THE EFFECT OF MOBILE ASSISTED LANGUAGE LEARNING (MALL) RELATED TO ATTITUDES OF TURKISH EFL STUDENTS

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İSTANBUL, 2020

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A THESIS SUBMITTED TO THE
GRADUATE SCHOOL OF EDUCATIONAL SCIENCES
OF
BAHÇEŞEHİR UNIVERSITY

BY

IŞIL İPEK KANAT KÜÇÜKTEZCAN

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR
THE DEGREE OF MASTER OF ARTS
IN THE DEPARTMENT OF ENGLISH LANGUAGE TEACHING

JUNE 2020

Approval of the Graduate School of Educational Sciences

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I certify that this thesis satisfies all the requirements as a thesis for the degree of Master of Arts.

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This is to certify that we have read this thesis and in our opinion it is fully adequate, in scope and quality, as a thesis for the degree of Master of Arts.

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I hereby declare that all information in this document has been obtained and presented in accordance with academic rules and ethical conduct. I also declare that, as required by these rules and conduct, I have fully cited and referenced all material and results that are not original to this work.

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ABSTRACT

THE EFFECT OF MOBILE ASSISTED LANGUAGE LEARNING (MALL) RELATED TO ATTITUDES OF TURKISH EFL STUDENTS

Kanat Küçüktezcan, Işıl İpek

Master's Thesis, Master's Program in English Language Education

Supervisor: Assoc. Prof. Enisa MEDE

June 2020, 92 pages

This study explored the attitudes of Turkish EFL students towards mobile assisted language learning (MALL) environments. Participants consisted of 30 B1+ level students studying at a foundation (non-profit, private) university in İstanbul, Turkey. Data were collected via A-MALL scale, individual semi-structured interviews and reflective journals of the instructor. The four-week treatment included one control and one experimental group. The mixed method study was implemented with a non-randomized pre-test post-test design. According to the results of the independent sample T-test, experimental group's overall attitude scores towards MALL significantly increased. Correspondingly, in the sub-scales of the A-MALL scale, degree of exhibition to MALL and surplus value of MALL scores towards MALL were increased. The semi-structured interview findings unveiled that MALL is an engaging, useful way of learning that students would like to integrate more in their studies. Also, according to the reflective journals kept by the instructor, MALL provides many advantages in terms of creating an enjoyable atmosphere, enhancing collaboration in the classroom, helping students to be more autonomous as well as causing some minor disadvantages especially for instructors. The study provides pedagogical implications and suggestions about integrating MALL in English language preparatory programs.

Keywords: MALL, Mobile Learning, Mobile Devices

ÖZ

MOBİL CİHAZ DESTEKLİ DİL ÖĞRENİMİNİN İNGİLİZCEYİ YABANCI DİL OLARAK ÖĞRENEN TÜRK ÖĞRENCİLERİN TUTUMLARI ÜZERİNE ETKİSİ

Kanat Küçüktezcan, Işıl İpek
Yüksek Lisans, İngiliz Dili Eğitimi Yüksek Lisans Programı
Tez Yöneticisi: Doç. Dr. Enisa MEDE

Haziran 2020, 92 sayfa

Bu çalışma, İngilizceyi yabancı dil olarak öğrenen öğrencilerin mobil cihaz destekli dil öğrenme (MALL) ortamlarına yönelik tutumlarını araştırmıştır. Katılımcılar, İstanbul, Türkiye'de bir vakıf üniversitesinde öğrenim gören 30 B1 + düzeyindeki öğrenciden oluşmaktadır. Veriler A-MALL ölçeği, bireysel yarı yapılandırılmış görüşmeler ve öğretim görevlisinin yansıtıcı günceleri aracılığıyla toplanmıştır. Dört haftalık uygulama bir kontrol ve bir deney grubunu içermektedir. Karma yöntemli çalışma, rastgele olmayan bir ön test ve son test tasarımı ile gerçekleştirilmiştir. Bağımsız örneklem T-testinin sonuçlarına göre, deney grubunun MALL'a yönelik genel tutum puanları önemli ölçüde artmıştır. Yarı yapılandırılmış görüşme bulguları, MALL'ın öğrencilerin çalışmalarına daha fazla entegre etmek istedikleri ilgi çekici ve faydalı bir öğrenme yolu olduğunu ortaya koymuştur. Ayrıca, eğitmen tarafından tutulan yansıtıcı güncelere göre, MALL'un sınıfta keyifli bir atmosfer yaratma, işbirliğini artırma, öğrencilerin daha özerk olmalarına yardımcı olma açısından birçok avantaj sağladığı görülürken, birtakım dezavantajları da belirtilmiştir. Çalışma, MALL'un İngilizce hazırlık programlarına entegre edilmesine yönelik pedagojik sonuçlar ve öneriler sunmaktadır.

Anahtar Kelimeler: Mobil Cihaz Destekli Dil Öğrenme, Mobil Cihaz, Mobil Öğrenme

To My Beloved Husband

ACKNOWLEDGMENTS

I wish to express my deepest gratitude to my supervisor Assoc. Prof. Enisa Mede for her guidance, advice, criticism, and insight throughout the research.

My gratitude is extended to Assist. Prof. Mustafa Polat and Assist. Prof. Olgun Sadık for their valuable comments and suggestions that have helped me to develop this study.

I would also like to thank my father Namık Kanat and my mother Deniz Kanat. I am grateful to my parents for their continuous support throughout my life.

Finally, I would like to dedicate this thesis to my husband, Dr. Fatih Küçüktezcan. Without his understanding and support, I could have never been able to complete this study.

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LIST OF ABBREVIATIONS

A-CALL	Attitude towards Computer Assisted Language Learning
A-MALL	Attitude towards Mobile Assisted Language Learning
CALL	Computer-Assisted Language Learning
CELTA	Certificate in English Language Teaching to Adults
CLT	Communicative Language Teaching
ELLMTAS	English Language Learning via Mobile Technologies Attitude Scale
ELT	English Language Teaching
FLCAS	Foreign Language Classroom Anxiety Scale
FLSA	Foreign Language Speaking Anxiety
GPS	Global Positioning System
ICT	Information Communication Technology
MALL	Mobile Assisted Language Learning
PDA	Personal Digital Assistant
TEL	Technology Enhanced Learning

Chapter 1

Introduction

It is unimaginable to conceptualize today's world without the application of mobile technologies and it is expected that within the coming ten years, mobile technologies will continue to be more prevalent, individual, strong and social (Krull & Duart, 2017). Thanks to the inexpensiveness of many of these gadgets when compared to desktop computers and the impromptu and individual association they provide to the unbounded educational sources of the web, they are particularly engaging for teachers. (Traxler & Kukulska-Hulme, 2005). The use of mobile technologies represents association, participation and learning in informal situations with peers, companions and family without getting constrained by time and place (Looi, Seow, Zhang, So, Chen & Wong, 2010; Krull & Duart, 2017). The core of mobile learning is enabling entryways to data and knowledge anywhere, anytime from devices which learners are accustomed to carrying everywhere with them that they regard as friendly and individual (Traxler, 2007; Gikas & Grant, 2013).

The common use of mobile phones and numerous easily carried devices are beginning to have an impact on how learning takes place in many disciplines and settings which incorporates learning languages (Kukulska-Hulme, 2009). It is found that smartphones and Personal Digital Assistants (PDAs) are the commonly used mobile learning devices, after tablet PCs (Hwang &Wu, 2014). The Educause Center for Applied Research [ECAR] (2012) study on Mobile IT in higher education announces that students are beginning to accept the common use of mobile computing devices, such as cellphones, smartphones, and tablet computers in higher education and 67% of students who have been surveyed believe that mobile devices are fundamental to their academic achievement and use their devices for academic activities (Gikas & Grant, 2013). As detailed by the 2016 ECAR survey with college students about information technology in the United States, students who possess mobile devices is progressing to market overload for laptops and smartphones (96% of students have smartphones, 93% possess laptops and 57% own tablets). The survey reports that students have access to numerous devices with just over half (52%) of students possessing all three of the already announced devices (Brooks, 2016; Krull &

Duart, 2017). Mobile computing devices can provide instructive possibilities for students to reach course content, as well as exchanging ideas with instructors and peers no matter where they are (Cavus & Ibrahim, 2008, 2009; Kukulska-Hulme & Shield, 2008; Nihalani & Mayrath, 2010; Richardson & Lenarcic, 2008; Shih & Mills, 2007, Gikas & Grant, 2013).

In short, the possibilities and necessities to utilize more and diverse settings for learning are expanding with the common use of mobile technologies (Looi, Wong, Glahn & Cai, 2019). Instructors and learners must attempt to cooperate to understand how portable, wireless technologies may best be utilized with regard to learning (Kukulska-Hulme, 2009).

This chapter represents an outline of the study regarding Turkish EFL students' attitude towards the use of mobile assisted language learning (MALL). An overview regarding the development of MALL, statement of the problem, purpose of the study, research questions as well as the significance of the study and definitions of the concepts are included in the chapter.

1.1 Overview

The mobility of modern learners gives an energetic environment concerning learning; the mobile technology, is just one of the distinctive sorts of technology and interaction integrated. The learning experiences go beyond spatial, worldly and/or conceptual limits and include interaction with fixed technologies along with mobile devices (Kukulska-Hulme, Sharples, Milrad, Arnedillo-Sanchez & Vavoula, 2009). Mobile phones have recorded an exceptional improvement since Chickering and Ehrmann (1996) named the term MALL. More advanced and low-cost smartphones and tablet computers are surviving the technological and financial constraints. Those constraints have been acknowledged to restrict the broad application of Mall previously. Nowadays, attention is increasingly coming back to the use of mobile devices as language teaching tools (Burston, 2014c).

MALL is the heritage of CALL and CALL was aiming at improving language learners' capacity by computerized means (Cameron, 1999). Computers have been used for language teaching since the 1960s (Warshauer & Healey, 1998). The 30+ year history of Computer-Assisted Language Learning (CALL) can be roughly separated

into three main stages: behaviouristic CALL, communicative CALL, and integrative CALL. Behaviouristic CALL phase in 1970s included Audio-lingual Method and Grammar Translation Method learning theories and computers were used for repetition drills as a tutor (Bax, 2003). In the 1980s, Communicative CALL was supportive of teaching grammar implicitly and it emphasized using the forms communicatively as opposed to the behaviourist view (Warshauer & Healey, 1998). In Communicative CALL, computers were used as stimulus and used as a tutee (Bax, 2003; Walker & White, 2013). Lastly, in the 1990s, a perspective which assists both to integrate various skills (e.g., listening, speaking, reading, and writing) and also integrate technology completely into the language learning process was adopted as Integrative CALL (Warschauer, 1996).

According to Traxler (2007), advancements in mobile technology and their implications on educational settings rebuilt the conceptualization of learning. This generated the term, "mobile learning". Mobile learning can be defined as any type of learning that occurs when the learner isn't at a settled, predetermined area, or learning which occurs when the learner takes advantage of learning opportunities presented by mobile technologies (O'Malley, Vavoula, Glew, Taylor, Sharples & Lefrere, 2003).

MALL is a subset of both Mobile Learning (m-learning) and Computer-assisted language learning (CALL). MALL is learning a language by using mobile devices such as (mobile) phones and smart phones, MP3 or MP4 players or Personal Digital Assistants (PDAs) (Hashim, Yunus, Embi & Ozir, 2017). It varies from CALL for its individual use and portability over distinctive settings. However, it is similar to m-learning as they both center on contextualized learning, adaptability and dynamic community cooperation of the learner (Çakmak, 2019). Although it is claimed as being "immature in terms of theory and practice of pedagogies" (Traxler, 2007, p. 3), MALL continues to evolve day by day with the widespread use in learning environments.

All in all, MALL has experienced major changes and is still evolving. It can be seen that the history of MALL is going back to 1960s and still evolving with increasing numbers of research to exploit the improvised and opportunistic type of learning on the move (Kukulska-Hulme & Traxler, 2005). MALL enables learning which is more deconstructed (Corbeil & Valdes-Corbeil, 2007) with its common use in learning environments with the development of new technologies.

1.2 Statement of the Problem

As in numerous nations all through the world, for young individuals in Turkey, particularly the mobile phones have expanded into an instinctual, solid, stable part of life style, life administration and maintenance of social connections within the system of diverse culture and way of life (Kaya & Argan, 2015).

The expanding number of studies after 2008 affirms that interest in MALL has been developing over the past ten years (Duman, Orhon & Gedik, 2014). According to Duman et al. (2014), among the studies implemented in MALL, the points covered are various related to the MALL studies, whereas teaching vocabulary was the most dominant reviewed topic (Thornton & Houser, 2005; Stockwell, 2007; Lu, 2008; Cavus & Ibrahim, 2009). This topic's dominance was followed by the topics of improved frameworks for MALL (Anderson, Hwang & Hsieh, 2008) and perceptions and attitudes related to MALL (Uzunboylu, Hürsen, Özütürk & Demirok, 2015; Azar &Nasiri, 2014; Kondo, Ishikawa, Smith, Sakamoto, Shimomura & Wada, 2012; Oz, 2015; Dashtestani, 2013; Khan, Radzuan, Shahbaz & İbrahim, 2018). The relationship between MALL and motivation to develop EFL proficiency (Nah, White & Sussex, 2008) has been among some research applied about MALL. There have also been various research with respect to MALL in terms of content, design and requirements of the learners (Çakmak, 2019). Content-based MALL studies center on the improvement of language learning materials and activities (Song & Fox, 2008; Li & Hegelheimer, 2013; Chang & Hsu, 2011; Baleghizadeh & Oladrostam, 2010). Moreover, some studies are hinged on design and learner requirements (Chen & Hsu, 2008; Wong & Looi, 2010; Stockwell, 2008, Hoven & Palalas, 2011).

Despite the existence of studies focusing on many aspects of MALL in language teaching, the literature still lacks sufficient research in terms of the attitudes of learners towards MALL in Turkey, where some of the most popular mobile phone applications are commonly used in classrooms. Within the socio- educational model, Gardner (2000) points out the significance of language learners' attitudes by saying that whereas motivation is a vital factor for second language learning, it alone may not guarantee language learning accomplishment, since learners' attitudes support motivation, and motivation at that point supports language improvement.

In a nutshell, along with the vast number of studies conducted related to MALL, more studies related to students' attitudes towards MALL should be implemented in the Turkish context. Since certain attitudes tend to prompt learners to adopt particular learning behaviors (Vandewaetere & Desmet, 2009), the current study was conducted to examine students' attitudes along with their instructor's reflections.

1.3 Purpose of the Study

We are living in interesting times, in which instructors and learners must attempt to cooperate to understand how portable, wireless technologies may best be utilized in order to learn (Kukulska-Hulme, 2009). Considering technology has been a vital part in our daily lives, professionals within the language teaching field ought to be involved in the role of the language classroom within the information technology society instead of the role of informational technology within the classroom (Warschauer & Healey, 1998). To be able to integrate information technology more in the language classrooms, attitudes of the students must be taken into account. Based on the recent research on MALL, the aim of this thesis is to examine and compare the effect of MALL on the attitude levels of B1+ level EFL students enrolled in a preparatory program offered by a foundation (non-profit, private) university in Istanbul, Turkey. The study also attempts to find out the attitudes of students and reflections of their instructor about MALL-integrated EFL courses. The study provides pedagogical implications and suggestions about integrating MALL in English language preparatory programs in Turkey.

1.4 Research Questions

To meet the objectives of this study, the following research questions were addressed:

1. Is there a significant difference within and between the control and experimental group regarding their attitudes upon the application of MALL activities?
2. What are students' attitudes towards MALL applications in the classroom?
3. What are the reflections of the EFL instructor about integrating MALL in classroom practices?

1.5 Significance of the Study

"You're right in the work, you lose your sense of time, you're totally enraptured, you're completely caught up in what you're doing.... There's no future or past, it's just an extended present in which you're making meaning..." (Poet Mark Strand quoted in Csikszentmihalyi, 1996, p. 121). An identical state of ideal flow can in some cases be accomplished for learning, whereas such a state of concentration, engagement, attainment and advance is at odds in a traditional classroom where the assignments are planned by the educator, there are ceaseless distractions, and time is divided into 40 minute periods (Wong & Milrad, 2015). One of the unique features of MALL is that it can permit anytime-anywhere language learning by taking language learning out of the classroom (Gonulal, 2019).

Mobile devices could achieve small tasks such as sending and receiving SMS whereas recently they have turned into smart devices with internet connection which can steer our daily lives. As of 2018, 5 billion people were reported to possess mobile devices in the world. In Turkey, 69% of people possess mobile phones which constitute 59 million people in total (We are Social, 2018). The data indicates the requirement to implement mobile devices in education. In addition, mobile technologies have the potential to advance student engagement within the shape of dynamic and collaborative learning (Diemer, Fernandez & Streepey, 2012). Positive learning results are likely to emerge by utilizing mobile technologies inside schools. Exploring learner attitudes has been one of the predominant research subjects in MALL (Burston, 2013; Duman et al., 2014; Viberg & Grönlund, 2013). Undoubtedly, several researchers (Al-Emran, Elsherif & Shaalan, 2016; Briz-Ponce, Pereira, Carvalho, Juanes-Mendez & Garcia-Penalvo, 2017; Dashtestani, 2016; Viberg & Grönlund, 2013) conducted attitude studies in order to uncover the use and effectiveness of MALL. According to Bax (2003), normalisation is the stage when a technology is invisible, hardly even realized as a technology, not recognized in everyday life. As more and more instructors wish to benefit from the use of mobile phones in and out of the classrooms, reaching a 'normalisation stage' in the use of mobile phones largely depends on the attitudes of the students. In addition to the attitude studies conducted regarding MALL, the current study emphasizes language development as a whole while integrating some common applications in the lessons

which are used to practice vocabulary, grammar and major skills such as writing and reading.

To conclude, common use of portable devices in people's daily lives paves the way, especially in learning environments in which anytime-anywhere language learning can take place. To enable this type of learning, students' attitudes towards MALL is of great importance which needs to be examined thoroughly. Hence, the current study addresses students' attitudes and their instructor's reflections to get a better understanding while emphasizing some common applications to support language development in a broad sense.

1.6 Definitions of Terms

Computer Assisted Language Learning (CALL): The search for and study of applications of the computer in language teaching and learning (Levy, 1997, p. 1).

Mobile Assisted Language Learning (MALL): Any educational provision where the sole or dominant technologies are handheld or palmtop devices (Traxler, 2005).

Mobile Learning (m-learning): Using portable and handheld electronic devices including mobile phones, tablets, and PDAs and employing them for educational purposes in various environments such as workplaces, classrooms, and home (Traxler & Leach, 2006).

Chapter 2

Literature Review

The literature review was categorized with theoretical basis along with empirical data regarding MALL. The first part examined theoretical framework in the evolution of MALL through an exploration of groundwork theories and approaches. The second section summarized MALL studies in EFL. The last part was designated to review attitude studies in MALL. Accordingly, the following sections concentrate on underlying philosophies and theoretical framework of MALL with an emphasis on how MALL today was evolved by initially examining CALL.

2.1 Computer Assisted Language Learning (CALL)

It is not easy to identify a starting point in the history of learning technologies. May be ancient cavemen were the first to use their chemically extracted colour pigments for the arrangement of painting lessons (Westera, 2010). Computers have been employed for language teaching since the 1960s. The 30+ year history of Computer-Assisted Language Learning (CALL) can be generally partitioned into three fundamental stages: behaviouristic CALL, communicative CALL, and integrative CALL. Warschauer and Healey (Warschauer & Healey, 1998; Warschauer, 2000) can be accepted as the only systematic effort to analyze the history of CALL (Bax, 2003). Each stage correlates to a certain level of technology along with a certain pedagogical approach. The three stages cannot be isolated into certain timelines (Warschauer & Healey, 1998).

2.1.1 Behaviouristic/Structural CALL. Warschauer's discussions of the phases of CALL display important differences in various publications—for example, Structural CALL was previously called Behaviouristic CALL (Bax, 2003). Behaviouristic/Structural CALL was implemented in the 1970's and 1980's. It is acknowledged as a sub-component of the field of computer-assisted education. Formation of habits, stimulus and response along with reinforcement paved the way for learning a set of new habits (Warschauer & Healey, 1998).

Behaviouristic CALL represented this theory via the use of computer assisted-instruction. Bax (2003) called this mode as the 'restricted CALL' (Walker & White, 2013). The learning theories of the phase included Audio-lingual Method and Grammar Translation Method. The computers provided language learners with the correct habits as a tutor which allowed users to work individually without criticizing the learners or getting exhausted. When it comes to 21st century learners, restricted CALL as Bax (2003) calls it is represented by most of the language learning applications as they usually include closed tasks (Walker & White, 2013). In contrast, the restricted CALL is distinctive from today's implementations in language classrooms as the computer was seen as the tutor and the learners did not have any opportunities to contribute to the system as opposed to today. The best known tutorial system, PLATO, ran on its own special hardware consisting of a central computer and terminals and featured extensive drills, grammatical explanations, and translation tests at various intervals (Ahmad, Corbett, Rogers & Sussex, 1985).

2.1.2 Communicative CALL. With the introduction of personal computers and the methodology of Communicative Language Teaching (CLT), Communicative CALL was in the limelight starting from the 1980's. CLT was supportive of teaching grammar implicitly and it emphasized using the forms communicatively as opposed to the behaviourist view (Warschauer & Healey, 1998). Proponents of the CLT stressed the cruciality of discovery, interpretation and improvement (Warschauer & Healey, 1998). It was argued that creating original utterances and experimenting with the language were more important than repeating pre-constructed language patterns as language was seen as constructed in learner's mind from a constructivist point of view. That was the reason fluency was more important in Communicative CALL. Warschauer and Healey (1998) called the second phase of CALL as the Communicative CALL, whereas Bax (2003) called it as the open CALL in the sense that it involves more open-ended interactions with both computers and other users when compared to the restricted CALL (Walker & White, 2013). Text reconstruction programs and discovery in pairs or group work were implemented in Communicative CALL (Warschauer & Healey, 1998). The important point was what the learners did with each other rather than recognizing the machine as the tutor. In Communicative CALL, computers were used as stimulus (Bax, 2003). CALL activity was expected to stimulate students' interaction with each other as long as developing their writing and

critical thinking skills. Bax (2003) further argued that the type of feedback by the computer was open and flexible. A computer could take the role of a tool since ‘’communication of some type always develops whatever software we use for language learning, we need to decide on what type of communication we are expecting it to produce’’ (Seedhouse, 1995). In the implementation of the Communicative CALL, collaborative or competitive pairs could make use of the computer as a means of discussion and experiment. Communicative CALL also referred to communicating with the computer. Logo programming language demonstrates the role of the computer as a tutee since the learner teaches the computer in the role of a more able peer (Walker & White, 2013).

2.1.3 Integrative CALL. By the late 1980s and early 1990s, critics stated that the computer was still being implemented for specific purposes and in discontinued ways. Due to this, it 'finds itself making a greater contribution to language learning in inconclusive parts rather than central elements of the language learning process (Kenning & Kenning, 1990). This matched with an expansive reassessment of CLT theory and practice. Accordingly, it led to a new perspective on technology and language learning, which has been called as integrative CALL (Warschauer, 1996), a perspective which assists both to integrate various skills (e.g., listening, speaking, reading, and writing) and technology completely into the language learning process. In integrative approaches, students learn to use various types of technological tools as an ongoing process of language learning and use, instead of visiting the computer lab once a week for isolated exercises (whether the exercises be behaviouristic or communicative).

According to Bax (2003), ‘’normalisation’’ in CALL consists of seven stages. The first stage is called early adopters and a couple of instructors and schools embrace the technology out of interest. In the ignorance/skepticism stage, most individuals are doubtful or not informed about the presence of the technology. When they attempt once, they dismiss it since they do not see any relevant advantage (Rogers, 1995). Upon hearing it works, they attempt once more and actually see that it has relative advantages. In the next stage, more individuals start to employ it, but still there's fear or awe, rotating with overstated desires. In the normalizing stage, it is seen as something typical in their lives and lastly with the normalization stage, the innovation blends into our lives in a way that it gets to be invisible and ‘normalised’.

To summarize, in approximately 30 years of time, CALL stages were evolved with regard to the learning theories at the time. If the basic structure was the technology of behaviouristic CALL, and the PC the technology of communicative CALL, the multimedia networked computer is the technology related to integrative CALL (Warschauer, 1996).

2.2 Mobile Assisted Language Learning (MALL)

In order to explore MALL, it is indispensable to initially define mobile learning which is the starting point of MALL. In this part, characteristics, related theories and research related to mobile learning are discussed.

2.2.1 Mobile learning. We are living in a world which is changing continuously (Sethy, 2008). During the past decades, the world of education has been changed by the quick and fast revolution in computer technologies. Along with computer technologies and the Internet technologies, new discoveries have been set up at breathtaking speed (Sethy, 2008). This has remodeled teaching and learning especially distance education. The appearance of World Wide Web (WWW) has expanded the request for distance education and thus ideas such as online learning or e- learning has risen. The framework of online learning has been generally utilized in higher education (Wang, 2010).

Broad possession of mobile phones and the expanding accessibility of portable and wireless devices have been changing the scene of technology-enhanced learning also recognized as (TEL) (Kukulska-Hulme, Evans & Traxler, 2005). Use of these technologies turns out to be well adjusted with key educational objectives such as progressing student retention and accomplishment, supporting separation of learning requirements, and reaching learners who would not otherwise have the opportunity to take education (Kukulska-Hulme et al., 2005). According to Traxler (2007), improvements in mobile technology and their suggestions on educational environments changed the conceptualization of learning. This produced the term, “mobile learning”. There exist numerous research studies relating to the implications of mobile learning in formal and informal instructive settings (Sharples, 2013).

According to Kukulska-Hulme et al. (2009), the mobile technology, whereas fundamental, is as it were one of the distinctive sorts of technology and interaction

integrated. The learning practices go beyond dimensional, temporal and/or conceptual borders and include interactions with fixed technology along with mobile devices. Blending the interactions with mobile technology into the texture of pedagogical interaction that develops around them gets to be the center of consideration.

There's still a difference with respect to the definition of mobile learning. Early approaches at characterizing mobile learning centered on the mobility of technology, saying it was any educational arrangement where the exclusive or prevailing technologies are handheld or palmtop devices (Traxler, 2005) and as “elearning through mobile computational devices: Palms, Windows CE machines, even your digital cell phone” (Quinn, 2000). In addition to the mobility of the technology, another type of definition of mobile learning includes any kind of learning that occurs when the learner isn't at a settled, prearranged area, or learning that happens when the learner takes advantage of learning opportunities presented by mobile technologies (O’Malley et al., 2003). As the term incorporates mobility, what mobility includes has been a significant discussion topic. Mobile learning also has been defined as “learning across multiple contexts, through social and content interactions, using personal electronic devices” (Crompton, 2013, p. 4).

According to Kukulska-Hulme and Shield (2008), typically, mobile learning, also known as m-learning, is identified both by being available “anywhere, anytime” (Geddes, 2004) and by the tools used: mobile learning can perhaps be defined as “any educational provision where the sole or dominant technologies are handheld or palmtop devices” (Traxler, 2005), although in reality it is more usually confined to being one aspect of the provision. Mobile learning refers to learning mediated via handheld devices and potentially available anytime, anywhere. Such learning may be formal or informal.

Some studies emphasize the aspect regarding the mobility of technology and devices into the forefront in their definitions (Colazzo, Ronchetti, Trifonova & Molinary, 2003; Traxler, 2005). Although mobile learning has been defined in terms of its use of mobile technologies, more recent thinking has foregrounded the mobility of the learner (Sharples, 2006) as some other studies emphasize the mobility of learner and learning (Kadyte, 2004; Sharples, 2006). Similar to Sharples, Milrad, Arnedillo Sanchez and Vavoula (2009), El-Hussein and Cronje (2010) identify three

interdependent areas of mobility. These areas are mobility of technology which refers to use of mobile devices such as PDAs (Personal Digital Assistants), smartphones and digital cameras, mobility of learning referring to personalized, learner-centered, situated, collaborative, ubiquitous and lifelong learning, and finally mobility of learners which is a learner-centered and nomadic activity. Also, Vavoula and Sharples (2002) suggest that learning is mobile in three ways: space, areas of life and time.

In brief, widespread possession of portable and wireless devices have altered the scene in learning environments. The definition of mobility in mobile learning or what it connotes in terms of the interactions have been commonly addressed in the literature. To realize MALL clearly, it is obligatory to comprehend the evolution of m-learning with the implications it brings. That is why, in the next part, characteristics of mobile learning are being discussed.

2.2.2 Characteristics of mobile learning. Mobile learning has many characteristics which were mentioned in the studies. Mobile technology can assist learners at the point of need and in ways that fit in with their mobile lifestyles (Kukulska & Hulme, 2008). Mobile and wireless technologies certainly fit well with designs for learning which make it personalized, situated and authentic. Admittedly, it is more difficult to design intentionally for learning that will be spontaneous and informal; however, mobile and wireless technologies do have affordances that support these types of learning. (Kukulska & Hulme, 2009). Özdamlı and Cavus (2011) demonstrate 7 characteristics of mobile learning which are ubiquitous/spontaneous, portable size of mobile tools, blended, private, interactive, collaborative, and providing instant information. Keegan (2005) emphasized on the mobility by saying "I feel that in the definition of mobile learning the focus should be on mobility. The features of m-learning activities have been described by Traxler (2009) as personalized, situated, and authentic. Some features are detailed as follows:

Individuality: Mobile learning should be restricted to learning on devices which a lady can carry in her handbag or a gentleman can carry in his pocket. I therefore define mobile learning as 'the provision of education and training on PDAs/palmtops/handhelds, smartphones and mobile phones.' One of the characteristics of mobile learning is that it uses devices which citizens are used to carrying everywhere with them, which they regard as friendly and personal devices,

which are cheap and easy to use, which they use constantly in all walks of life and in a variety of different settings, except education" (Keegan, 2005, p. 3).

Formal and informal: Mobile devices operate as a link between different sites of learning and some of those are formal whereas others are informal (Kukulska-Hulme, 2009).

Authentic: Authentic learning involves exploration and inquiry as well as real-life hands-on experiences (Çakmak, 2019). With the findings as to how and to what extent language learning is supported with m-learning, it has been shown that these technologies provide a number of "authentic", "relevant" and "contextual" language learning experiences (Chinnery, 2006, p. 9; Gilgen, 2005, p. 39; Kukulska-Hulme, 2006, p. 123, respectively). In situated learning, activities within authentic contexts are promoted, so m-learning is promoted or supported in context-specific environments such as museum or field trips. Drawing on those contexts, mobile devices running context-aware applications support the learning activity (Çakmak, 2019).

Collaborative: Within the classroom, it has been shown that mobile devices, with appropriate software, can be highly effective in supporting small group collaborative learning, improving on what was impossible to achieve without these tools (Zurita & Nussbaum, 2004; Valdivia & Nussbaum, 2007). In collaborative learning, social interaction is the key point in developing understanding. Learning through mobile devices promotes learning through social participation, interaction, and collaboration (Çakmak, 2019).

Interactive: The mobile technology, while essential, is only one of the different types of technology and interaction employed. The learning experiences cross spatial, temporal and/or conceptual borders and involve interactions with fixed technologies as well as mobile devices. Weaving the interactions with mobile technology into the fabric of pedagogical interaction that develops around them becomes the focus of attention (Kukulska-Hulme et al., 2009, p. 20).

Spontaneous: Admittedly, it is more difficult to design intentionally for learning that will be spontaneous and informal; however, mobile and wireless technologies do have affordances that support these types of learning (Kukulska-Hulme, 2009).

To wrap up, mobile learning features are commonly described as being individual, providing a passage through formal to informal, relating to authentic experiences, enhancing collaboration and interactivity as well as being spontaneous. With those features in mind, it is easier to comprehend mobile learning and how mobile learning environments can be designed.

2.2.3 Electronic learning, mobile learning, ubiquitous learning. It is essential to mention and compare electronic learning (e-learning), mobile learning (m-learning) and ubiquitous learning (u-learning) as these terms are often used in studies regarding technology use. Ownership of mobile phones and the expanding opportunity to have portable and wireless devices have been altering the core of technology-enhanced learning also known as TEL (Kukulska-Hulme et al., 2005). Originally, mobile learning, also recognized as m-learning, was defined as a continuity of e-learning with the use of computational devices such as personal digital assistants (PDAs), and mobile phones. It was built in with e-learning as a subdivision of distance learning (Georgiev, Georgieva & Smrikarov, 2004). E-learning is known as the employment of computer technology, via the use of internet, in order to transfer information and instructions to people (Wang, Ran, Liao & Yang, 2010) whereas mobile learning certainly includes learner mobility, with regard to learners participating in educational activities without the limitations of being in a specified physical area. The distinguishing characteristic of mobile learning comes from the opportunities which became possible by portable, lightweight devices that are sometimes small-scale to fit in a pocket or in the palm of one's hand (Kukulska-Hulme & Traxler, 2005).

Mobile learning is the kind of learning which emerged as a result of co-evaluation of both mobile informatics and e-learning areas, giving the increase to e-learning content which is autonomous of a particular area. Also, it provides interaction with others as well as enabling a dynamic environment while assisting learners (Korucu & Alkan, 2011). Mobile learning can be employed to bolster traditional learning (Wang, 2004) along with distance learning (Derouin, Fritzsche & Salas, 2005). E-learning term has risen in respect to the blending of ICT in educational contexts. Electronic learning, also known as e-learning is getting information which is allocated and promoted by computer and communication technology (Behera, 2013). Quinn (2000) characterizes m-learning as e-learning via mobile computational devices: Palms, Windows CE machines and even digital cell phones. Distance learning

is the aspiration of supplying access to learning for people who are distant from any educational institution (Moore, Dickson-Deane & Galyen, 2011). Distance learning includes e-learning and m-learning at the same time and e-learning includes m-learning. In this way, there's a hierarchic connection between e-learning and m-learning.

Ubiquitous learning (u-learning) encompasses mobile learning but the difference is that in ubiquitous learning, it is not obligatory to employ portable devices for learning contexts (García-Sánchez & Luján-García, 2016). Ubiquitous learning is more active and interactive and it may occur in a classroom which is traditional or it can be in a park or while just walking (Cope & Kalantzis, 2009, 2013; Garcıa-Sanchez, 2012; Specht, Tabuenca, & Ternier, 2013). U-learning is blending mobility with learning environments which are everywhere. It means, when learners learn with their mobile devices, the system encourages this type of learning via interacting with fixed computers around (Ogata & Yano, 2004). Ubiquitous is named after ubiquitous computing which implies the procedure of seamlessly merging computers into the physical universe (Bomsdorf, 2005). Casey (2005) developed a formula to summarize the mentioned information as ‘’u-learning= e-learning+ m-learning”.

2.2.4 Theories related to mobile learning. Attempts to conceptualize m-learning in a theoretical framework are known (Impedovo, 2011). Although mobile learning is alleged as not being mature with regard to theory and practice of pedagogies, there are some theories associated with mobile learning (Traxler, 2007). Naismith, Lonsdale, Vavoula and Sharples (2004) introduced six types of learning to m-learning: behaviorist, constructivist, situated, collaborative, informal/lifelong, and support/coordination of learning. Also, according to Özdamlı (2012), constructivism, blended learning, collaborative learning, active learning are the theories related to m-learning. In this part, some theories associated with mobile learning will be detailed.

Behaviourism: From a behavioristic viewpoint, learning ought to include a stimulus and be built up by a reaction to a stimulus. Behavioristic learning through mobile devices can be based on quick feedback or the reinforcement component (Naismith et al., 2004). Bax (2003) acknowledges behaviorism as presented by most of the language learning applications as they more

often employ closed tasks (Walker & White, 2013). Assignments given to learners such as Quizlet vocabulary exercises may be recognized as including stimulus.

Constructivism: The theories of cognitive and social constructivism are hinged on to a similar epistemology to some degree but vary within the degree to which social interaction is seen as affecting individual cognitive advancement (Nyikos & Hashimoto, 1997). Piaget is representing the cognitive constructivist perspective, focused on individual development of knowledge with regard to interaction in the physical world whereas highlighting the domination of individual cognitive development as rather a remote act beyond social context (Russell, 1993). On the other hand, social constructivists, such as Vygotsky (1978) emphasized the authority of social interaction as the motivation and individual's internalization of opinions experienced in the sociocultural realm. One of the most important concepts of Social Constructivism is the Zone of Proximal Development (ZPD). Some applications in mobile devices can be associated with ZPD as these devices provide scaffolding for learners as they try to move beyond their current knowledge. Social constructivism enhances collaboration via creating a small culture with shared meanings (Mundo, 2008). Microblogging tools such as Padlet can be presented as an example to social constructivist theory.

Situated learning: In situated learning, activities in authentic settings are encouraged, such as museum or field trips. Relying on those settings, mobile devices employing context-aware applications reinforce learning activities. Heeter (2005) describes that the aim of situated learning is inspiring and motivating students by complementing learning tasks with real world circumstances. In this way, a real world setting will be provided for the students and more progress will be tracked in students' achievement levels with regard to focusing on the use of knowledge in the real world setting. Learners are concerned with the social context and their goal is to advance, understand and develop their learning in authentic settings. Geospatial technologies like Bluetooth, 2D and 3D barcodes, GPS chips, mobile search such as visual search, cameras for visual captures and social networking are some geospatial technologies (Greer, 2009). With the use of mobile devices, situated learning can be enhanced as m-learning provide the opportunity of learning in the course (Ferdousi & Bari, 2015).

Informal learning: Mobile devices operate as a link between different sites of learning and some of those are formal whereas others are informal. It is not easy to design deliberately for learning that will be improvised and informal but mobile and wireless technologies possess advantages which support these kinds of learning. As also remarked by Kukulska-Hulme (2009), though mobile devices allow in-context cooperation and content transfer, the most creative employment of mobile devices is in ‘’book-marking areas of attention and building context interpretations which can activate and promote follow-up learning. To put it in another way, an experience of mobile learning is a special occurrence to seize a moment of attention via the movement of annotation with the aim of developing on that moment of attention in a different place and at a later time. Mobile technology is gripping since it possesses a similarity with actions between indoors and outdoors, over formal and informal contexts which enables learners to guide some of the way themselves.

2.2.5 The concept of MALL. With the comfort the web and telecommunication technologies provide and the common use of mobile devices, there has been an increasing interest in implementing mobile devices in language learning in a more adaptable way. This approach is described as Mobile-Assisted Language Learning (MALL). MALL has developed from Computer-Assisted Language Learning (CALL) and m-learning (Çakmak, 2019). As stated by Kukulska-Hulme and Shield (2008), “MALL differs from computer-assisted language learning in its use of personal, portable devices that enable new ways of learning emphasizing continuity or spontaneity of access and interaction across different contexts of use” (p. 273). Smartphones, electronic dictionaries, personal digital assistants and tablets are amongst the most frequently used mobile devices in MALL (Burston, 2014c). MALL is the use of mobile technologies in language learning, especially in contexts where the mobility of the device enables some benefits (Kukulska-Hulme, 2012). Rodriguez-Arancon, Arus and Calle (2013) describe MALL in the role of a teaching and learning methodology which employs mobile phones or other distinctive handheld devices which possess some kind of wireless connection, such as phones, PDAs and tablets, amongst others. MALL is learning a language employing mobile devices in education such as cell phones and smart phones (comprising tablets) , MP3 or MP4 players (ipods), Personal Digital Assistants (PDAs) (Palm Pilot, Blackberry, etc) (Hashim et

al., 2017). As stated by Hsu (2013), MALL has been evolved into an appreciated method of language learning and teaching, especially in the framework of EFL.

All in all, MALL confronts with computer-assisted language learning in its implementation of personal, portable devices that allow new ways of learning, emphasizing progression or improvisation of access and interaction beyond different contexts of use.

2.2.6 Affordances and constraints of MALL. Kloper, Squire and Jenkins (2002) considered five special educational aspects of mobile devices that can possibly indicate the use of Mobile-assisted Language Learning (MALL). These are portability, social interactivity, context sensitivity, connectivity and individuality. Portability is about allowing movability to individuals. Social interactivity attributes to promoting communication among students. Context sensitivity indicates that the mobile devices present real data in students' place, environment and time. When it comes to connectivity, the devices can be linked to each other or a network which is shared. Lastly, individuality indicates that the devices authorize individual learning.

Despite the positive effects of CALL, there are also some limitations such as lack of access, lack of effective training, attitude of teachers, attitude of students, lack of time and technical support (Riasati, Allahyar & Tan, 2012). In addition, restricted availability of broadband cellular access (Bachfischer, Dyson & Litchfield, 2008) can limit the Mobile-assisted Language Learning (MALL) use. Last but not the least, there is a worry about mobile devices which are said to present large amounts of information and knowledge which are discontinuous and trivial. As T. S. Eliot (1934) said, "Where is the Life we have lost in living? Where is the wisdom we have lost in knowledge? Where is the knowledge we have lost in information?" (Traxler, 2009).

2.2.7 MALL studies. Mobile phones have reported an immense increase ever since Chickering and Ehrmann (1996) thought up the term MALL (Mobile Assisted Language Learning). A number of studies present mobile learning, MALL and even the theory of mobile learning whereas it is usually not clear about these new concepts contradicting other technology-enhanced learning perspectives, such as e-learning or CALL (Viberg & Grönlund, 2012). Some researchers have implemented bibliography studies on MALL. Burston (2013) presented a detailed historical background of MALL starting with the first published work in 1994 until the end of 2012. Duman et

al. (2014) implemented a study to explore studies published starting from 2000 until 2012 to understand the characteristics and research trends in Social Sciences Citation Indexed (SSCI) journals. Taj, Sulan, Sipra and Ahmad (2016) carried out a meta-analysis of 13 studies published between 2008 and 2015. Çakmak (2019)'s aim was to develop the concept of mobile-assisted language learning (MALL) in connection with learning theories and challenges, to represent a conceptual framework of MALL design principles and aspects and to analyze existent MALL studies. According to Çakmak (2019), MALL employs crucial mobile technologies for language learning just as pocket electronic dictionaries, personal digital assistants (PDAs), mobile phones, MP3 players, and tablet PCs (Zhao, 2005). Since the mid-1990s, MALL has aimed its attention at the use of five mobile technologies: pocket electronic dictionaries, personal digital assistants (PDAs), mobile phones, MP3 players and most recently ultra-portable tablet PCs (Burston, 2013). Only recently, the term has been linked with mobile phones (Taj et al., 2016). Phones with easy to understand interfaces, ubiquitous access and developed data storage and recovery capacities provide a good platform for learning (Gabarre, Gabarre, Din, Shah & Karim, 2014). This advanced technology from lap to palm has precisely provided a potential language learning tool in order to be used by the teachers and their students (Kukulska-Hulme, 2009).

2.2.7.1 Commonly investigated topics in the MALL studies. Research in the field of MALL seems to be disharmonious since there are no dedicated journals for MALL studies (Taj et al., 2016). Majority of literature are from conference proceedings (Burston, 2014b). As it can be seen from meta-analysis regarding MALL, major focus of the research is vocabulary acquisition (Chu, 2011; Duman et al., 2014). A wide range of MALL studies focuses on vocabulary learning (Brown & Culligan, 2008; Cavus & Ibrahim, 2009; Chen & Chung 2008; Chen & Li, 2010; Zhang, Song & Burston, 2011). In view of the critical importance of vocabulary, especially in EFL settings, MALL is developing as an important tool for vocabulary teaching (Taj et al., 2016). Recent studies also suggest that MALL provides language learners with the required amount of exposure to acquire the target structures and vocabulary items (Clark, 2013; Wang et al., 2015). Some studies emphasized SMS use to learn vocabulary (Cavus & İbrahim, 2009; Hu, 2013; Zhang et al., 2011) and several studies

pointed out e-mails and various systems (Başoğlu & Akdemir, 2010; Chen & Chung, 2008; Körlü, 2017; Köse 2017; Çelik, 2018).

For an example regarding SMS-based vocabulary teaching, Zhang et al. (2011) conducted an experimental study with students in a Chinese university. SMS messages were sent to the experimental group whereas the control group studied papers to learn key words. The results indicated that experimental group achieved more compared to the control group. In delayed tests, it was seen that there was no statistically significant difference between the groups. The students stated that with the implementation, they could use the time more effectively and they were more motivated. The disadvantages were about phones' memory and phonetic symbols not shown clearly. Another disadvantage was regarding feeling distracted upon taking messages in the day. Another example about SMS-based vocabulary teaching was about Hu (2013)'s message system named Fetion to help adult learners learn vocabulary. In the study, it was seen that messaging system which was instant was supportive with regard to autonomous learning.

Since vocabulary learning is commonly investigated in MALL studies, teaching vocabulary has also been explored in recent studies in the Turkish context. Köse (2017) explored the implementation of a mobile flashcard application named Rememba related to vocabulary improvement and motivation of Turkish EFL learners. There were 38 students in the upper-intermediate level preparatory class. In the quasi-experimental study, data were gathered via pre-tests and post-tests, a motivation questionnaire, open-ended questions and reflective journals. The results indicated that the use of Rememba resulted in better vocabulary learning and improved motivation of the learners. The findings also suggested that both students and the teacher perceived the use of this mobile tool as positive while teaching and learning vocabulary in their classroom.

Çelik (2018) explored the effect of using mobile applications on literal and contextual vocabulary teaching. This study aimed to investigate the effectiveness of mobile applications on contextual and literal vocabulary teaching. 84 university freshman students were the participants in the study. The participants were divided into two groups as literal and contextual vocabulary instruction group, and there were 42 students in each group. A four-week training session was implemented in both

groups using the particular vocabulary apps. As a result, it was found out that both groups showed development in their post-test scores, whereas the literal instruction group did better than the contextual instruction group.

Körlü (2017) investigated the impact of a mobile flashcards application, Quizlet, on students' performance and autonomy with regard to vocabulary learning. The study also explored the perceptions of students and their instructor of using this application in English preparatory classes. A nonrandomized quasi-experimental research design was adopted. The participants were from two intact classes. The data were collected via pre- and post- tests, an online survey and reflective journal. The findings revealed that Quizlet had a positive impact on students' achievement as well as their autonomy in vocabulary learning. The overall perceptions of participating students and teacher were also positive.

Subsequent to this topic's popularity, the topics of the usability of improved systems for MALL (Lan et al., 2007; Cortez & Roy, 2012) and perceptions and attitudes towards MALL are common (Khan et al., 2018; Hsu, 2018; Qasim & Fadda, 2013; Duman et al., 2014, Azar & Nasiri 2014). Subsequent to perception studies, listening, speaking, reading studies were carried out in MALL (Demouy et al., 2009; Demouy & Kukulska-Hulme, 2010; Hsu et al., 2009). Results uncovered that applications particularly developed to work on these devices encourage the progress of the students about writing, reading and speaking skills (Harmon, 2012; Lys, 2013) and these applications improve their motivation to learn (Kinash, Brand, & Mathew, 2012).

Rashid, Yunus and Vahi's (2019) study explored how collaborative writing in a language course could be improved with the use of an interactive on-line tool called Padlet. 87 participants were in the research. The study's aim was to develop language and communication skills, raise motivation, lower anxiety and encourage students to become more autonomous. A series of tasks were designed using Padlet and implemented through the semester. Students' posts and feedback in the form of a questionnaire were analysed. The findings showed that Padlet motivates students to participate in class activities, lower anxiety, encourages interaction among class members, and improves language accuracy through learning from peers.

A corresponding study in the Turkish context was conducted by Oflaz (2019). The aim of this study was to investigate how Padlet activities were designed according to backward design for an active participation in language learning with regard to demographic characteristics, examine how the demographic characteristics affect the students' participation to various categories of Padlet activities, determine whether students in a language class are happy with the use of Padlet, and analyse students' achievement to see the impact of Padlet activities. The results of this study showed that Padlet helped students to engage actively in language learning especially in specific tasks and all students were satisfied with the use of Padlet which reveals that Padlet is a helpful web tool in language learning when the learning process is well designed.

Nasr and Abbas' (2018) study explored the role of mobile technology in improving Learner Autonomy (LA) in the EFL reading context in the Preparatory Year (PY) of Najran University in Saudi Arabia. 30 students used mobile applications (WhatsApp and internet search engines such as Google) to access external reading materials and with their peers and teachers outside the classroom. Qualitative data collection included students' portfolios. The participants were encouraged to use internet search engines and WhatsApp group to share their readings and five participants were interviewed. The data analysis revealed that the participants' LA improved through the use of selected mobile applications in terms of taking responsibility for and making decisions about reading materials and the time and place of reading.

Another study by Puğ (2020) analyzed Kahoot! learning platform regarding learning and teaching English grammar. Its aim was to explore how students and teachers approached Kahoot. It also explored the perspectives of preparatory class students and instructors related to Kahoot! implementation grammar lessons and how these perspectives are related to teachers' experience. The survey was conducted with 340 participants. The results indicated that students had a positive attitude towards the use of Kahoot! regarding grammar, as the years of experience get more for instructors, they prefer to use Kahoot! less in their lessons. Similarly, students with higher proficiency levels stated that they prefer using Kahoot! in classes less than the students with lower proficiency levels.

2.2.7.2 Commonly addressed theoretical frameworks in the MALL studies. Shortage of connection to theoretical framework is acknowledged as a major problem in research studies that aim their attention to instructional technology (Reeves, 2000). To completely recognize the potential of MALL, there needs to be a strong agreement between pedagogical methodology and technological opportunities in prospective studies of MALL (Burston, 2014a).

According to Duman et al. (2014), in some of the MALL studies, shortage of connection to theoretical framework can be seen easily; but most of the MALL studies were hinged on a theoretical framework that was in accordance with the topic addressed. Theoretical framework were categorized into three sections in MALL studies as learning approaches, multimedia design and learning approaches and technology-oriented approaches. The theories and models used in the MALL studies usually arose from grand theories of learning, comprising constructivism, social constructivism, socio-cultural theory, and situated learning theory. Between the MALL studies, 33 (47%) established their studies on learning approaches which involved collaborative learning, interactive learning, ubiquitous learning, informal learning, task-based learning, and peer-assisted learning. In eight studies (11%), multimedia design and learning approaches were implemented, involving dual-coding theory, cognitive theory of multimedia learning, cognitive load multimedia design principles, and learning memory cycle.

2.2.7.3 Preferred learning environments in the MALL studies. According to Duman et al. (2014), mobile only and face-to-face with mobile comprises 75% of studies implemented between 2000 and 2012. Considering the "anywhere, anytime" aspect of mobile device usage, MALL use designed for out of the classroom have been widespread between MALL studies (Burston, 2014a). Along with learning environments, cell phones were noticed to be implemented the most since 41% percent of studies were carried out with the use of cell phones.

2.2.7.4 Preferred types of research in the MALL studies. Among the studies conducted, the most preferred type of research is quantitative and mixed type and qualitative type of studies (Duman et al., 2014). It was also stated that quantitative studies were published commonly between the period 2004 to 2012, whereas more mixed-methods studies have been conducted recently, beginning from 2007. This

finding is corresponding to the predisposition toward the implementation of mixed methods in other educational technologies research (Bozkaya et al., 2012; Johnson & Onwuegbuzie, 2004; Zawacki-Richter et al., 2009).

2.3 Attitude

An attitude is defined as “a relatively enduring organization of beliefs, feelings, and behavioural tendencies towards socially significant objects, groups, events or symbols” (Hogg & Vaughan, 2005, p. 150). Sarnoff (1970, p. 279) defines an attitude as “a disposition to react favorably or unfavorably to a class of objects”. Individual dissimilarities such as individual attitudes are crucial to the individual implementation of information technology (Desmet, 2007; Liaw, Huang & Chen, 2007). Although some studies have provided not clear results (Sagarra & Zapata, 2008), all researchers realize that positive attitudes to language learning can increase motivation in classrooms and thus improve language learning (Merisuo- Storm, 2007).

Some researchers tried to describe and validate attitude construct and most of them agree on the perspective of the tripartite model, recommending that attitudes can be disintegrated into three major parts: cognitive, affective and behavioral (Liaw, 2002; Smith, 1971; Wenden, 1991). According to Gilakjani and Leong (2012), two core elements constitute attitudes. The first, which is the essential one, indicates “readiness for response.” It means that, an attitude is not behavior, it is not something which people do; instead, it is an arrangement for behavior, a predisposition to react in a distinct way to the object of the attitude. The term attitude object is applied to involve things, people, places, ideas, actions, or circumstances, whether singular or plural. This aspect is seen in many other definitions such as Jung’s (1971): "readiness of the psyche to act or react in a certain way" (Jung, 1971, p. 687). The second aspect is the motivating or dynamic strength of attitudes. It means that, attitudes are not only passive outcomes of past situations. In addition to the definitions mentioned, Bem (1972) states that attitudes are similar to likes as well as dislikes. Van den Berg, Manstead, Van der Pligt and Wigboldus (2006) presented “attitudes” with three core components: cognitive; affective; and behavioral. The cognitive component includes beliefs or perceptions regarding the objects or circumstances with regard to attitude. The affective component exhibits the feelings that emerge regarding the cognitive element and the evaluation (good or bad) of these feelings. Lastly, the appraisal of the

affect is turned into a behavioral component which emphasize attitude and certain attitudes tend to urge learners to adopt some learning behaviors (Vandewaetere & Desmet, 2009).

All in all, general attitude is a theoretical construct which presents a person's like or dislike toward an item (Gilakjani & Leong, 2012). There are three core components with regard to attitudes which are cognitive, affective and behavioural which is called the tripartite model.

As mentioned, a wide range of studies have been implemented in various areas regarding MALL. This section aims to reflect on previous studies related to the attitudes of teachers and students in a detailed manner.

2.3.1 Studies about teachers' attitudes. Tai and Ting's (2011) study explored the core issues in implementing technology-mediated language learning. The study explored pre-service teacher's attitudes and challenges. Six pre-service teachers participated in the study. They were presented with a mobile device and were requested to design and use MALL in a cooperative manner. The survey included perceived usefulness, ease of implementation and bias. Also, an interview was carried out with the pre-service teachers. The results conveyed findings as the need to supply information to teachers with regard to increasing their experience with the devices. In addition, planning a task to design a task was paid attention to. It was seen that there are pedagogical challenges to use mobile devices in the classroom to keep students' motivation and devices' intriguing nature in harmony.The study also suggests a team who can support teachers when it comes to the introduction of the device use in the classroom especially subsequent to teachers' experience with it.

2.3.2 Studies about learners' attitudes. Azar and Nasiri's (2014) study explored Iranian EFL learner's attitudes with regard to how effective MALL is on their listening comprehension. The initial research question was about comparing cell-phone audiobooks with Cd-rom/audio cassette audiobooks with regard to effectiveness. The second question was related to the exploration of attitudes towards MALL. Questionnaire and interviews were carried out to collect data. The results indicated that the experimental group increased their scores with regard to their listening comprehension. In addition, all participants stated that MALL is advantegous

since it provides ease of access and it can be used at all times and in all places when it comes to communicating easily with their peers and teachers.

Another study was a six-week pilot test which also investigated the effectiveness to learn vocabulary by using a phone-based flashcard application named (ECTACO). In Başoğlu and Akdemir's (2010) study, 30 university students agreed that employing flashcards in their studies was more efficient compared to the control group who just used printed versions.

Han and Keskin's (2016) study have explored the effectiveness of using WhatsApp in undergraduate level EFL speaking classroom students' anxiety on speaking (FLSA). Thirty- nine students completed the tasks on Whatsapp in speaking lessons for four weeks. The Foreign Language Classroom Anxiety Scale (FLCAS) was conducted as a pre-test and post-test with interviews. It was shown that WhatsApp implementation in the lessons decreased their speaking anxiety and thus improved their language acquisition.

Gilgen's (2015) study is a project which investigated the implementation of various mobile devices such as PDAs, laptops, tablet PCs compared to computer labs. 26 students participated in the study and trials were made without documentation. Two student attitude surveys were conducted. Students stated that when they use mobile devices, they enjoy their classes more when compared to doing it in computer labs.

Viberg and Grönlund's (2013) study added some factors to the exploration of attitudes toward mobile technology use in the classroom in undergraduate level. Those were age, gender and cultural factors. Yunnan University and Dalarna University students with a total number of 345 took part in the study. To explore learners' perceptions with regard to mobile technology use, Kearney's pedagogical framework towards mobile learning with a socio-cultural angle (Kearney, Schuck, Burden, & Aubusson, 2012) was used. In addition, Hofstede's cultural dimensions were implemented to investigate students' cultural views since those dimensions present some values -components of culture- which may impact students' attitudes towards technology and learning as individuals. The results showed that students' attitudes towards mobile learning were positive with regard to individualization (83%), collaboration (74%) and authenticity (73%).The statistical analysis indicated that Hofstede's factors cannot describe the differences in MALL attitudes in the selected

sample. Between the cultural factors, gender was seen as a predictor to describe the distinction towards students' attitudes to MALL. The study also indicated that technology is the most crucial factor which may shape the culture and it is more essential than culture and age.

Another study exploring students' attitudes towards MALL was conducted by Davie and Hilber (2015). Undergraduate students' attitudes towards Quizlet application to learn vocabulary was investigated. The data with regard to smart phone possession and attitudes towards learning languages were collected via questionnaires from 68 students. The results showed that they were all interested in using smart phones in education. The vocabulary for the engineering exam was accessed by the students. At the end of the term, the scores were compared with last two semesters' scores and no significant difference was seen with regard to students' success levels. However, the interviews indicated that students thought learning vocabulary with Quizlet as enjoyable, advantegous and effective. The researchers stated that the implementation of smart phones in language learning is positive with regard to students' motivation and more advantages can be seen in prospective studies.

Cardenas-Moncata et al.'s (2020) study explored Kahoot's effect on language learning in a vocational undergraduate classroom in Chile. In the quasi-experimental study, pre-tests and post-tests were used. A survey was conducted to investigate students' perceptions and attitudes with regard to Kahoot use in the classroom. According to the results, students' test scores showed a statistically significant difference compared to the students who didn't use Kahoot. In addition, the survey results showed that students had positive perspectives and attitudes towards employing Kahoot in the classroom and that can support students and teachers in constituting a classroom which students can enjoy and improve themselves.

Chen's (2013) study investigated tablet use outside of the classroom to develop independent learning. The study indicated that tablets are constituting a classroom which is interactive, cooperative and ubiquitous as long as it is used effectively. In addition, it was stated that students seem to have positive attitudes towards convenience and effectiveness of tablets.

In Uzunboylu et al.'s (2014) study, Turkish university students' attitudes towards mobile technologies were explored with 275 students in Northern Cyprus. In the study,

a scale was developed entitled ‘’An English Language Learning via Mobile Technologies Attitude Scale’’ (ELLMTAS). The scale contained six sub dimensions with 37 items. The results indicated that students would like to use mobile devices in language lessons. In addition, it was shown that students’ departments and their grades do not diverge while learning English by mobile technologies.

Gutierrez-Colon et al.’s (2012) study explored vocabulary improvement of the English undergraduate students with regard to SMS activities on class content. The researchers sent students three exercises every week in two semesters and they were supposed to respond to the messages without getting help from outside. Consequent to the first semester, an attitude survey was conducted and it was indicated that students thought MALL as intriguing. Also, students who participated in the implementation achieved better compared to other students in the control group according to the pre-test and post-test results.

Nah’s (2010) study explored 20 university students’ attitudes with regard to the employment of mobile phones to connect to Internet-based listening activities. The study was conducted in three months. While students were doing listening activities, they also discussed the meaning of the vocabulary and grammar topics on a discussion board. Upon the implementation, students’ attitudes towards using the site resulted in changes. Negative and positive attitudes diminished and thus neutral responses went up.

2.3.3 Studies about teachers’ and students’ attitudes. Dashtestani’s (2013) study explored teachers’ perspectives as well as students’ with regard to MALL. Electronic dictionaries was used in the study. 126 EFL students and 73 teachers took part in the study and they answered questionnaire questions. Also, 81 students and 66 teachers took part in the interviews. The results indicated that teachers’ and students’ attitudes with regard to the implementation of e-dictionaries were positive in a moderate manner. Also, it was indicated that there are some hindrances when it comes to e-dictionaries such as shortage of training to use e-dictionaries, students’ possessing wrong versions of e-dictionaries, shortage of facilities and students getting distracted while using the dictionaries. In addition, it was seen that majority of Iranian students use e-dictionaries on their phones compared to paper dictionaries. It was also reported that students required training on using e-dictionaries.

2.4 Conclusion

MALL has a long way in order to recognize its pedagogical capacity and rationalize the interest in mobile-assisted learning (Burston, 2014a). Approximately 60% of MALL research take part in journals which are not professional, which appear in conference proceedings, project reports and scholarly theses (Burston, 2013). All researchers realize that positive attitudes to language learning can increase motivation in classrooms and thus improve language learning (Merisuo-Storm, 2007) and certain attitudes tend to urge learners to adopt some learning behaviors (Vandewaetere & Desmet, 2009). According to Duman et al. (2014) most studies in MALL are quantitative between years 2000-2012. Mixed method and qualitative studies are following quantitative studies. As this study is also implementing a mixed method study with triangulation, it is of importance as a mixed method study investigating students' attitudes towards MALL in the Turkish context. An understanding of learners' attitudes of mobile-assisted language learning plays a significant role in the successful implementation of MALL tools in the learning process by teachers. Further, assessing learners' attitudes with regard to MALL via the A-MALL scale can update teachers and other crucial collaborators whether MALL can take the place of language learning which is traditional, act as a branch among formal and informal language learning environments or can be implemented as a competent language learning tool (Gonulal, 2019).

Chapter 3

Methodology

The current chapter aims to examine the methodology of the study by initially detailing the research design, the setting, target population and participants. In the next part, procedure of methodology, reliability, validity and limitations are discussed. The procedures include types of sampling, data collection instruments, data collection procedures and data analysis.

To meet the objectives of this study, the following research questions were addressed:

1. Is there a significant difference within and between the control and experimental group regarding their attitude levels?
2. What are students' attitudes towards MALL applications in the classroom?
3. What are the reflections of the EFL instructor about integrating MALL in classroom practices?

3.1 Research Design

A new methodology in which the same study employs both quantitative and qualitative approaches is defined as a mixed methods research (Ary et al., 2010). In the present study, a mixed method was adopted as a research design as the end results of mixed methods research are results that may be more trustable and allow a more thorough exploration of the research problem when compared to individual use of each method (Ary et al., 2010). Mixed methods research is beyond mixing quantitative and qualitative research. It combines a mix of paradigms, philosophical presumptions, and theoretical aspects directly steered with regard to the study and the prearranged audience. Also, according to Creswell (2009), a mixed method design can be valuable when neither of the approaches individually is enough to understand the research problem in a detailed way, or when the strong sides of both quantitative and qualitative research allow the researcher to get a thorough understanding. There are four types of mixed method research strategies, which are convergent, explanatory, exploratory and

embedded design (Creswell, 2012). In the current study, an explanatory design was conducted since initially the A-MALL scale was distributed to the students and analyzed. Later, the interview questions were written according to A-MALL scale statements to get more in-depth data regarding the research questions. An explanatory sequential mixed methods design is a two-phase model (Creswell & Plano Clark, 2011). In the first phase, quantitative data is collected and in the second phase, then qualitative data is collected for explaining and detailing the quantitative results.

The implementation of various sources of data, various observers, and/or various methods is referred to as triangulation. Structural corroboration employs various sources of data (data triangulation) and various methods (methods triangulation). A mixture of data sources as interviews, observations, and documents, and the implementation of various methods raise the probability that the phenomenon explored is being detailed from various perspectives (Ary et al., 2010).

Numerical data were collected by means of A-MALL attitude scale conducted as pre- and post-tests. Qualitative (in-depth) data were collected by means of semi-structured interview questions from the experimental group as well as researcher's reflections during the application of MALL. A mixture of both types allows the researchers to validate results with triangulation (Rossman & Wilson, 1991).

Since this study is based on a mixed method research design, the experimental group underwent treatment, for four weeks, whereas the control group continued with the traditional way of instruction as suggested by the curriculum unit of the preparatory school without the implementation of mobile assisted language learning inside or outside of the classroom.

To measure the impact of the treatment in the experimental group, both groups took the A-MALL attitude questionnaire as pre-test before the implementation of the treatment. Following a four-week treatment period for the experimental group, both groups took the same test as post-test. Then, to provide in-depth data about experimental group students' attitudes to the application of MALL semi-structured interview questions were asked to the students upon the intervention. In addition, the instructor wrote about her reflections during 4 weeks. The instructor's reflections and the semi-structured interview answers were analyzed qualitatively by means of thematic analysis.

3.2 Setting and Participants

The current study was conducted at a foundation (non-profit, private) university in Istanbul, Turkey. The university requires students to document their proficiency in English with standardized accredited tests to be exempt from studying at the preparatory school. Most of the departments' medium of instruction is English and just a few of the departments' medium of instruction is partially English at the university. Upon university admission, studying at the English Preparatory Program is compulsory for all students unless they are exempt from the program. The students have the opportunity to be exempt from the English Preparatory Program on condition that they get certificates of exams to confirm their level of competence in English as recognized by the Senate of the university. Passing the Proficiency Exam (EPE) of the university with a minimum score of 65 out of 100 is another way to be exempt from studying at the preparatory school. Students are given the opportunity to take the proficiency exam two times in an academic year.

The students' proficiency levels and classrooms are assigned according to the level placement exam at the beginning of each academic year. There is a modular system at the preparatory school. Each module consists of 16 weeks and there are four levels named as tracks in the institution ranging from A1 to B2 level which is the exit level. An eclectic syllabi is being applied in the institution and the aim is to prepare students for their departmental studies which are being held mostly in English. The course system in preparatory school is based on developing four language skills along with improving grammar and vocabulary performance of students. A main course book as well as two books for centralizing on macro skills study are covered in the classes.

The program intends to develop students' macro skills that are needed in university by offering them level-appropriate English as a Foreign Language (EFL) education and helping them graduate with essential language communication skills. The program also intends to equip students with the basic knowledge regarding how to write reaction papers to short and long texts, how to avoid from plagiarism as well as informing them about how to cite articles. The maximum number of the students in a classroom is 24. The vast majority of the students are Turkish despite having a few students from Middle Eastern countries.

In the preparatory school, students attend classes for 16 hours per week. 2 hours are allocated for office hours every week and students can have extra study time with their instructors. Also, there is a learning centre in the building to assist students with their studies. Fall semesters and spring semesters last for 16 weeks. Extended spring semester lasts for 8 weeks. The learners are taught by two teachers in fall and spring semesters and four teachers in the extended spring semester. The participants in the study took the placement test at the beginning of the semester and assigned to their levels accordingly. In the second semester, students who got an average of 65 through the end of the semester got the opportunity to be in Track 3 level (A2-B1).

3.2.1 Demographic information about students. 30 students participated in the current study. There were 20 females and 10 males in the experimental and control groups with an age range consisting of 18-21. These students were expected to complete the preparatory program with a level of B2 in order to begin their undergraduate programs. Students were also asked about their mobile device use per day to get an understanding about how much time they spend with their devices. Detailed information about the profile of the students is illustrated in Table 1.

Table 1

Demographic Information and Mobile Device Use of Students

	Experimental Group		Control Group	
	Frequency	Percent (%)	Frequency	Percent (%)
Gender				
Female	9	60.00	11	73.33
Male	6	40.00	4	26.67
Total	15	100.00	15	100.00
Age				
18	3	20.00	5	33.33
19	8	53.33	4	26.67
20	3	20.00	5	33.33
20+	1	6.67	1	6.67
Total	15	100.00	15	100.00
Daily Use of Mobile Devices				
0-2 hours	0	0.00	2	13.33
2-4 hours	2	13.33	2	13.33
4-6 hours	7	46.67	7	46.67
6+ hours	6	40.00	4	26.67
Total	15	100.00	15	100.00

3.2.2 Information about the instructor. Since a mixed method research study was implemented in the current study, the teacher researcher can be accepted as one of the crucial data collection tools (Ary et al., 2013). In the current study, the researcher was working in the previously mentioned foundation (non-profit, private) university. That is the reason she had the opportunity to conduct the study in two intact classes. The researcher is a graduate of English Language and Literature and holds a CELTA degree. She has been teaching English as a foreign language since 2008 in various levels. Currently, she works at a foundation (non-profit, private) university at a preparatory school and teaches for 16 hours in a week.

3.3 Procedures

This part of the study correspondingly introduces data collection instruments, in which quantitative and qualitative tools are explored. In addition, data collection procedures which includes sources of data, types of sampling, implementation and instruction are presented. Next, the chapter ends with reliability and validity of the study and limitations.

3.3.1 Data collection instruments. The data necessary to reach the findings of this study was collected through both quantitative and qualitative methods. The quantitative instrument is A-MALL questionnaire. The qualitative ones are reflective journals written by the teacher researcher and a semi-structured interview performed with the experimental group students where students' responses to several open-ended questions were collected.

3.3.1.1 A-MALL questionnaire. To measure the influence of the implementation conducted on MALL, a questionnaire was distributed to the participant students before and after the lessons as a pre-test and post-test. The questionnaire was adapted from Gonulal (2019). The questionnaire aimed to improve and validate an attitude scale towards MALL titled as (A-MALL) through partly replicating a study by Vandewaetere and Desmet (2009) to develop an instrument to assess students' attitudes to CALL. Thus, Vandewaetere and Desmet's 20-item A-CALL scale was adapted in order to be used in the MALL context (Gonulal, 2019). To be able to do this, particular words related to CALL in the items as 'computer', 'computer-assisted language learning', 'CALL' and 'computer-based' were replaced with particular words related to MALL as 'mobile device', 'mobile-assisted language

learning', 'MALL', and 'mobile technology based'. Aside from these certain words or phrases, there weren't any changes with regard to the item-wording (Gonulal, 2019).

Similar to the original questionnaire, the A-MALL questionnaire was in harmony with the three-component attitude model (i.e., affective, cognitive and behavioral components). There were eleven items related to cognitive aspects. In addition, six items were regarding affective aspect. Three items were about behaviour aspect. In order to prevent any misunderstanding about the items in the pre-test and the post-test by the students, all items in the A-MALL questionnaire were translated into Turkish. It is required for cross-cultural researchers to study in detail while translating items and provide cross-cultural equality (Sechrest & Fay 1972). No bilingual translators were available to translate the items. Cross-cultural researchers may possess limited opportunities (e.g. qualified bilingual translators) while implementing Brislin's classic back-translation model (Cha et al, 2007).

First, the items were forward translated by an experienced EFL teacher who was a PhD candidate in English Language Teaching and who was also familiar with MALL. The backward translation was implemented by a graduate of English-Turkish Translation and Interpreting. Back-translation is a crucial method to make sure the original and translated versions are equivalent (Behling & Law 2000). Researchers state that back-translation is crucial to validate and use the same content in a cross-cultural study (McDermott & Palchanes 1992, Jones et al. 2001, John et al. 2006). In some sentences, literal translation technique was not used to make sure students understand the questions clearly since direct translations may not be used provided that the content and meaning in the translation is identical when compared to the original (Brislin et al., 1973). Upon comparing the translations and reaching an agreement, it was decided that a third person for translation was not required. The questionnaire was piloted in the same track as the participant students. Piloting took place with 55 students in Track 3 classes to ensure reliability of the scale. Two instructors whose native languages were Turkish debriefed with the students upon piloting in the same lesson to make sure students understood the items clearly.

3.3.1.2 Semi-structured interviews. The main instrument with regard to data collection in qualitative research is the researcher, usually collecting data via direct observation or interviews. The interview is one of the most commonly implemented

and one of the most essential methods for collecting qualitative data. Interviews are employed to collect data from people related to what they think, what they believe in, how they feel about circumstances in their own words. An interview has the advantage of providing large amounts of in-depth data in a quick manner. Interviews supply insight on participants' point of views, what the events mean according to the people who are involved, data about the situation, and maybe data on issues which were not expected. Interviews provide instant follow-up and explanation of participants' answers (Ary et al, 2010). Interviews' purpose is to collect information with regard to interpretation of the interviewees and proclaim the things, what they mean or explaining things which are not tangible or where a researcher is not able to observe or assess via descriptive means (Stake, 2010).

Semi-structured group interviews and structured interviews are dissimilar. In structured interviews there are inalterable questions in questionnaires, surveys or polls which orders the questions that are going to be directed, whereas in semi-structured interviews, the information is collected through a prearranged agenda or questions that are open-ended. In semi-structured interviews, more in-depth analyses related to personal understanding can be provided (Cohen et al., 2007). In the current study, semi-structured interviews were implemented. In order to accomplish triangulation, the qualitative method of interviewing is conducted as a completing aspect by supplying answers for the exact research question which a quantitative tool aims to answer (Ary et al., 2013).

To accomplish the goals in the current study, the researcher conducted an interview with 8 of the participant students by using 8 interview questions after the implementation to see whether qualitative methods would provide exact results that quantitative results did and establish triangulation via raising the validity (Creswell, 2012). The interview questions were adapted from Gonulal (2019). The adapted Turkish version of Gonulal's (2019) A-MALL questionnaire items were used as open-ended questions. Affective, cognitive and behavioral items in the scale were used as open-ended questions and some follow-up questions were also asked to some participants whenever required.

To increase credibility in the study, member checking and debriefing processes were implemented. In member checking, the researcher examines the accuracy of the

results with the participants. In peer review, also called peer debriefing, the question is asked whether there is agreement in the interpreted results with the data provided (Ary et al., 2010). The teacher researcher transcribed the semi-structured interview answers and shared the document with the students. Referential or interpretive corroboration of validity means to present the data in a correct way which was shared by participants with the data which the researcher has and how much participants' perspectives, involvement, knowledge and feelings, are apprehended and presented (Johnson & Christensen, 2000, p. 209). Referential adequacy was assured after participants read the verbatim transcriptions and accepted the accuracy of the results. Consensus was attempted to be assured with debriefing process with an experienced colleague who is also an experienced teacher researcher.

3.3.1.3 Reflective journals. In attempt to gather in depth information regarding the perceptions of the instructor during the implementation phase, reflective journals were kept by the instructor. Dewey (1993), is recognized to introduce the concept of reflection. It is acknowledged by him as a distinctive aspect of problem solving, comprehending it to solve a problem that includes active chaining, arranging ideas and connecting them along with its antedecents (Hatton & Smith, 1995). The journals were kept each week right after MALL lessons. In reflective journals, the instructor reflected her perceptions on the ongoing teaching activities by keeping a journal on students' attitudes towards MALL implementation and on the perceived advantages or disadvantages recognized in the process.

3.3.2 Data collection procedures. In this part of the study, types of sampling, data collection instruments, implementation, data collection procedures, reliability and validity of the study and finally limitations are discussed.

3.3.2.1 Types of sampling. When it comes to sampling, researchers have the opportunity to study a small, simplified part of the population instead of the whole (Cohen et al., 2007; Ary et al., 2013; Creswell & Plano Clark, 2007). Sampling procedures can be categorized into two types and those are probability sampling and non-probability sampling. Probability sampling is electing the sample in a randomized manner within a population and that means that every person in the population possesses the exact percentage of probability of being selected. On the contrary, non-probability sampling means electing samples to reach a particular aim which has

three various types and those are convenience, purposive as well as quota sampling. (Cohen et al., 2007; Ary et al., 2013).

In the present thesis, convenience sampling type of non-probability sampling was employed since the teacher researcher had to teach both the control group and experimental group in equal amounts of time where the researcher was working as an EFL teacher.

3.3.2.2 Implementation. This study adopted a mixed method research design, as a result of which 15 students from the control group and 15 students from the experimental group were involved in the study. Before the implementation was started, data were collected about the participant students' demographics, general information regarding their learning styles, technology use in general and in the classroom. Later, Gonulal's (2019) questionnaire was implemented in both the control and experimental groups on the same day. Upon administering the pre-test in both the experimental and control group, implementation in the experimental group was started. In the experimental group, mobile technologies were implemented by considering learning theories, pre-requisities of mobile learning as a particular learning type, whereas in the control group, the instruction did not include mobile technologies and the instructor followed traditional teaching techniques. The implementation lasted 4 weeks and sample lessons are detailed below:

Lesson 1 (Experimental group) - As reading for main ideas and details was the aim on the first teaching day of the implementation, Quizlet flashcards were used to pre-teach the words in the Reading text. Using mobile to learn vocabulary can help students learn and retain large number of vocabulary items they are encountering inside and outside the classroom (Alemi, 2012). Such effectiveness may result from the affordances of the technology such as "immediacy in receiving the learning content, flexibility and portability of learning in time and place and very low cost" (Song, 2008, p. 95). Upon showing the words with their definitions and synonyms synchronously as a whole-class activity, students used the Gravity feature of Quizlet to recycle the same pre-teaching words for 10 minutes individually. In the gravity feature, students match the words with the definitions in their own pace and may race with their classmates. As it has been pointed out by Laurillard (2007: 165), "a typical m-learning activity could build in more opportunities for digitally-

facilitated site-specific activities, and for ownership and control over what the learners do". Upon practicing the vocabulary, students brainstormed about the reading topic just by looking at the photos. They guessed about the main idea of the reading and shared their ideas by posting on to Mentimeter which enabled all students to see the predictions. Collaborative tools should allow learners to interact and communicate actively and effectively (Zhi, 2015). Then, students matched the paragraph titles to the paragraphs as a speed reading activity in their books. Later, students answered the reading for detail questions in the book. As a follow-up activity, students were given writing assignment on Padlet.

Lesson 1 (Control group): To pre-teach the words, teacher elicited some words students were familiar with by using concept check questions. According to Workman (2008), the concept check questions are arranged to assess learners' understanding of taught grammatical points, words or functional expressions. Students matched the words to their definitions on their books. Teacher elicited the main idea by showing the images and titles and subtitles with the aim of brainstorming. Students matched the paragraph titles to the paragraphs. Then, upon reading the texts, students answered the questions about details of the text. As a follow-up activity, students were given assignment of writing a paragraph on Word and send it to their instructor.

Lesson 2 (Experimental group): Students were given an assignment on Padlet as a production activity after the first lesson which was aimed at reading for main ideas and details. Students uploaded their posts on Padlet and commented on each other's paragraphs in terms of comparing customs of three countries mentioned in the reading and the Turkish customs. Without using Padlet, it would not have been possible for the students to interact with all their classmates and see their answers. Interactivity is one of the advantages of MALL which was mentioned by Kloper, Squire, and Jenkins (2002). Padlet gives the opportunity to see various responses which can allow advantages with regard to peer learning and self-evaluation since learners possess instant access to many responses from peers (Rashid et al., 2019). At the beginning of the second lesson, the instructor shared her screen and asked students some questions about their posts. The instructor also commented on some of the common grammatical mistakes and suggested some structures they could have used. The objective of the 2nd lesson was comparatives and superlatives grammar topic. Since students were already familiar with the subject, some activities were covered and students asked their

questions about the topic to their instructor. When the instructor made sure that students revised the input, she directed them to the Kahoot application challenge feature which consisted of 20 questions. Students were given 10 minutes to do it and the instructor advised them to use the personalized learning feature which allows learners to get the questions they answered wrong repeatedly until they answer it correctly. Upon answering the questions teacher shared her screen to comment on the mistakes which were common and also students asked their questions in the process. According to Kukulska-Hulme and Shield (2008), "MALL differs from computer-assisted language learning in its use of personal, portable devices that enable new ways of learning emphasizing continuity or spontaneity of access and interaction across different contexts of use" (p. 273). Kloper, Squire, and Jenkins (2002) stated that mobile devices provide individual learning and it is one of the advantages MALL possesses.

Lesson 2 (Control group): Control group students were also given a writing assignment about comparison some countries' customs and the Turkish customs as a follow-up production activity. Upon writing their assignments on word documents, they sent it to the instructor and got a detailed written feedback accordingly. The objective of the lesson was comparative and superlative grammar topic. Since the control group was also acquainted with the topic, the instructor covered some activities in the book and asked students to answer one by one in the lesson. When students answered incorrectly, the instructor made the necessary reminders about the structures. To let the students practice the topic more, supplementary materials were given to the students.

Lesson 3 (Experimental group): The theme of the lesson was advertising related to a reading text in the book and this time Padlet was used as a brainstorming activity prior to the lesson. The instructor sent the QR code to the students via the classroom Whatsapp Group. Students were assigned to write about an advert they remember and draw an image accordingly before the time of the lesson. It has been indicated that mobile technologies supply many authentic, to the point and contextual experiences related to learning (Chinnery, 2006; Gilgen, 2005; Kukulska-Hulme, 2006). Mobile devices operate as a link between different sites of learning and some of those are formal whereas others are informal (Kukulska-Hulme, 2009). Students were also told to comment on each other's posts. In the lesson, the instructor shared her screen and

commented on students' accounts of their memorable adverts. Students voted for the best advert description using Mentimeter on their phones during the lesson. Students answered some warm-up questions with their partners prior to the reading activities. In the reading lesson related to advertising, students answered the questions to match the main ideas to the paragraphs and answered some exploitation questions regarding the topic with the help of text exploitation document students previously studied.

Lesson 3 (Control group): The theme of the lesson was advertising and reading for main ideas and details. To start with, students answered some warm-up questions with their partners prior to the reading activities. According to a sociocultural theoretical perspective, learning happens when there is communication, along with relevant forms of help (Lantolf & Thorne, 2006).Also, communicating with classmates gives learners chances for 'languaging' (Swain, 2000, 2006; Swain, Lapkin, Knouzi, Suzuki, & Brooks, 2009) and 'collective scaffolding' (Donato, 1994). Teacher elicited some answers in the lesson by directing students to look at the images and the titles in the reading about what the reading was about. The reading lesson continued with getting answers from the students regarding the speed reading questions. Later in the lesson, the text was exploited with the help of text exploitation document students previously studied.

Lesson 4 (Experimental group): It was indicated that giving practice can develop learners' engagement with regard to vocabulary learning activities (Stockwell & Hubbard, 2013). Since the learning aims of the lesson included phrasal verbs, students were given assignment to study the words on Quizlet app. They had the opportunities to use all the features Quizlet provides easily since all students were enrolled in the Quizlet classroom. Quizlet has four test modes and two game modes. The first game mode is receptive whereas the second game mode is productive (Aschroft et al., 2018). The use of Quizlet with personal devices provide learners to have increased authority (Ashcroft et al., 2018). Raised levels of authority brings advantages related to the improvement of metacognitive skills as well as learner autonomy (Reinders and White, 2011). In the lesson, students answered the questions related to the phrasal verbs with fill in the blanks and matching activities in the book. As a production activity, students asked each other some questions which included the phrasal verbs.

Lesson 4 (Control group): Students were given a supplementary material regarding the phrasal verbs which was the objective of the lesson. In the document, students read some sentences and tried to understand the meanings of the phrasal verbs from the context. According to Kintsch (1998), stated, words can have meaning with regard to their association to other words. In the lesson, students answered the questions related to the phrasal verbs with fill in the blanks and matching activities in the book. As a production activity, students asked each other some questions which included the phrasal verbs.

Lesson 5 (Experimental group): The objective of the lesson was listening for gist and details. The theme was special occasions and whether they have become commercial or not. Students studies the words related to the listening on Quizlet before the lesson. In the lesson, listening for gist and detail answered were elicited from the questions and whole class feedback were given. Research related to formative assessment highlight the importance of feedback in developing the teaching and learning procedure (Black et al., 2003). Upon covering the post-listening questions and having discussions regarding the topic, students were given an assignment to do on Padlet. The questions was ‘’Do you think special occasions have become too commercial?’’. Students were assigned to use the vocabulary and structures they have learned in the lesson. This time their assignment was not individual, it was in groups. Also, students were told to take videos in groups. It has been indicated that mobile devices in the classroom can be very supportive when the relevant software is used to enahnce collaborative learning in small groups which can be impossible to accomplish otherwise (Zurita & Nussbaum, 2004; Valdivia & Nussbaum, 2007). Mobile technology is gripping since it possesses a similarity with actions between indoors and outdoors, over formal and informal contexts which enables learners to guide some of the way themselves. (Kukulska-Hulme, 2009). Students watched each other’s videos and commented on them.

Lesson 5 (Control group): The objective of the lesson was listening for gist and details. The theme was special occasions and whether they have become commercial or not. Students answered the vocabulary questions and in the lesson the instructor elicited their answers. In the lesson, listening for gist and detail answered were elicited from the questions and whole class feedback were given. Upon covering the post-listening questions and having discussions regarding the topic, students were given a

supplementary material to answer the questions about the reading and send it to their teachers written on a Word document. The instructor provided feedback individually to the students.

Considering the "anywhere, anytime" aspect of mobile device usage, MALL use designed for out of the classroom have been widespread between MALL studies (Burston, 2014a). In the implementation process, students used the mobile applications both individually and in groups. Mobile technologies have the potential to advance student engagement within the shape of dynamic and collaborative learning (Diemer, Fernandez & Streepey, 2012). Students used some applications both individually and in a cooperative manner. On Padlet, they recorded videos with their partners or saved their writings individually; yet they still read comments from their classmates. On Kahoot, when they answered grammar questions, they used the personalized learning option to practice the wrong questions again. On Quizlet, they studied the words individually and then played live games as a class. The applications to be used in the lessons were planned previously according to the weekly calendar, the inputs and outputs regarding the aims.

3.3.3 Data analysis procedures. In order to reach the aim of the study not only quantitative but also qualitative data were collected, analyzed, and interpreted. Quantitative data were gathered through pre-tests and post-tests of A-MALL questionaire and qualitative data were obtained from semi-structured interviews and instructor's reflective journals.

The sampling size was taken into account to determine quantitative data analysis methods. All data obtained from pre-tests, post-tests were processed and analyzed through SPSS (Statistical Package for the Social Sciences) version 22. The scale which was used in the study consists of four sub-scales. The results of each test were compared to indicate intergroup and intragroup developments within and between the experimental and control group regarding overall and sub-scale scores. Initially, to decide which tests to be used in the data analysis, the distribution of the data was checked. To decide on the distribution of the data, Shapiro-Wilk test, skewness & kurtosis values and P-P plots graphics were used. For Effectiveness of MALL sub-scale, the significance values for experimental and control groups are 0.207 and 0.851, respectively. For Teacher Influence sub-scale, the significance values for experimental

and control groups are 0.612 and 0.722, respectively. For Degree of Exhibition sub-scale, the significance values for experimental and control groups are 0.16 and 0.304, respectively. For Surplus value of MALL sub-scale, the significance values for experimental and control groups are 0.055 and 0.921, respectively. Regarding the overall scores, the significance values for experimental and control groups are 0.877 and 0.616, respectively. The data were normally distributed according to the Shapiro-Wilk test that is required before applying a t-test. The significance values for both groups in the tests were higher than 0.05. Thus, they are non-significant and the normality assumption was not disrupted. To analyze the score difference between the experimental and control group, Independent sample T-test was used. To analyze the score difference between pre-test and post-test in each group, Wilcoxon Signed Rank Test which is a non-parametric test was used since there were less than 30 students in each group. Continous data were represented with average and standard deviation. The significance level was found as $p<.05$.

To gain in-depth understanding of students' attitudes towards MALL, individual semi-structured interviews were implemented and analyzed on the basis of thematic analysis. In addition, instructor's reflective journals were also assessed according to thematic analysis (Mertler & Charles, 2005) to comprehend the implementation process from the instructor's perspective. Initially, domains were determined according to the research questions by means of open coding. Subsequently, main themes were pinpointed under the domains related to the implementation of MALL process.

3.3.4 Validity and reliability. To establish credence on the results of a study, validity and reliability are crucial for a researcher (Ary et al., 2010). Validity is explained as the extent regarding an instrument assessing what it aims to assess (Ary et al., 2010). An important contribution to comprehension of the validity of experimental studies was made by Campbell and Stanley (1963). They defined two general categories of validity; those are internal validity and external validity. Campbell and Stanley (1963) pointed out that internal validity is the essential condition in order to get results which can be relied upon. Internal validity defines the extent regarding the alterations seen in a dependent variable and whether they are generated by the independent variable(s) in a study instead of various extraneous factors (Ary et al., 2010). There are some threats to internal validity; history, maturation, testing,

instrumentation, statistical regression, selection bias, experimental attrition, selection-maturation interaction, experimenter effect, subject effects and diffusion. The history effect was prevented with pre-tests and post-tests implemented on the same days and times in control and experimental groups. Since the participants ages were 18-24 and they all had similar socio- economic background, risk of maturation was not high. The testing effect, especially pre-test sensitization may have interfered with the results. It could not have been prevented since the same pre-test and post-test given to both groups. When it comes to instrumentation, pre-tests were given to both groups in the classrooms whereas students took the post-test in the distance learning process. It may have influenced the results. Selection bias is another threat in terms of internal validity. The teacher researcher had to use intact groups since it is a quasi-experimental study. The English levels of the students were equal as they took a test 6 weeks prior to pre-tests. Experimental mortality was an important issue throughout the study. Since there was an unexpected phase of distance education, 4 students from each of the groups dropped the courses and their pre-test scores couldn't be used. To prevent experimenter effect, same lesson plans were applied only without the use of MALL activities in the control group. To avoid Hawthorne effect, John Henry effect and compensatory demoralization, students were not informed about being in the experimental group or control group. In the pre-test phase, they were told they were going to take part in an academic research if they agree to participate or not. In the post-test, they were reminded of the second step of the research. Since the whole implementation were in the distance education phase, the students did not have any opportunities to share their experiences and thus the diffusion effect was avoided.

When it comes to external validity, it is whether or not the results can be generalized with regard to other studies (Brewer, 2000; Robson, 2002). Because of convenience sampling, the results of the present study are limited in terms of external validity. Nevertheless, the findings can be generalized for the populations possessing the same characteristics as those described in the methodology part.

The reliability of assessing an instrument is the level of consistency whether or not it is assessing what it needs to assess (Ary et al., 2010). There are two kinds of errors: random errors of measurement and systematic errors of measurement. Random errors are essentially what is causing reliability issues in various contexts and the factors leading to them are the individual being assessed, the implementation of the

measuring instrument, and the instrument. The quantitative and qualitative instruments in the study were applied by the same teacher researcher to prevent errors in implementation of the measuring instrument. When it comes to the errors which could have been generated by the instruments of the current study, it was prevented by translating the items into Turkish in relatively long sentences and making them comprehensible to be understood by the participants well to prevent brevity as it can be a cause leading to unreliability (Ary et al., 2010). A pilot study were conducted with 53 students in other classes before the actual study to check the reliability of A-MALL questionnaire. Respectively, Cronbach's Alpha values of the tests were 0.71, proving the reliability of the piloting tests. In the experimental group, the Cronbach alpha value was 0.87, which is known as a high reliability score.

3.4 Limitations

The present study possesses some limitations to be considered. To start with, the sample size was limited. With a larger population, the study could have achieved a higher external validity but it was not possible due constraints of the institution. Secondly, the participants in the study were not assigned randomly into groups. Randomization is the most essential method of control since chance is the only thing that can enable the groups to be distinctive with regard to any possible extraneous variables (Ary et al., 2010). What is more, the treatment only lasted for four weeks. Implementing the study over a longer period of time would have provided more comprehensive results. The study would have been implemented with other levels in the institution as well as other students in other institutions with larger populations to increase the external validity. Last but not the least, although the study has achieved its objectives, surely it needs to be mentioned that the present study was implemented in unexpected quarantine distance education period and the results of the study might have varied.

Chapter 4

Findings

4.1 Overview

This chapter presents the results of the current study. The goal of the study was to explore preparatory school students' attitudes towards MALL. In the following section, the findings of the attitudes scores within and between control and experimental group, semi-structured interviews and reflective journals of the instructor are provided.

4.2 Findings about the Impact of MALL on Turkish EFL Students' Attitudes

The purpose of the first research question was to explore whether there is a statistically significant difference within and between the control and experimental group related to their attitudes towards MALL in a 4 week implementation process. Students were asked to answer a five-point Likert scale consisting of 20 questions as pre-test and post-test. In the intragroup comparison, Wilcoxon Signed Rank Test was used and in the intergroup comparison, Independent Sample T-test was implemented in order to analyze the overall scores and the scores of the sub-scales related to Effectiveness of MALL, Teacher Influence, Degree of Exhibition and Surplus value of MALL in both groups.

4.2.1 Intragroup comparison. Table 2 indicates the descriptive statistics related to the overall scores in the experimental and control group. Wilcoxon Signed Rank Test which is used in non-parametric repeated measures was implemented to analyze the comparison between the pre-test and post-test.

Table 2

Overall Test Scores in Experimental and Control Groups

Item	Experimental group (n=15)								Control group (n=15)							
	Mean	Std. Deviation	Median	Minimum	Maximum	Mean Rank	z	p - value	Mean	Std. Deviation	Median	Minimum	Maximum	Mean Rank	z	p - value
Pre-test	3.05	0.53	3.05	2.15	4.00	1,00	-2.98	0.003[a]	3.25	0.89	3.20	1.50	4.90	1,18	-0.31	0.756[a]
Post-test	3.48	0.53	3.45	2.65	4.25	2,56			3.33	0.76	3.25	1.95	4.75	2,14		

a: Wilcoxon Signed Rank Test

In the experimental group, the median of overall scores of the students in pre-test and post-test are (M_1 = 3.05, M_2 = 3.45) and it can be seen that with the implementation, the experimental group increased their scores in the post-test. It means that the treatment phase was effective. To check whether a statistically significant difference between the pre-test and the post-test related to the overall scores in the experimental group, Wilcoxon Signed Rank Test was used. As indicated in the table, z = -2.98, p = .003<.05 and it can be stated that there is a statistically significant difference between the pre-test and the post-test related to the overall scores in the experimental group.

In the control group, the median of overall scores of the students in pre-test and post-test are (M_1 = 3.20, M_2 = 3.25) and it can be seen that there is a slight increase in the post-test. To check whether a statistically significant difference between the pre-test and the post-test related to the overall scores in the control group, Wilcoxon Signed Rank Test was used. As indicated in the table, z = -0.31, p = .756>.05 and it can be stated that there is no statistically significant difference between the pre-test and the post-test related to the overall scores in the control group.

Table 3 indicates the descriptive statistics related to Effectiveness of MALL sub-scale in experimental and control group. Wilcoxon Signed Rank Test which is used in non-parametric repeated measures was implemented to analyze the comparison between the pre-test and post-test conducted in a 4 week implementation process.

Table 3

Test Scores in Experimental and Control Groups related to the Effectiveness of MALL

Item	Experimental group (n=15)								Control group (n=15)							
	Mean	Std. Deviation	Median	Minimum	Maximum	Mean Rank	z	p - value	Mean	Std. Deviation	Median	Minimum	Maximum	Mean Rank	z	p - value
Pre-test	2.56	0.96	2.50	1.00	4.25	1,00	-2.68	0.007[a]	2.97	1.20	2.75	1.00	5.00	1,18	-0.44	0.659[a]
Post-test	3.14	1.03	3.13	1.25	4.75	2,56			3.08	1.27	2.75	1.00	5.00	2,14		

a: Wilcoxon Signed Rank Test

In the experimental group, the median scores of the students in pre-test and post-test related to the Effectiveness of MALL sub-scale are (M_1 = 2.50, M_2 = 3.13)

and it can be seen that with the implementation, the experimental group increased their scores in the post-test. It means that the treatment phase was effective. To check whether a statistically significant difference between the pre-test and the post-test related to the Effectiveness of MALL scores in the experimental group, Wilcoxon Signed Rank Test was used. As indicated in the table, z = -2.68, p = .007<.05 and it can be stated that there is a statistically significant difference between the pre-test and the post-test related to the Effectiveness of MALL scores in the experimental group.

In the control group, the median scores of the students in pre-test and post-test related to the Effectiveness of MALL sub-scale are (M_1 = 2.75, M_2 = 2.75) and it can be seen that there is no increase in the post test scores. To check whether there is a statistically significant difference between the pre-test and the post-test related to the Effectiveness of MALL scores in the control group, Wilcoxon Signed Rank Test was used. As indicated in the table, z = -0.44, p = .659>.05 and it can be stated that there is no statistically significant difference between the pre-test and the post-test related to the Effectiveness of MALL scores in the control group.

Table 4 indicates the descriptive statistics related to the Teacher Influence sub-scale in the experimental and control group. Wilcoxon Signed Rank Test which is used in non-parametric repeated measures was implemented to analyze the comparison between the pre-test and post-test conducted in a 4 week implementation process.

Table 4

Test Scores in Experimental and Control Groups related to the Teacher Influence

Item	Experimental group (n=15)								Control group (n=15)							
	Mean	Std. Deviation	Median	Minimum	Maximum	Mean Rank	z	p - value	Mean	Std. Deviation	Median	Minimum	Maximum	Mean Rank	z	p - value
Pre-test	3.19	0.77	3.33	1.33	4.33	1,00	-0.76	0.450[a]	3.52	0.94	3.67	1.67	5.00	1,18	-1.13	0.258[a]
Post-test	3.33	0.96	3.83	1.00	4.33	2,56			3.79	0.87	4.00	2.33	5.00	2,14		

a: Wilcoxon Signed Rank Test

In the experimental group, the median scores of the students in pre-test and post-test related to the Teacher Influence sub-scale are (M_1 = 3.33, M_2 = 3.83) and it can be seen that with the implementation, the experimental group increased their

scores in the post-test. It means that the treatment phase was effective. To check whether a statistically significant difference between the pre-test and the post-test related to the Teacher Influence scores in the experimental group, Wilcoxon Signed Rank Test was used. As indicated in the table, $z = -0.76$, p=.450>.05 and it can be stated that there is no statistically significant difference between the pre-test and the post-test related to the Teacher Influence scores in the experimental group.

In the control group, the median scores of the students in pre-test and post-test related to the Teacher Influence sub-scale are respectively(M_1 = 3.67, M_2 = 4.00) and it can be seen that there is an increase between the pre-test and post test scores in the group. To check whether a statistically significant difference between the pre-test and the post-test related to the Teacher Influence scores in the control group, Wilcoxon Signed Rank Test was used. As indicated in the table, z = -1.13, p = .258>.05 and it can be stated that there is no statistically significant difference between the pre-test and the post-test related to the Teacher Influence scores in the control group.

Table 5 indicates the descriptive statistics related to the Degree of Exhibition sub-scale in the experimental and control group. Wilcoxon Signed Rank Test which is used in non-parametric repeated measures was implemented to analyze the comparison between the pre-test and post-test conducted in a 4 week implementation process.

Table 5

Test Scores in Experimental and Control Groups related to the Degree of Exhibition to MALL

Item	Experimental group (n=15)								Control group (n=15)							
	Mean	Std. Deviation	Median	Minimum	Maximum	Mean Rank	z	p - value	Mean	Std. Deviation	Median	Minimum	Maximum	Mean Rank	z	p - value
Pre-test	3.13	0.90	3.33	1.33	5.00	1,00	-2.68	0.007[a]	2.81	1.17	2.50	1.00	5.00	1,18	-0.31	0.754[a]
Post-test	3.71	0.58	3.67	3.00	5.00	2,56			2.85	1.26	2.67	1.00	5.00	2,14		

a: Wilcoxon Signed Rank Test

In the experimental group, the median scores of the students in pre-test and post-test related to the Degree of Exhibition sub-scale are (M_1 = 3.33, M_2 = 3.67) and it can be seen that with the implementation, the experimental group increased their scores in the post-test. It means that the treatment phase was effective. To check

whether a statistically significant difference between the pre-test and the post-test related to the Degree of Exhibition scores in the experimental group, Wilcoxon Signed Rank Test was used. As indicated in the table, $z = -2.68$, $p = .007<.05$ and it can be stated that there is a statistically significant difference between the pre-test and the post-test related to the Degree of Exhibition scores in the experimental group.

In the control group, the median scores of the students in pre-test and post-test related to the Degree of Exhibition sub-scale are ($M_1 = 2.50$, $M_2 = 2.67$) and it can be seen that there is an increase in the post test scores. To check whether a statistically significant difference between the pre-test and the post-test related to the Degree of Exhibition scores in the control group, Wilcoxon Signed Rank Test was used. As indicated in the table, $z = -0.31$, $p = .754>.05$ and it can be stated that there is no statistically significant difference between the pre-test and the post-test related to the Degree of Exhibition scores in the control group.

Table 6 indicates the descriptive statistics related to the Surplus value of MALL sub-scale in the experimental and control group. Wilcoxon Signed Rank Test which is used in non-parametric repeated measures was implemented to analyze the comparison between the pre-test and post-test conducted in a 4 week implementation process.

Table 6

Test Scores in Experimental and Control Groups Related to the Surplus Value of MALL

Item	Experimental group (n=15)								Control group (n=15)							
	Mean	Std. Deviation	Median	Minimum	Maximum	Mean Rank	z	p - value	Mean	Std. Deviation	Median	Minimum	Maximum	Mean Rank	z	p - value
Pre-test	3.188	0.58	3.25	2.10	3.90	1,00	-2.75	0.006[a]	3.42	0.87	3.45	1.80	4.90	1,18	0.00	1.000[a]
Post-test	3.581	0.56	3.60	2.70	4.40	2,56			3.43	0.85	3.25	2.30	5.00	2,14		

a: Wilcoxon Signed Rank Test

In the experimental group, the median scores of the students in pre-test and post-test related to the Surplus value of MALL sub-scale are ($M_1 = 3.25$, $M_2 = 3.60$) and it can be seen that with the implementation, the experimental group increased their scores in the post-test. It means that the treatment phase was effective. To check whether a statistically significant difference between the pre-test and the post-test

related to the Surplus value of MALL scores in the experimental group, Wilcoxon Signed Rank Test was used. As indicated in the table, $z = -2.75$, $p = .006<.05$ and it can be stated that there is a statistically significant difference between the pre-test and the post-test related to the Surplus value of MALL scores in the experimental group.

In the control group, the median scores of the students in pre-test and post-test related to the Surplus value of MALL sub-scale are ($M_1 = 3.45$, $M_2 = 3.25$and it can be seen that there is a decrease in the post test scores. To check whether a statistically significant difference between the pre-test and the post-test related to the Surplus value of MALL scores in the control group, Wilcoxon Signed Rank Test was used. As indicated in the table, $z = 0$, $p = 1>.05$ and it can be stated that there is no statistically significant difference between the pre-test and the post-test related to the Surplus value of MALL scores in the control group.

4.2.2 Intergroup comparison. Table 7 includes intergroup comparisons related to the overall scores and scores for the sub-scales in the A-MALL scale. Continuous data were represented with mean and standard deviation. The significance level was found as p<.05.

Table 7

Intergroup Comparison between Scores of Control and Experimental Groups

Design	Group	*n*	Mean	Standard Deviation	*t*	*df*	*sig.*
Effectiveness of MALL	Experimental	15	0.58	0.75	1.457	30	0.155[b]
	Control	15	0.11	1.05			
Teacher influence	Experimental	15	0.15	0.80	-0.423	30	0.675[b]
	Control	15	0.27	0.87			
Degree of exhibition to MALL	Experimental	15	0.58	0.68	2.153	30	0.04[b]
	Control	15	0.04	0.74			
Surplus value of MALL	Experimental	15	0.39	0.41	2.316	30	0.028[b]
	Control	15	0.01	0.53			
Overall	Experimental	15	1.25	0.42	2.153	30	0.04[b]
	Control	15	0.64	0.49			

b: Independent T Test

According to Table 7, it was revealed that upon the application of MALL to the experimental group, average of overall scores increased by 1.25 in the experimental

group whereas the control group increased their average scores by 0.64. According to the analysis regarding their attitude scores between the groups, (t=2.153, p=.04<.05) it can be seen that there is a statistically significant difference between control and experimental group. It means that the treatment phase was effective.

In the current study, the four sub-scales were also analyzed independently to reveal the impact of MALL related to attiudes of students. It can be seen that upon the application of MALL to the experimental group, average of Effectiveness of MALL scores increased by 0.58 in the experimental group. Control group increased their average scores by 0.11. According to the analysis regarding the difference between the groups (t=1.457, p=.155>.05), no statistically significant difference were shown between control and experimental group. It may mean that students did not think that MALL was effective in their studies according to their answers given in the scale.

The next analysis was related to the Teacher Influence in MALL. Upon the application of MALL to the experimental group, average of Teacher Influence scores increased by 0.15 in the experimental group. Control group increased their average scores by 0.27. According to the analysis regarding the difference between the groups (t=-0.423, p=.675>.05), it can be seen that there is no statistically significant difference between control and experimental group. It may mean that students did not accept the influence of their teachers as a valuable prerequisite of adopting MALL in their studies.

In addition, Table 7 shows that upon the application of MALL to the experimental group, average of Degree of Exhibition scores increased by 0.58 in the experimental group. Control group increased their average scores by 0.04. According to the analysis regarding the difference between the groups, (t=2.153, p=.04<.05) it can be seen that there is a statistically significant difference between control and experimental group. It means that the treatment phase was effective.

The last sub-scale was related to the Surplus value of MALL. In Table 7, it is shown that upon the application of MALL to the experimental group, average of Surplus Value of MALL scores increased by 0.39 in the experimental group whereas the control group increased their average scores by 0.01. According to the analysis regarding the difference between the groups, (t=2.316, p=.028<.05) it can be seen that

there is a statistically significant difference between control and experimental group. It means that the treatment phase was effective.

In short, according to the quantitative results, it can be declared that the MALL treatment was successful mostly since intergroup comparisons showed a statistically significant difference in overall scores, in surplus value of MALL and degree of exhibition to MALL sub-scale scores. However, in the effectiveness of MALL and Teacher Influence scores, statistically significant difference were not revealed. Correspondingly, in the intragroup comparisons, statistically significant differences can be seen in overall scores and the other sub-scales in the experimental group, whereas there is no statistically significant difference in the Teacher Influence scores.

4.3 Qualitative Data Analysis

The second question in the study aimed to gain in-depth data related to students' attitudes towards MALL. In order to collect data, 8 students were interviewed individually with semi-structured interview questions. The first part were related to their general understanding of MALL and the next part included questions which were developed with regard to the sub-scales in A-MALL. This section comprises two sub-sections: In the first subsection, findings related to students' attitudes about the treatment based on the semi-structured interviews by the experimental group at the end of the treatment were analyzed, and in the second subsection the teacher's perceptions about the implementation of MALL were analyzed based on the reflective journals the instructor kept herself during the implementation.

4.3.1 Findings of the students' attitudes of MALL. In an attempt to collect information regarding students' attitudes towards MALL semi-structured student interviews were performed. The interviews were held individually with the students. In this section, the findings of the interview are described under four main categories, which are:

- Readiness for MALL
- Efficiency of MALL
- Ease of expressing themselves in the lessons through MALL
- The role of teacher support

4.3.1.1 Readiness for MALL. The current theme has two minor themes as MALL as an extension to traditional language learning and convenience provided by MALL. The findings of the individual semi-structured student interviews indicated that students perceive MALL as a valuable extension to traditional language learning and are not ready to give up on traditional language learning completely. Regarding the second minor theme convenience provided by MALL, it was revealed that students have enough knowledge about MALL and they believe they are ready for using mobile devices while learning English in terms of the convenience it provides in learning environments.

a. MALL as an extension to traditional language learning

According to the findings about whether MALL is a valuable extension to traditional learning or not, students stated that they accept MALL as a very appreciated extension to traditional learning. However, they also add that they are not ready to give up on traditional learning completely.

> […] MALL cannot replace traditional language learning. It can be a very strong extension (S1, semi-structured interview, 27.04.2020).

> […] MALL is a valuable extension of traditional language learning since it would be very monotonous to learn a language only by mobile devices (S4, semi-structured interview, 27.04.2020).

> […] There are lots of applications we can use and it is very advantageous to use those while learning English. When we use MALL as an extension to traditional language learning, it is like hands-on learning (S3, semi-structured interview, 27.04.2020).

As it can be inferred according to students' statements, they perceive MALL as a very helpful extension of traditional learning. It is also revealed that students are not ready to give up on traditional learning completely despite recognizing the advantages MALL provides.

b. Convenience provided by MALL

> […] Mobile devices teach us while entertaining. Thanks to this, we're learning a language. There are lots of activities (applications) we can get help from (S2, semi-structured interview, 27.04.2020).

> […] Using mobile devices in the classroom are creating an active and enjoyable atmosphere. In addition, it provides us with the chance of repeating what we have done in the classroom and the information can last for a longer time (S4, semi-structured interview, 27.04.2020).

> […] With mobile devices, we can improve all language skills at the same time. In addition, it is allowing us to do it in all places and whenever we want individually (S5, semi-structured interview, 27.04.2020).

> […] When we are alone, we can see our mistakes and our improvement. For example, with the Kahoot challenge feature personalized learning, we can see our wrong answers and can revise them. I feel panicked when I get a wrong answer in the classroom (S4, semi-structured interview, 27.04.2020).

Spontaneity, individuality, flexibility, authenticity, self-paced and situated learning are among the common affordances of mobile-oriented language learning (Kukulska-Hulme 2009, 2012). As it can be concluded from the individual semi – structured interviews, the qualitative data represent similar beliefs of students in a cognitive level related to MALL.

4.3.1.2 Efficiency of MALL. Although students are aware of the support MALL supplies in language learning environments, they also raise some concerns regarding the effectiveness of MALL. Since the application in the study overlapped the unexpected distance learning environment, the concerns may be caused by distance education. Lack of familiarity with distance education or lack of understanding the strategies for using the technology in distance education are major problem areas for those who are following or advancing a program in distance education (Sherry & Morse, 1995). It can be the reason students are not sure about the efficiency of MALL. The following excerpts support these findings:

[…] I think in the future, there will be less and less traditional learning. The world is getting ready for it. Now, the systems are not working properly as in a traditional exam or traditional classroom but I believe it will be %70 percent MALL education and %30 percent traditional learning, maybe no traditional learning (S5, semi-structured interview, 27.04.2020).

[…] MALL is enough for learning a language but the process can take a longer time. We can be exposed to language more when we are learning with the help of mobile devices and it will be helpful to us (S2, semi-structured interview, 27.04.2020).

[…] The ideal learning can be %50 MALL and %50 traditional learning. I also need to say that when I use mobile devices I can get more distracted sometimes since Internet connection problems and not being able to click on the correct answer because of screen size and technical problems can be annoying. In those times, I prefer traditional activities (S8, semi-structured interview, 27.04.2020).

[…] I am not sure about which one is better since both of them have their own productive parts (S6, semi-structured interview, 27.04.2020).

In short, students' statements displayed their opinions towards a MALL environment which they think is useful in their studies. Nevertheless, they are not sure about whether MALL is effective with regard to the disadvantages it offered during exam implementations in the unexpected distance learning process. Some students state that they are getting distracted with the mobile phone use and some students express their positive thoughts related to the effectiveness of MALL.

4.3.1.3 Ease of expressing themselves in the lessons through MALL. Students' statements lay stress on their feelings when they need to communicate in an English lesson. Most of the students are positive in terms of expressing themselves while they are using their mobile devices as displayed below:

[…] I feel anxious when I need to talk in the classroom. The feeling is shyness, I guess (S2, semi-structured interview, 27.04.2020).

[…] When the teacher asks me a question in the classroom, I feel worried because everybody is looking at me and want an answer instantly. In contrast, when I am

> learning English on my phone, I can read the question again, check my dictionary, answer when I am ready (S3, semi-structured interview, 27.04.2020).
>
> […] I can start a conversation more easily on my mobile phone while learning English (S2, semi-structured interview, 27.04.2020).
>
> […] I feel nervous when I need to talk in the classroom. Communicating on mobile phones while learning English is a lot easier since I feel less nervous (S8, semi-structured interview, 27.04.2020).
>
> […] I can have a hard time finding the correct words when I am looking at people's eyes. When I am on my phone I can check my dictionary and see the correct words before I start doing my assignment on my mobile phone (S5, semi-structured interview, 27.04.2020).

Even though most of the students feel better while communicating on their mobile phones, some students feel that they still need to express themselves in the classroom as shown in these comments:

> […] Even though I cannot find the correct vocabulary to make a sentence my teacher and friends can understand what I mean when they look at my face. That's why I think I feel better in the classroom when I need to communicate with people (S7, semi-structured interview, 27.04.2020).
>
> […] I think students participate more in the lesson when we are in the classroom since it is easier to explain what you want to say. Everybody can understand what I want to say from my face even if I have a hard time communicating (S4, semi-structured interview, 27.04.2020).

All in all, majority of students think that they can communicate more easily while using their mobile phones but still a minority of the students feel that the context they are in can help them in times of distress. It can be concluded that most of the students feel they can express themselves better while they are on their mobile phones.

4.3.1.4 Teacher influence. According to the findings of the individual semi-structured interviews, it seems clear that students are not very sure about how their teacher's attitude towards mobile learning influences their feelings about mobile phone use in the lessons.

> […] Teacher's knowledge or attitude towards mobile phone applications regarding learning English cannot influence me. I mean, I already know some good applications to help me while I am learning (S7, semi-structured interview, 27.04.2020).

> […] Of course, it would be better when my teacher knows about lots of applications but pretending that she/he doesn't know, I can find applications to help me when I need (S4, semi-structured interview, 27.04.2020).

As it can be seen, students feel confident about adopting language learning apps and it shows they internalized MALL even without feeling the support of their teachers. Those results may have been emerged since students are acquainted with mobile technologies and they recognize the advantages it may provide in their studies.

To sum up, the qualitative findings suggested that in terms of students' readiness for MALL, students realize the advantages MALL provides in their studies whereas they are not predisposed to take their studies only via mobile devices. In addition, despite acknowledging the efficiency of MALL, they are still not sure about it regarding the technicality issues. Most students stated that they feel better when they use their mobile devices related to their educational endeavors when compared to being in crowded classrooms. Last but not the least, since they are used to spending time with mobile devices in their daily lives, they think that outside influence of a teacher is not essential to adopt mobile devices for learning.

4.3.2 Findings of the reflective journals. In an attempt to gather in depth information regarding the perceptions in the MALL implementation process, reflective journals were kept by the instructor each week.

After completing the inductive analysis procedure, through open coding approach, the researcher came up with four major themes as follows; engaging classroom atmosphere, self-autonomous learners, raising collaboration in the classroom and difficulties encountered. The actual statements were introduced as the major themes that later on emerged after collecting the data. In this part, the findings of the reflective journals that were kept by both students and the instructor are described in detail.

4.3.2.1 Engaging classroom atmosphere. The findings of the reflective journals kept by the instructor revealed that teaching a classroom by using MALL activities results in a more engaging learning environment. The following excerpts below support this finding:

> […] I recall using one or two applications in my lessons during the extra last minutes of the lessons previously. Since I have started implementing them in the lessons as part of the routine, students can clearly be seen as enjoying MALL activities and that is reflected in their overall studies. (I, Journal data 02.04.2020).

> […] Students seem to be very enthusiastic when I assign them MALL activities and some students who participate less in class discussion are the ones who complete their MALL activities in a detailed manner. (I, Journal Data, 06.04.2020)

> […] They want to suggest some new applications to use in the classroom other than the ones we have been using. It is very motivating for an instructor to see that some of them are adding background music to their Padlet videos and it is very enjoyable to see they are having fun. (I, Journal Data, 14.04.2020)

To sum up, the instructor perceived employing MALL activities as a motivating element in the classroom. Students are more willing to participate in the lessons, their perspective towards learning English became more positive. It is a mutual cycle which motivates the students and in turn motivates the instructor to keep on going.

4.3.2.2 Self-autonomous learners. The findings also revealed that students started to become autonomous learners ever since they have started using MALL activities more and more in the classroom.

> […] Students seem to be more confident during the lesson when they study the objectives of the lesson prior to the lesson. They ask questions which are beyond basic levels and that provides the opportunity to elaborate on topics more in detail (I, Journal Data, 08.04.2020).

> […] Students ask less questions upon using Kahoot personalized learning feature since it enables them to answer the same questions they answered incorrectly and when they do ask a question, I can clearly see that it is a question which needs to

be discussed with the whole class as it was not comprehended completely (I, Journal Data, 08.04.2020)

[…] When they see other students' posts, I see that sometimes they assess themselves and start asking stronger students questions about how they managed to learn that much. I see some of more encouraged to practice more (I, Journal Data, 17.04.2020).

All in all, students start becoming more autonomous learners with regard to using some MALL applications which provide opportunities to study individually. In addition, the questions which would have been time consuming to ask in the classroom are eliminated with effective individual study.

4.3.2.3 Raising collaboration in the classroom. With the findings, it is acknowledged that students collaborate in an increasing manner with MALL activities and they place importance on MALL activities which enabled this.

[…] As opposed to classroom group interactions, students are more enthusiastic to work together using their mobile devices and they seem to be enjoying it (I, Journal Data, 02.04.2020).

[…] After students upload their videos, audios or paragraphs on Padlet, they start commenting on each other's. When I share my screen to show all the posts during the class, I realize there is a greater collaboration which is happening between me and all the students. This level of collaboration would have been impossible without the use of mobile devices. I think it can be defined as redefining a task with the use of technology (Puentedura, 2006). (I, Journal Data, 15.04.2020)

[…] When I assign students individual tasks on their mobile devices, some ask whether they can carry out the task in groups. Upon being asked about the reason, they say that they know their strong and weak sides and thus helping each other (I, Journal Data, 21.04.2020).

As it can be understood from the excerpts, students are more enthusiastic to study together as they realize that they learn from each other. The collaboration level is recognized to reach a level which would have been not possible without the use of mobile devices.

4.3.2.4 Difficulties encountered. Despite the advantages it provides, integrating MALL activities in the lessons have some difficulties entailed. Trying to implement extra materials into the lesson while dealing with an overloaded curriculum already at hand may be posed as one of the challenging sides of using MALL in the classroom. Also, it was not easy to convince some students to write paragraphs or take videos with other students at the beginning of the implementation. Some students required more time for the assignments but it was not possible due to the busy schedule and the implementation procedure.

> […] In addition to the busy schedule in the week and the supplementary materials that need to be covered this week, creating Quizizz activities, writing Kahoot questions and giving feedback to my students' Padlet posts can be overwhelming at times (I, Journal Data, 16.04.2020).

> [...] Some students are shy and they do not want to share their writings or videos on Padlet (I, Journal Data, 08.04.2020).

> […] In order to recycle what they have learned, students need to be assigned some productive tasks but some students say they do not have enough time since they have other homework to do (I, Journal Data, 22.04.2020).

To sum up, in addition to the advantages it may provide MALL implementation can possess some challenges for instructors and some students. Busy schedules and students who do not want to experience new types of activities can be a hindrance in the process.

Overall, in the light of the reflection notes taken during the implementation process, it is revealed that MALL provides many advantages to instructors and students. Students are more enthusiastic in the classroom, they start to become autonomous learners and they are getting used to collaboration and how to take advantage of it. Despite the advantages, maintaining MALL activities in a routine can be overwhelming in busy schedules and some students can show resistance to trying new experiences using their mobile devices due to some excuses.

Chapter 5

Discussion and Conclusions

5.1 Overview

The aim of this thesis is to examine and compare the effect of MALL on the attitude levels of B1+ level EFL students enrolled in a preparatory program offered by a foundation (non-profit, private) university in Istanbul, Turkey. The study also attempts to find out the attitudes of students and reflections of their instructor about MALL-integrated EFL courses. In the study, data were collected through quantitative and qualitative data instruments including attitude pre-/post-tests scale, semi-structured interviews with the students and reflective journals of the instructor. In the next section, the findings about each research question will be discussed in detail.

5.1.1 Discussion of the findings of RQ 1: Is there a significant difference within and between the control and experimental group regarding their overall attitude scores? Learning a language is a complicated process that involves many various variables. Individual dissimilarities such as personal attitudes are crucial to have an effect on personal employment of information technology (Desmet, 2007; Liaw, Huang & Chen, 2007). Researchers agree that positive attitudes in learning a language can increase learners' motivation and assist language learning (Merisuo-Storm, 2007), despite mixed results in some studies (Sagarra & Zapata, 2008).

In the current study, the scale which was replicated by Gonulal (2019) from Vandewaetere and Desmet's (2009) validated A-CALL questionnaire included sub-scales to be explored. The sub-scales were developed according to the tripartite model of attitude (i.e., affective, cognitive, and behavioral). The sub-scales are effectiveness of MALL, teacher influence, degree of exhibition to MALL and surplus value of MALL.

In the current mixed method study, upon a 4 week treatment, control and experimental groups' attitude scores were analyzed. According to the overall analysis of the scores between two groups, it seems clear that experimental groups' attitude levels increased in a positive manner (Hsu, 2013). Also, according to the intragroup

comparison, it was indicated that the experimental group increased their scores. The findings are compatible with most of the results in the literature. Cardenas-Moncata et al.'s (2020) study investigated students' perceptions and attitudes with regard to Kahoot use in the classroom. According to the results, students' test scores showed a statistically significant difference compared to the students who didn't use Kahoot. In Viberg and Gronlund's (2015) study which included age, gender and cultural factors to examine students' attitudes towards mobile learning showed that students' attitudes towards mobile learning were positive with regard to individualization (83%), collaboration (74%) and authenticity (73%).

In order to have a wider perspective of results, sub-scales were also examined. According to the effectiveness of MALL sub-scale, the results designate that the implementation did not work as expected when it comes to the intergroup comparison. It may mean that experimental group students did not think that MALL was as effective as traditional learning. In the intragroup comparison though, there is an increase in the scores in the experimental group. Even though the current study did not examine students' achievement in a specific skill, the intergroup findings in the current study are contradictory to most studies related to MALL effectiveness. In Thornton and Housen's (2005) study, the results indicated mobile phones' educational effectiveness regardless of technical difficulties. The results are also not parallel with Başoğlu and Akdemir's (2010) study. In Başoğlu and Akdemir's (2010) study, 30 university students agreed that employing flashcards in their studies was more efficient compared to the control group who just used printed versions. Azar and Nasiri's (2014) study was about comparing cell-phone audiobooks with Cd-rom/audio cassette audiobooks with regard to effectiveness on listening comprehension. All participants stated that MALL is advantegous since it provides ease of access and it can be used at all times and in all places when it comes to communicating easily with their peers and teachers. The results are somewhat similar to Nah's (2010) study. Upon a 3-month study, the learners' attitudes changed after the experiment. Both positive and negative attitudes diminished and as a result, neutral responses went up.

According to the second sub-scale, teacher influence scores in the experimental group was not on increase both in intragroup and intergroup comparison. It has been indicated that students vary their learning approach with regard to some aspects they notice in the learning context. Students who use deep learning approaches tend to care

about independence in learning as well as having clear learning aims which is compatible with a teaching approach that is student-centred (Mollaei & Riasati, 2013). Kukulska-Hulme (2010) has described the concept of MALL within three contexts, the community as context (i.e., formal and informal education setting), a teacher-driven context ("formally designed") and a learner-driven context ("user-generated"). The procedure and the result is linked to students' personal requirements, opinions and initiative when the teacher assigns a task in the second model which is named the teacher-set activity (Çakmak, 2019). There are not many studies on teacher influence attitude scores regarding MALL. Thus, the results of the sub-scale may have been caused by teacher-set activities which did not have an effect on autonomous learners since students did not agree with the items which were related to teachers' significance towards motivating them to use MALL.

The third sub-scale was degree of exhibition to MALL. In the current study, students thought they could express themselves easily when it comes to lessons with mobile devices according to the scores both in intragroup and intergroup comparison. The items in the sub-scale mention anxiety in the classroom as opposed to anxiety in MALL environments. Davie and Hilber's (2015) study is compatible with the current results in the study. This research concludes that the use of smartphones in language learning is advantegous in terms of student motivation and may have additional long-term benefits. Cardenas-Moncata et al.'s (2020) study is also in harmony with the findings in the current study since the survey results showed that students had positive perspectives and attitudes towards employing Kahoot in the classroom that can support students and teachers in constituting a classroom which students can enjoy and improve themselves.

The last sub-scale in the questionnaire was related to the surplus value of MALL. According to the results, students acknowledge MALL as a very valuable extension to traditional learning and recognize the affordances of using MALL while learning a language such as creating an active atmosphere, being individual, giving the opportunity to study anytime, anywhere. The enhanced accessibility of m-learning allows the learner to access and exploit the material in personally preferred places and times. The opportunity to learn anytime and anywhere provide learning environments to be more deconstructed and allows students to access those environments disregarding simultaneous activities (Corbeil & Valdes-Corbeil, 2007). The key

aspects of mobile learning are known as the potential for learning to be personalized, situated, authentic, spontaneous and informal (Kukulska-Hulme, 2009). Mobile learning case studies and research (O'Malley et al., 2003; Traxler, 2005) have illustrated the benefits of learning opportunities in unfixed settings and times through mobile devices (Çakmak, 2019).

All in all, according to the analysis of the A-MALL scale scores, most of the results are in accordance with the literature and implementation studies. As it was mentioned, effectiveness of MALL and teacher influence scores were not as high as expected in intragroup and intergroup comparison but generally it seems that students recognize the advantages of using MALL in their studies.

5.1.2 Discussion of the findings of RQ 2: What are students' attitudes towards MALL? The thorough thematic analysis of reflections shared by the 8 students who took part in the semi-structured interviews obviously showed that a great majority of the students are ready to use MALL in their studies.

The convenience provided by MALL was mentioned in various utterances. Students stated that MALL activities are entertaining as they were in the study by Başoğlu and Akdemir (2010). Upon using vocabulary learning tools, students thought learning is more entertaining than learning with paper and pen (Başoğlu & Akdemir, 2010).

Students who participated in the interviews also highlighted that they have more opportunities to revise the content with MALL (Song & Fox, 2008). Use of these technologies turns out to be well adjusted with key educational objectives such as progressing student retention and accomplishment, supporting separation of learning requirements, and reaching learners who would not otherwise have the opportunity to take education (Kukulska-Hulme et al., 2005).

In the Affective Filter Hypothesis, Krashen (1985) states that a "filter" or "mental block" prevents L2 from "getting in". A low filter is linked with entertainment, confidence to take risks and a positive learning environment. When learners are in the classroom they can be uneasy while waiting to be called by the teacher and they may not concentrate on the content and cannot improve themselves (Huang & Hwang, 2013). The evaluation of the affect is turned into a behavioral aspect that provides a

link to the attitude and certain attitudes tend to prompt learners to adopt particular learning behaviors (Vandewaetere & Desmet, 2009). Some of those behaviours are explained in students' interview. Unlike in the classroom, they said they can start a conversation easier on mobile phones or check their dictionaries when no one is waiting for an instant answer in a crowded classroom. In the interviews, students emphasized less anxiety and shyness when they learn English with the help of their mobile phones. The results are in accordance with Han and Keskin's (2016) mixed method study. Han and Keskin (2016) used Whatsapp to explore students' speaking anxiety levels and results showed that WhatsApp experiences significantly impacted the students' language acquisition by diminishing EFL speaking anxiety.

When it comes to compare MALL with traditional type of learning in terms of effectiveness, it was clear that students are not ready to give up on traditional learning completely. Technical problems in the unexpected distance learning process, especially in the exams may have provided a basis regarding those thoughts. Also, getting distracted by mobile phones was mentioned as a negative feature of using mobile phones as well as connection problems and small screen sizes.

In short, the qualitative data mostly supported the results of the prepost-tests and relevant literature. There are some contradictory results regarding the effectiveness of MALL but it can be attributed to design drawbacks and unexpected distance education process. According to the results of the quantitative data and the qualitative data, it can be understood that students reacted positively to MALL implementation.

5.1.3 Discussion of the findings of RQ 3: What are the instructor's reflections towards implementing MALL in the classroom? As for the third research question, reflective journals kept by the instructor were analyzed in order to identify her perceptions regarding the MALL implementation process. These reflections were analysed through thematic analysis. The results clearly indicated that the instructor's reflections included many advantages she observed during the implementation. In the reflective journals, collaboration was acknowledged as a major theme as the instructor saw students collaborating more and taking advantage of it. These findings are in line with Viberg and Grönlund's (2015) study in which it was also indicated that students take advantage of collaboration in MALL activities. Also, in the reflective journals, the instructor observed that students enjoy using MALL

activities and they are enthusiastic to implement more in their studies. In Davie and Hilber's (2015) study, the interviews showed that students considered studying with Quizlet as beneficial, entertaining and efficient. Similarly, In Gutierrez-Colon et al.'s (2012) study and Chen's (2013) study, MALL applications were found to be engaging according to the students. The difficulties encountered while implementing MALL was also indicated in the reflective journals. The challenges experienced by the instructor were represented from some perspectives such as having a busy schedule. The current findings are similar in Tai and Ting's (2011) study in which it was stated that instructors needed organizational support to implement more successful MALL practices in their classrooms.

5.2 Pedagogical Implications

The current study has several implications for the researchers, instructors and curriculum planners. Initially, the results indicated that MALL usage in the classroom leads to more positive attitudes towards the lessons in an overall manner. Also, students believe that they have less anxiety and have more opportunities while using mobile devices. Students are not sure whether MALL is as effective as traditional learning and they think that teacher influence is not required.

5.3 Conclusions

The current mixed method study explored preparatory school students' attitudes towards MALL. It is impossible to visualize today's world without the implementation of mobile technologies and it is anticipated that in the coming ten years, mobile technologies will carry on to be more popular, personal, strong and social (Krull & Duart, 2017). Attitude is an important aspect that may lead to raised success levels (Gardner, 2000). The present study contributes to the literature by investigating Turkish preparatory school students' attitudes towards MALL. As the study included a control and an experimental group, it was seen clearly that upon the implementation, experimental group students' overall scores increased and it shows that they possess positive attitudes towards using MALL in the classroom. In the current study, A-MALL questionnaire which was adapted by Gonulal (2019) was used by emphasizing tripartite model of attitude. In this way, students' reactions to cognitive, affective and behavioral components of attitude could be seen more clearly. The semi-structured interviews and instructor's reflections were mostly in line with the A-MALL analysis.

According to Bax (2003) normalisation is the stage when a technology is invisible, hardly even recognized as a technology, taken for granted in everyday life. The results in the study illustrated that teachers need to integrate MALL more in their classrooms and help their students to normalize MALL in their language learning studies.

5.4 Recommendations for Future Research

The present study may offer some recommendations for future researchers investigating EFL students' attitudes of MALL in the classroom. Initially, the study was conducted with a limited sample size of students. Thus, a study which is similar in scope might be replicated in terms of using a larger sample size of students. Secondly, in the current study students' attitudes were investigated by means of an attitude scale and semi-structured interviews. Instructor's attitudes were explored by analyzing reflective journals during the implementation phase. In future studies investigating attitudes of students towards MALL, instructors' attitudes towards using MALL in their lessons could also be examined along with the use of questionnaires and interviews with a large sample size of teachers. Also, the implementation phase was relatively short due to some constraints. Future researchers can keep the implementation phase relatively longer to get better results. Last but not the least, students' achievement levels were not taken into account in the current study. Thus, further study can explore students' proficiency levels as well as comparing their attitudes towards MALL.

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APPENDICES

A. A-Mall Scale

Mobil cihaz destekli dil öğrenimine yönelik tutum anketi

Bu anket mobil cihaz destekli dil öğrenimine yönelik 20 soru içermektedir. Sorulara verilen cevaplarınız araştırmada kullanılacak olup, üçüncü kişilerle paylaşılmayacaktır. Anketteki soruları 1'den (Hiç katılmıyorum) 5'e (Tamamen katılıyorum) kadar olan sayıları (1,2,3,4,5) kullanarak cevaplandırabilirsiniz.

	Hiç katılmıyorum	Katılmıyorum	Kararsızım	Katılıyorum	Tamamen katılıyorum
1. Dil öğrenimim, mobil bir cihazla desteklenirse daha iyi ilerleyebilir.	1	2	3	4	5
2. Yabancı dil öğrenirken mobil cihaz kullanmak, konuşma pratiği yaparak öğrenmek kadar etkili değildir.	1	2	3	4	5
3. Mobil teknoloji kullanılan testler, kağıt-kalemle yapılan testlerin yerini tutamaz.	1	2	3	4	5
4. Mobil cihaz destekli dil öğrenimi, geleneksel dil öğrenimi kadar yeterli değildir.	1	2	3	4	5
5. Dil becerilerini mobil cihazla edinen kişinin yetkinliği, geleneksel metodlarla edinen kişilere kıyasla daha azdır.	1	2	3	4	5
6. Mobil cihaz destekli dil öğrenimi klasik öğrenme metodlarının önemli bir uzantısıdır.	1	2	3	4	5
7. Mobil cihaz destekli dil öğrenimi, geleneksel dil öğrenimi kadar önemlidir.	1	2	3	4	5
8. Mobil cihaz destekli dil öğrenimi, dil öğrenmeyi daha esnek bir hale getirir.	1	2	3	4	5
9. Mobil cihaz destekli dil öğrenimi kendi başına yeterlidir.	1	2	3	4	5
10. Yabancı bir dili mobil bir cihaz kullanarak öğrenmek daha rahat ve stressiz bir ortam oluşturur.	1	2	3	4	5
11. Yabancı bir dili mobil cihaz kullanarak öğrenmek zekayı geliştirir.	1	2	3	4	5
12. Mobil cihaz kullanarak yeni bir dil öğrenmek isterdim.	1	2	3	4	5
13. Mobil cihaz destekli dil öğrenimine yönelik tutumumu büyük ölçüde öğretmenimin mobil cihaz destekli dil öğrenimine yönelik tutumu belirler.	1	2	3	4	5

14. Mobil cihaz kullanarak dil öğrenme motivasyonumu, büyük ölçüde öğretmenimin mobil cihazla dil öğretmeye yönelik hevesi belirler.	1	2	3	4	5
15. Mobil cihaz kullanmaya yönelik tutumum, öğretmenimin mobil cihazla dil öğretme yeterliliği ile şekillenir.	1	2	3	4	5
16. Mobil teknoloji kullanılarak hazırlanan dil testlerine güveniyorum.	1	2	3	4	5
17. Mobil teknoloji kullanılarak hazırlanan dil alıştırmalarına güveniyorum.	1	2	3	4	5
18. Yabancı dil öğrenirken mobil cihaz yoluyla kurduğum iletişimde, yüz yüze kurduğum iletişim kadar zorlandığımı hissetmiyorum.	1	2	3	4	5
19. Sınıf ortamında (yüz yüze) yabancı dilde konuşurken genelde endişeli hissediyorum.	1	2	3	4	5
20. Bana göre, yüz yüze bir konuşma başlatmak, sanal ortamda konuşma başlatmaktan daha zor.	1	2	3	4	5

B. Interview Questions

1. Mobil cihazların İngilizce öğreniminde kullanılması ile ilgili düşüncelerin nelerdir?

2. Mobil cihaz kullanımı ve İngilizce becerileri arasında bir ilişki var mı?

3. Mobil cihaz destekli dil öğreniminin avantajları nelerdir?

4. Mobil cihaz destekli dil öğreniminin dezavantajları nelerdir?

5. Mobil cihaz destekli öğrenme geleneksel öğrenme yöntemlerine göre daha mı etkili? Mobil cihazlarla yapılan sınavlar ve geleneksel sınavlar arasında sence nasıl bir fark var?

6. Sence, öğretmeninin derste mobil cihazla yapılabilecek aktiviteler sunması ve buna yönelik davranışı senin de mobil cihaz kullanmaya olan davranışını etkiler mi ?

7. Yabancı dilde konuşurken hangi durumda daha çok zorlandığını hissedersin? Sınıfta konuşurken mi, mobil cihaz kullanarak konuşurken mi? Bu zorlanma durumunu hangi duygu ile tanımlayabilirsin?

8. Nerede daha kolay bir konuşma başlatabilir ya da dahil olabilirsin? Yüz yüze konuşurken mi, mobil cihaz kullanırken mi?

9. Mobil cihaz destekli dil öğrenimi sence öğrenciler açısından sınıfta ya da sınıf dışında nasıl bir ortam oluşturur?

10. Sence mobil cihaz destekli dil öğrenimi geleneksel yöntemin bir devamı mı yoksa yeni bir yöntem mi?

11. Mobil cihaz kullanırken en çok hangi uygulamaları kullanmayı seviyorsun? Neden?

C. Curriculum Vitae

PERSONAL INFORMATION

Surname, Name: Kanat Küçüktezcan, Işıl İpek

Nationality: Turkish (T.C.)

Date and Place of Birth: 20 September 1985, İstanbul

Marital Status: Married

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EDUCATION

Degree	Institution	Year of Graduation
BS	İstanbul University	2007
High School	Yeşilköy Anatolian High School	2003

WORK EXPERIENCE

Year	Place	Enrollment
2016-…	Kadir Has University	Instructor
2015-2016	Bahçeşehir University	Instructor
2014-2015	İstanbul Aydın University	Instructor

FOREIGN LANGUAGES

English, German

CERTIFICATES

CELTA, Certificate in Teaching English to Speakers of Other Language

Pedagogical Formation, İstanbul University, Hasan Ali Yücel Faculty

PUBLICATIONS

Küçüktezcan, I. İ. K., Altay, Ş., Mede, E. (2020). The Effects of Peer Assessment vs. Teacher Assessment on the Writing Apprehension of English Learners. In M. S., Khine (Ed.), *Contemporary Perspectives on Research in Educational Assessment* (pp 107-121). Zaltbommel, Netherlands: Van Haren Publishing.

HOBBIES

Reading Poems, Playing Guitar and Drums