61% who preferred MALL over textbooks. Hence, the hypothesis that suggests that EFL learners will report predominantly positive attitudes towards using mobile devices for vocabulary learning is largely confirmed. And the second research question is openly answered. Students' positive attitudes align with studies emphasizing MALL's flexibility and engagement (Stockwell & Hubbard, 2013).

Hypothesis three suggests that EFL teachers will acknowledge the potential of MALL tools to supplement vocabulary instruction is confirmed by the six interviewees' responses to the interview questions that aimed to collect their attitudes towards MALL. Yet, their mixed perceptions reflect broader debates in MALL literature.

While they acknowledged the benefits and recognized MALL's utility for vocabulary retention and accessibility which is consistent with Burston's (2014) findings on pedagogical

challenges, concerns about superficial learning, distractions (e.g., social media), over-reliance on AI, and unequal internet access were cited as barriers, which mirror findings by Duman et al. (2015). Only 50% of teachers were enthusiastic about MALL integration, which resulted in teachers emphasizing the need for workshops and institutional support (e.g., Wi-Fi). The correlation between experience and positive attitudes underscores the importance of training (Kessler, 2018). Those mixed perceptions answer the third research question, which is What are teachers` perceptions of using MALL tools in vocab instruction?

The students' attitudes and teachers' reactions can be better grasped in relation to the Technology Acceptance Model (TAM). It is a theoretical framework developed by Fred Davis in 1989 to explain and predict how users adopt and use new technologies. It focuses on two primary factors that influence technology acceptance: perceived usefulness (PU) and perceived ease of use (PEOU).

First, is perceived usefulness (PU), which is the belief that MALL tools improve learning/teaching efficiency. Students expressed high PU as they perceived MALL as practical (e.g., 75% used Duolingo daily/weekly) and effective for vocabulary retention (e.g., Anki's spaced repetition). This is aided by how the cognitive attitude statements (e.g., "Mobile apps help me learn vocabulary faster") received strong agreement. Students linked MALL to improved autonomy and real-life applicability (e.g., "The vocabulary I learn through apps is useful in real-life situations").

While teachers had a moderate PU, they acknowledged MALL's potential (e.g., for spaced repetition) but questioned its sufficiency as a standalone tool. Some teachers stressed MALL's role in "boosting student engagement" but emphasized the need for traditional methods, as one interviewee stated, "Mobile apps alone cannot suffice".

Second is perceived ease of use (PEOU), which is defined as the belief that MALL tools are easy to use. Students, as expected had a high PEOU, as gamified apps like Duolingo were favoured for their intuitive design. Yet some also expressed low PEOU due to Anki's complexity (e.g., setup difficulty) and limited adoption (only 22.2% used it).

As for the teachers, they again had mixed PEOU; they found apps like Anki powerful but cited challenges (e.g., "Students get distracted by notifications") and technical barriers (e.g., lack of Wi-Fi). Teachers' resistance to MALL stemmed from concerns about AI dependency and institutional norms.

EFL learners will most frequently use vocabulary apps with gamified elements is the froth hypothesis that is confirmed by the high rate at which the gamified apps dominated students` preferences, aligning with research on motivation through interactivity (Godwin-Jones, 2011). Additionally, Students rated Anki highly (4–5 stars) for customization and SRS, its effectiveness for retention supports its use in structured learning (Nakata, 2011), though its complexity limited adoption. Thus, answering the fourth and final question, which mobile applications do students commonly use to learn vocabulary, and what are their experiences with them?

3.5 Implications and Recommendations

This study underscores MALL's potential as a supplementary tool for vocabulary acquisition but stresses that its success depends on addressing methodological rigor, pedagogical training, and institutional support. The following section presents different research implications and recommendations.

Firstly, the methodological implications, the mixed-methods approach (pre/post-tests, questionnaires, interviews) provided comprehensive insights but highlighted challenges in harmonizing quantitative and qualitative data. Future studies should standardize protocols for data integration. Moreover, the 2-month timeframe limited the ability to observe significant vocabulary improvements, underscoring the need for longer interventions in MALL research.

Secondly, practical implications as students favoured user-friendly, gamified apps (e.g., Duolingo) over complex tools like Anki. Developers should prioritize intuitive interfaces and tutorials to enhance adoption. Besides that, the teachers' mixed perceptions reveal a need for professional development to build confidence in MALL's pedagogical value.

Thirdly, theoretical implications, students' high perceived usefulness and ease of use of MALL tools align with TAM, but the attitude-performance gap (positive attitudes ≠ improved

scores) suggests the need to incorporate contextual factors (e.g., institutional support) into adoption frameworks. Not only that, but teachers too emphasized the irreplaceable role of human interaction in vocabulary acquisition, challenging purely technocentric approaches to language learning.

Finally, sociocultural implications as teachers' concerns about AI dependency and creativity loss, reflect broader cultural hesitations toward technology-driven education, necessitating dialogue to align MALL with local educational values.

As far as recommendations are concerned they are given to first of all educators, who are encouraged to attend workshops on MALL pedagogy and management as well as on how to effectively incorporate MALL tools (e.g., Anki, Duolingo) into curricula, alongside study days on emphasizing strategies to minimize distractions (e.g., blocking social media during lessons), likewise further suggestions are to design blended tasks that link mobile practice to class activities in order to preserve teacher-student interaction and contextual learning.

As for curriculum designers, they can embed MALL-supported units into syllabi, specifying which apps/tools and tasks to use at each stage, as well as develop scaffolded "Mobile Learning Guides" for both students and teachers. Develop guidelines for MALL integration into national EFL curricula, focusing on apps that align with the learning objectives of each year.

Finally, for policymakers, they can invest in campus-wide Wi-Fi and device-charging stations to facilitate seamless MALL implementation, form a cross-ministerial committee (Education + ICT) to negotiate educational app partnerships and zero-rating deals, and launch a national MALL-in-EFL pilot program with monitoring and evaluation metrics (e.g., vocabulary gains, engagement indices). Allocate budgets for teacher training programs and subsidize premium language-learning apps for students.

Future researchers can use the previously mentioned findings and do an experimental comparison of app type as to contrast the efficacy of different MALL apps (e.g., flashcard-based [ANKI] vs. gamified [Memrise] vs. communicative [WhatsApp vocabulary bots]). Another research can be concerned with an extension to other language skills as to move beyond vocabulary to explore MALL's effects on listening, speaking, or writing. For example, use voice-interaction apps to practice pronunciation or chatbots for writing feedback.

3.6 Conclusion

This chapter synthesized and interpreted data from pre- and post-tests, questionnaires, and interviews to evaluate the impact of Mobile-Assisted Language Learning (MALL) on vocabulary acquisition among Algerian EFL learners. Key findings revealed mixed outcomes in vocabulary performance, with increased variability in post-test results, underscoring the influence of individual engagement, app usability, and intervention duration. Despite this, students demonstrated strong positive attitudes toward MALL, valuing its practicality, flexibility, and motivational appeal. Teachers acknowledged MALL's potential but emphasized challenges such as distractions, AI dependency, and the need for contextualized learning. In conclusion, while MALL presents a promising avenue for vocabulary acquisition, its success hinges on addressing pedagogical, technical, and cultural barriers to ensure it complements rather than replaces the irreplaceable role of teacher-student engagement in language learning.

GENERAL CONCLUSION

General Conclusion

Ever since the COVID-19 pandemic hit the world, all domains have had to make changes and act according to what was happening in it, and the field of education was no different. Trying to adjust to the trends, many educational institutions all around the world adopted e-learning, which takes part either using computers or/and any handheld gadgets, and Mobile-Assisted Language Learning (MALL) was introduced. The latter is the latest trend and is a very important topic in the teaching/learning process, as its name suggests, it's how learners use phones, tablets, and other handheld gadgets to support learning languages, because it provides flexibility, accessibility, and practice with its anytime, anywhere dynamic feature.

The reason behind choosing this specific topic is based first and foremost on the researcher's observation, i.e. since nowadays the majority of students if not all are on most of the time using their phones, it is thought that it is high time we urge them to use their smart cellular in helping them to study and achieve their academic goals rather than just waste their time. Then, based on the humble experience of the researcher in teaching, it has been noticed how most learners ought to learn as much vocabulary as possible because, to them, vocabulary acquisition is seen as a very essential part of any language learning /proficiency journey and is fundamental to both comprehension and communication.

The present study aim is to investigate and explore the effectiveness of MALL for vocabulary learning, as well as how the usage of MALL can enhance the process of vocabulary acquisition, it also examines specific MALL tools/ apps and their impact on EFL (English as a Foreign Language) learners, and it gathers and analyse the attitudes of students and teachers towards MALL and its usage in both the teaching and learning phenomena. This study is significant as it addresses a growing need to integrate technology effectively into language learning, particularly in vocabulary acquisition, which is a foundational skill in EFL education. By focusing on MALL, the research aligns with current educational trends where learners increasingly rely on mobile devices for learning beyond traditional methods. Moreover, by including both student and teacher perspectives, the study provides a more holistic view of the acceptance, challenges, and educational value of MALL in real-world contexts. Ultimately, the study enriches the discourse on how mobile technologies can be leveraged not only for effective

language learning but also for fostering a positive and sustainable digital learning culture in EFL contexts.

The objectives of this study are to investigate the effectiveness of Mobile-Assisted Language Learning (MALL) in enhancing vocabulary acquisition among EFL learners and explore how mobile devices and applications can be used as practical tools for vocabulary learning inside and outside the classroom. It also seeks to examine students' attitudes towards the integration of mobile phones in vocabulary learning and to understand teachers' perspectives on the use of MALL for vocabulary instruction in EFL contexts as well as to identify which specific MALL applications or tools are perceived as most useful and engaging by learners and finally to determine whether MALL contributes to improved learner motivation, autonomy, and engagement in the vocabulary learning process.

Those objectives reflect the intention to turn a common student habit (mobile phone usage) into a meaningful educational opportunity, while also focusing on vocabulary, which is a core need for EFL learners.

In order to attain these objectives, the current study seeks to find answers to the following questions:

- How does the use of MALL tools impact vocabulary acquisition among EFL learners?
- What are students' attitudes toward using mobile devices for vocabulary learning?
- What are teachers' perceptions of using MALL tools in vocabulary instruction?
- Which mobile applications do students commonly use to learn vocabulary, and what are their experiences with them?

To answer these questions, the researcher crafted the following hypothesis

- EFL students who use MALL tools for vocabulary learning will demonstrate significantly higher retention rates.
- EFL learners will report predominantly positive attitudes towards using mobile devices for vocabulary learning.

- EFL teachers will acknowledge the potential of MALL tools to supplement vocabulary instruction.

The process of investigation used a mixed method approach and went under two stages, the first stage was a quasi-experimental study in which an intervention took place after a pre-test was administered to 14 master one didactic students, then the same group did a post-test. A questionnaire was answered by 36 master one respondents and six interviews were done with six EFL teachers.

The outline of this study consists of three chapters. The first chapter deals with previously published literature that has conducted and tackled vocabulary acquisition, MALL, and its importance, as well as teachers` and students' reactions and attitudes. Chapter two was dedicated to research design and methodology, in which a detailed report of the data collection process, as well as the analysis of the data gathered, took place. Moreover, within the third and final chapter, an interpretation of the data findings was done alongside a discussion of the findings, and a series of implications and recommendations were mentioned; the latter were addressed to students, teachers and stakeholders, and policy makers.

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APPENDIXES

STUDENT QUESTIONNAIRE ON MOBILE-ASSISTED LANGUAGE LEARNING (MALL)

This questionnaire is designed to measure your attitudes towards Mobile-Assisted Language Learning (MALL) in vocabulary acquisition. Please read each statement carefully and indicate the extent to which you agree with the following statements by marking the appropriate number.

SECTION ONE: GENERAL INFORMATION

- Gender: _____
- Master's Specialty: _____
- How often do you use mobile applications for learning purposes?
    - Daily
    - 3 times a week
    - Weekly
    - Monthly
    - Rarely

SECTION TWO: ATTITUDES TOWARD MALL

Please indicate the extent to which you agree with each statement by circling the appropriate number.

Statements	Strongly Agree (1)	Agree (2)	Neutral (3)	Disagree (4)	Strongly Disagree (5)
1. Learning vocabulary with mobile applications is effective.	1	2	3	4	5
2. I enjoy using mobile applications to learn new words.	1	2	3	4	5
3. Mobile applications make language learning more engaging.	1	2	3	4	5
4. I find it easier to remember vocabulary learned through mobile apps than through traditional methods.	1	2	3	4	5
5. I feel motivated to study vocabulary when using mobile applications.	1	2	3	4	5
6. Using mobile apps for learning vocabulary is a waste of time.	1	2	3	4	5
7. I would recommend mobile-assisted language learning to other students.	1	2	3	4	5
8. Mobile applications should be integrated into language learning	1	2	3	4	5

Statements	Strongly Agree (1)	Agree (2)	Neutral (3)	Disagree (4)	Strongly Disagree (5)
courses.					
9. I believe that MALL has improved my vocabulary acquisition skills.	1	2	3	4	5
10. I would rather use traditional learning methods than mobile applications.	1	2	3	4	5
11. Mobile applications help me learn vocabulary faster.	1	2	3	4	5
12. I feel frustrated when learning with mobile applications.	1	2	3	4	5
13. Mobile applications allow me to practice vocabulary in a fun way.	1	2	3	4	5
14. I prefer using mobile applications over textbooks for vocabulary learning.	1	2	3	4	5
15. I actively use mobile applications to expand my vocabulary.	1	2	3	4	5
16. Mobile applications provide an efficient way to track my vocabulary progress.	1	2	3	4	5
17. The vocabulary I learn through mobile applications is applicable in real-life situations.	1	2	3	4	5
18. I feel more confident using new vocabulary learned through mobile apps.	1	2	3	4	5
19. I will continue using mobile applications for vocabulary learning in the future.	1	2	3	4	5
20. If I had the opportunity, I would invest in premium language learning apps.	1	2	3	4	5

SECTION THREE: EXPERIENCE WITH SPECIFIC APPLICATIONS

1) Which mobile applications do you use for vocabulary acquisition?
    - Duolingo
    - Speak & Learn English: Learna
    - Cake - Learn English & Korean
    - Lingutown - Learn Languages
    - Others (please specify)

2) Have You Used the App ANKI?

3) If yes, how would you rate your experience? (1 is bad, 2 is somehow bad, 3 is fine, 4 is good, and 5 is excellent)?
4) Do you have any comments regarding the app Anki?

Thank you for your participation.

Teachers' interview questions:

1) Are you familiar with Mobile-Assisted Language Learning (MALL)? If so, how would you describe it in your own words?

Note to Self: If the respondent is unfamiliar with MALL, briefly explain that it refers to the use of mobile devices (such as smartphones and tablets) and applications to support language learning, particularly in areas like vocabulary acquisition, listening, and interactive practice.

2) What is your overall opinion on using mobile devices and applications for language learning?

3) Cognitive attitude: How do you perceive the role of Mobile-Assisted Language Learning (MALL) in language acquisition, particularly in vocabulary development? Follow-up: Can you share any specific examples or experiences that shaped your perception?

4) Affective Attitude: How do you feel about incorporating MALL into language teaching? Would you say you are enthusiastic, indifferent, or hesitant about it? Follow-up: What specific aspects of MALL influence your feelings toward it?

5) Behavioral Attitude: In what ways have you integrated, or would you consider integrating, MALL into your teaching practices?

Follow-up: What factors would encourage or discourage you from using it more frequently?

6) In your opinion, how effective is MALL for vocabulary acquisition? What specific benefits have you observed or do you anticipate?

7) What are the biggest challenges or limitations you have encountered (or foresee) in using MALL for vocabulary acquisition?

8) What training or support do teachers need to effectively use MALL for vocabulary instruction? Have you received any training on this?

9) Do you think it is doable in Algerian EFL classrooms? And why?

10) Based on your experience or knowledge, would you support a broader integration of MALL into EFL curricula? What factors influence your recommendation?

Pre-Test:

This test is part of a master`s thesis investigating the scope of MALL and Vocabulary acquisition. In it, participants will encounter a series of multiple-choice questions designed to assess their vocabulary knowledge within the context of tourism. Each question will present a word or phrase related to this theme, along with three possible definitions or descriptions. Participants are required to select the option that correctly matches the given term, demonstrating their understanding of tourism-related vocabulary.

A. What is your Master`s specialty?

……..

B. What is your name?

……..

C. Choose the right answer:

1) **Boarding pass** means:

a) A type of pass for entering amusement parks.

b) A document provided by an airline during check-in, giving permission to board the plane.

c) A voucher for free meals at restaurants.

2) **Room service** means:

a) A hotel service that delivers food and drinks to guests' rooms.

b) A cleaning service for hotel rooms.

c) A service for booking tours from the hotel.

3) **Travel documents** mean:

a) Official documents required for travel, such as a passport, visa, and boarding pass.

b) A list of items packed for a trip.

c) A guidebook for travellers.

4) **Security checkpoint** means:

a) A shopping area in airports.

b) An area where passengers are screened for prohibited items before boarding a plane.

c) A place to exchange currency.

5) **Visa requirements** mean:

a) Regulations and conditions for obtaining a visa to enter a specific country.

b) The steps for booking a hotel.

c) The instructions for using a travel app.

6) **Round-trip ticket** means:

a) A ticket that allows travel to a destination and back to the origin.

b) A ticket for a one-way journey.

c) A coupon for a discount on travel.

7) **Departure lounge** means:

a) An area where passengers wait before boarding their flights.

b) A place where luggage is stored.

c) A part of the plane where passengers sit.

8) **Delayed flight** means:

a) A flight that is postponed and will depart later than scheduled.

b) A flight that has been cancelled.

c) A flight with no layovers.

9) **Passport control** means:

a) An area at a border where travellers' passports and visas are checked.

b) A service to insure electronic devices.

c) A place for baggage claim.

10) **Emergency contact** means:

a) A person listed as the contact in case of an emergency.

b) A number to call for travel inquiries.

c) A list of important places to visit.

11) **Luggage carousel** means:

a) A conveyor belt system in an airport where checked luggage is delivered to passengers.

b) A place to store carry-on luggage.

c) A cart used for transporting luggage to the plane.

12) **Itinerary details** mean:

a) A detailed plan of travel, including destinations, flights, hotels, and activities.

b) A type of pass for unlimited rides.

c) A reservation for a restaurant.

13)**Frequent flyer** means:

a) A person who often travels by air and is enrolled in a frequent flyer program.

b) A service provided by hotels to deliver food and beverages to guests' rooms.

c) A document confirming a reservation.

14)**International terminal** means:

a) A section of an airport designated for flights to and from foreign countries.

b) A multi-story structure designed for parking vehicles.

c) A public transport system available for use by the general public.

15) **No-show fee** means:

a) A charge imposed for not showing up for a reservation without cancelling in advance.

b) A charge for parking a vehicle.

c) A form for listing items brought into a country.

16) **Taxi fare** means:

a) The cost of a ride in a taxi.

b) A fee for a cleaning service.

c) A fee for using a hotel's amenities.

17) **Bus terminal** means:

a) A central facility where buses arrive and depart.

b) A place to exchange money.

c) A place to buy tickets for events.

18) **Airport shuttle** means:

a) A service that transports passengers between the airport and other locations.

b) A type of high-speed train.

c) A lane for bicycles.

19) **Traffic congestion** means:

a) A situation where there is too much traffic, causing slow movement and delays.

b) A scheduled time of departure.

c) A service for planning routes.

20) **Bike lane** means:

a) A designated path or part of a road for bicycles.

b) A device for navigating using GPS.

c) A fee for cancelling a reservation.

21) **Ferry terminal** means:

a) A port where ferries load and unload passengers and vehicles.

b) A section of a highway.

c) A place to buy travel insurance.

22)**Pedestrian crossing** means:

a) A marked part of a road where pedestrians have the right to cross.

b) An intersection with a traffic signal.

c) A point where a street ends.

23)**Roadside assistance** means:

a) A service that helps drivers when their vehicle breaks down or they encounter other issues on the road.

b) A guide for local attractions.

c) A fee for using a parking garag

Post-Test:

This test is the second part of an experiment related to a master`s thesis investigating the scope of MALL and Vocabulary acquisition. In this, participants will encounter a series of multiple-choice questions designed to assess the vocabulary they have gained within the context of tourism. Each question will present a word related to the previously mentioned theme, along with three possible definitions or descriptions. Participants are required to choose the correct answer that matches the already studied term, demonstrating their acquisition of tourism-related vocabulary.

A. What is your name?

_____

B. What is your Master`s specialty?

_____

C. Choose the right answer:

1. What is a **boarding pass**?

a) A pass for entering amusement parks.

b) A document from an airline allowing you to board the plane.

c) A voucher for free meals at restaurants.

2. What does **room servic**e mean?

a) A hotel service delivering food and drinks to guests' rooms.

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3. What are **travel documents**?

a) Official documents required for travel, like a passport, visa, and boarding pass.

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THANK YOU!!!