TEKNOLOJİ DESTEKLİ DİL ÖĞRENİMİNİN İNGİLİZCE BÖLÜMÜ ÖĞRENCİLERİNİN KELİME VE İLETİŞİM BECERİLERİNİN GELİŞTİRİLMESİ ÜZERİNDE ETKİSİNİN İNCELENMESİ

Ayşe MERZİFONLUOĞLU

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TEKNOLOJİ DESTEKLİ DİL ÖĞRENİMİNİN İNGİLİZCE BÖLÜMÜ ÖĞRENCİLERİNİN KELİME VE İLETİŞİM BECERİLERİNİN GELİŞTİRİLMESİ ÜZERİNDE ETKİSİNİN İNCELENMESİ

(Examining the Impact of TELL on ELT Students' Development of Vocabulary and Conversational Skills)

DOKTORA TEZİ

Ayşe MERZİFONLUOĞLU

Danışman: Doç. Dr. Ayşegül TAKKAÇ TULGAR

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Ayşe MERZİFONLUOĞLU tarafından hazırlanan "Teknoloji Destekli Dil Öğreniminin İngilizce Bölümü Öğrencilerin Kelime ve İletişim Becerilerinin Geliştirilmesi Üzerinde Etkisinin İncelenmesi" başlıklı çalışma 25 / 12 / 2020 tarihinde yapılan tez savunma sınavı sonucunda başarılı bulunarak jürimiz tarafından Yabancı Diller Eğitimi Ana Bilim Dalı, İngiliz Dili Eğitimi Bilim Dalında doktora tezi olarak kabul edilmiştir.

Jüri Başkanı:	Prof. Dr. Gencer ELKILIÇ	
	Kafkas Üniversitesi	Aslı Islak İmzalıdır.
Danışman:	Doç. Dr. Ayşegül TAKKAÇ TULGAR	
	Atatürk Üniversitesi	Aslı Islak İmzalıdır.
Jüri Üyesi:	Doç. Dr. Mustafa Zeki ÇIRAKLI	
	Karadeniz Teknik Üniversitesi	Aslı Islak İmzalıdır.
Jüri Üyesi:	Dr. Öğr. Üyesi Mine YILDIZ	
	Atatürk Üniversitesi	Aslı Islak İmzalıdır.
Jüri Üyesi:	Dr. Öğr. Üyesi Oktay AKARSU	
	Atatürk Üniversitesi	Aslı Islak İmzalıdır.

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ÖZ

DOKTORA TEZİ

TEKNOLOJİ DESTEKLİ DİL ÖĞRENİMİNİN İNGİLİZCE BÖLÜMÜ ÖĞRENCİLERİNİN KELİME VE İLETİŞİM BECERİLERİNİN GELİŞTİRİLMESİ ÜZERİNDE ETKİSİNİN İNCELENMESİ

Ayşe MERZİFONLUOĞLU

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Amaç: Bu çalışmanın amacı, teknoloji destekli dil öğretiminin geleneksel dil öğretiminin olası eksikliklerini en aza indirerek sınıf içi ve dışında İngilizce Öğretmenliği Bölümü öğrencilerinin iletişim becerileri ve kelime bilgisi gelişimi üzerine olan etkisini incelemektir. Çalışmanın uzun vadede bir diğer amacı, katılımcıların teknoloji ile dil öğrenme konusunda farkındalıklarının artırılması ve uygulamaya ilişkin algı ve görüşleri ışığında dil eğitimine teknoloji entegrasyonu konusunda teşvik edilmesidir.

Yöntem: Araştırma deseni olarak karma yöntem sıralı açıklayıcı desen kullanılmıştır. Türkiye'de bir devlet üniversitesinin hazırlık programında öğrenim gören 48 öğrenci araştırmanın katılımcılarını oluşturmuştur. Deney grubu teknoloji ile desteklenmiş dil öğrenme ortamında iken kontrol grubu geleneksel öğrenme ortamında çalışmıştır. Uygulama 12 hafta sürmüştür. Nicel veri toplama araçları ön ve son testler, beş ve yedi puanlık Likert tipi anketler, öz değerlendirme kontrol listeleri, her bir ünite için mini anketler ve haftalık ödevler iken nitel veri toplama araçları yazılı değerlendirme ve öneri formları ve yarı yapılandırılmış görüşmelerdir. Nicel verilerde betimsel ve çıkarımsal analizler kullanılırken, nitel verilere yönelik kodlar, kategoriler ve temalar oluşturmak için içerik analizi yapılmıştır.

Bulgular: Çalışmanın sonuçları, uygulama sonunda artan başarıya rağmen, deney ve kontrol gruplarının puanları arasında hedeflenen beceriler açısından istatistiksel olarak anlamlı bir fark olmadığını ortaya koymuştur. Nitel veri analizi, öğrencilerin büyük çoğunluğunun teknoloji destekli dil öğrenimine yönelik olumlu tutum ve algılarının olduğunu ve teknolojinin resmî ve gayriresmî öğrenme ortamlarında kullanımının etkileşim, işbirliği, bireysellik, mekânsal ve zamansal esneklik gibi birçok avantaj sunduğunu göstermiştir.

Sonuç: Teknolojinin bireylerin yaşamındaki baskın rolü ve ilgili alanyazında önceki çalışmaların bulguları değerlendirildiğinde, özellikle özgün materyaller ve anadili İngilizce olan kişilerle etkileşim gerektiren dinleme ve konuşma becerileri için teknolojinin dil eğitimine entegre edilmesi önerilmektedir. Bu çalışma, İngiliz Dili eğitimi alanındaki araştırmacılar için metotsal ve pedagojik öneriler de sunmaktadır.

Anahtar Kelimeler: teknoloji destekli dil öğretimi, dijital okuryazarlık, iletişim becerileri, kelime bilgisi gelişimi

ABSTRACT

DOCTORAL DISSERTATION

EXAMINING THE IMPACT OF TELL ON ELT STUDENTS' DEVELOPMENT OF VOCABULARY AND CONVERSATIONAL SKILLS

Ayşe MERZİFONLUOĞLU

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Aim: The major purpose of this study was to examine the impact of TELL on ELT students' conversational skills and vocabulary development by minimizing the possible deficiencies of traditional language teaching in and out of the classroom. This study also intended to raise awareness of the participants about language learning with technology and encourage them in terms of technology integration into language education in the light of their perceptions and opinions of the intervention.

Method: A mixed-methods sequential explanatory design was used as the research design. 48 students studying at a preparatory program of a public university in Turkey were the participants of the study. The experimental group studied in a technology integrated language learning environment while the control group was in a conventional learning setting. The intervention lasted 12 weeks. Quantitative data instruments were pre- and post- tests, a five and seven-point Likert type questionnaires, self-assessment checklists, mini questionnaires for each unit and weekly assignments while qualitative data instruments were written evaluation and suggestion forms and semi-structured interviews. For the quantitative data, descriptive and inferential analysis were used while content analysis was applied to form codes, categories and themes for the qualitative data.

Findings: The results of the study revealed that despite increased success at the end of the intervention, there was no statistically significant difference between the scores of the experimental and control groups in terms of targeted skills. The qualitative data analysis showed that a great majority of the students had positive attitudes towards and perceptions of technology-supported language learning and using technology in formal and informal learning environments presented many advantages such as interaction, collaboration, individuality, and spatial and temporal flexibility.

Conclusion: When the dominant role of technology in individuals' lives and the findings of previous studies in the related literature were considered, it was suggested to integrate technology into language education for listening and speaking skills requiring especially authentic materials and interaction with native speakers. This study also provided practical and pedagogical implications for researchers in ELT.

Keywords: technology enhanced language teaching, digital literacy, conversational skills, vocabulary development

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LIST OF ABBREVIATIONS

CALL **:** Computer-Assisted Language Learning
EFL **:** English as a Foreign Language
ELT **:** English Language Teaching
ESL **:** English as a Second Language
ICT **:** Information and Communication Technologies
MALL **:** Mobile-Assisted Language Learning
TELL **:** Technology Enhanced Language Learning

CHAPTER ONE

Introduction

This chapter presents the background information and theoretical framework related to the study. It continues with the problem statement, the purpose of the study, and its expected contributions to the field of language education. The chapter ends with the limitations of the study, the explanation of basic terminology, and the outline of the dissertation.

Technology in Education

Due to the growing improvements attracting attention in the field of technology and the requirements of the 21st century, it can be stated that technology has a pivotal role in every aspect of individuals' lives, and its presence cannot be ignored. A growing body of technological tools such as computers, tablets, smartphones, instant messaging, social networking, speech recognition programs, e-books, electronic dictionaries, voice-recording, interactive audio conferencing, and voice assistant devices have changed the ways how individuals live, work, access information, communicate, and interact (Gilakjani, 2017; Leu, 2010; Raja & Nagasubramani, 2018). Individuals' lives have been immersed by technology (Jarvis & Achilleos, 2013) since the impact of technology can be observed and experienced in such different areas as transportation, business and economy. Correspondingly, individuals are becoming more prone to technology and digitally literate day by day. Several researchers (Costley, 2014; Kilickaya & Seferoglu, 2013; Selwyn & Bulfin, 2016) emphasize this addiction by stating that people live in a technology-rich environment and they need much more of technology every day.

Considering numerous advantages of technological developments in our lives, the most indispensable benefit of this utilization is possibly the opportunity to reach abundant sources and information on a topic at any time and any place. As experienced in other areas of human life, education has also benefited from the availability and flexibility of information without temporal and spatial constraints (Chu, 2014; Godwin-Jones, 2011; Han, Kong, Liu, & Zhou, 2010; Kalogiannakis & Papadakis, 2017; Lam, Yau, & Cheung, 2010; Lee, Yeung, & Ip, 2016; Liu, 2009; Liu & Chen, 2015).

The developments in the field of technology have entailed the integration of digital tools into education (Reynolds & Anderson, 2015) and the way educators teach has been changed by the proliferation of mobile technologies and the prevailing use of wireless communication irreversibly. Taking the conditions of the modern technology-surrounded world into account, one can imply that integrating some form of technology has become almost a necessity to carry out effective teaching and learning processes inside and outside classroom settings. As stakeholders of education, students lead their lives using various technological devices such as smartphones, laptops, and tablets with the Internet connection (Waycott, Bennett, Kennedy, Dalgarno, & Gray, 2010). This situation enables them to become more capable of using technological tools and; thus, they are called "digital natives" defined as the generation surrounded by technology not as a part of but an essence of their life since they were born (Prensky, 2001). Consequently, the educational process, structure and functions of educational institutions, learning environments, teaching and learning materials, and approaches, and the roles of teachers and students have also been reshaped in line with the demands of the digitally-native students (Abdous, Camarena, & Facer, 2009; Coccoli, Guercio, Maresca, & Stanganelli, 2014; Gorter & Cenoz, 2017; Lai & Hwang, 2014; Srebnaja, 2020; Tai, 2012; Yang, 2018).

The popularity of technological devices as important components of education has necessitated new ways of teaching in order to fulfill the needs of students as digital natives preferring learning with technology (Kurt, Gunuc, & Ersoy, 2013). This requirement does not result only from the new profile of learners as digital learners; the contributions brought by technology such as rich context, increased student participation and interaction (Banitt, Theis, & Van Leeuwe, 2013; Golonka, Bowles, Frank, Richardson, & Freynik, 2014; Wong, Chen, & Jan, 2012) also require changes in learning and teaching process. Therefore, the main question is not whether technology should be integrated into education but how it should be utilized to meet the demands of a changing learner profile in a technology-surrounded environment (Hubbard, 2009).

In line with this requirement, many countries have taken some steps to develop their educational planning and strategy (Chakraborty & Bakshi, 2016). In the United States, two projects called Maine Learning Teaching Initiative and North Carolina 1:1 Learning Technology Initiative were among the attempts at technology integration into education. In the scope of the first project starting in 2002, all 7th and 8th-grade students and teachers working at these levels were provided with laptops and teachers were assisted in terms of technical issues and professional development in order to utilize technology in an effective way in the learning and teaching process (Silvernail & Gritter, 2007). In 2008, the second project selected pilot schools and the students were given laptops with the Internet connection to develop success (Argueta, *et al.*, 2009). Many countries such as Norway, Belgium, Sweden, Spain, France, Portugal and Ireland conducted various projects in which the main aim was to raise awareness about technology use in education, to equip the schools with technological tools, and to train students and teachers (Eryilmaz & Salman, 2014).

Like in many countries all around the world, the national government in Turkey took some steps to keep up with the current advancements requiring technology integration, as well. One of these projects was the Movement of Enhancing Opportunities and Improving Technology (FATIH) Project in which most of the classrooms were equipped with smart boards with the Internet connection and the students were given tablets and iPads to study with the aim of utilizing technology in an effective way (Akinci, Kurtoglu, & Seferoglu, 2012). These national and international attempts point at the growing significance of technology integration into education to support teaching and learning process.

Technology in Language Education

The utilization of technology in education has also brought its benefits to the specific field of language education that is possibly one of the most affected fields by technology (Li, 2017; Sung, Chang, & Liu, 2016). Technology integration into language education can be considered as a necessity rather than a trend (Godwin-Jones, 2011) as it helps learners promote their language proficiency (Alberth, 2013). The perusal of the history of language education reflects the need for and the practice of step-by-step technology integration from Audio-Lingual Method which followed behavioristic theory and relied on language laboratories in 1940s to the Computer-Assisted Language Learning (CALL) period which has been grounded on cognitive and humanistic theories and supported interaction through technology in the last few decades. The widespread use of personal computers over time and the spread of the Internet in the 1990s also provided various opportunities such as individuality, rich resources, interaction, collaboration, and ubiquitous learning (Abugohar, Yunus, Rabab'ah, & Ahmed, 2019; Asiksoy, 2018; Kim & Kwon, 2012; Nomass, 2013; Schreiber & Jansz, 2020; Warschauer, Shetzer, & Meloni, 2000; Zhou, 2018).

Despite the spread of personal computers and several advantages provided by computers such as authentic materials, visual and aural elements, interactive learning in classroom environment, and individualized learning out of the classroom, various limitations such as high cost, technical support, problems pertaining to hardware, software, portability, and setting were encountered in CALL (Ko, 2017). By the same token, the developments of more portable devices such as smartphones, tablets, laptops, and iPads and the impact of the constructivist approach impelled educators and learners to use more practical devices presenting contextual learning environments (Chinnery, 2006). In line with this tendency and improvements of more portable and authentic mobile devices, educators and instructors started to prefer hand-held devices enabling mobility of learners besides mobility of devices over time (Kukulska-Hulme, 2009). Consequently, Mobile-Assisted Language Learning (MALL) has taken the place of CALL on a large scale. The most salient feature of MALL compared to CALL is the portability of the devices and flexibility in learning independent of time and place (Thornton & Houser, 2004). In this way, learners are offered the chance to study both in and out of the classroom and develop individualized learning patterns according to their own learning pace (Ahn & Lee, 2016; Golshan & Tafazoli, 2014).

Owing to the improvements in technology, learners can now utilize many different technological tools ranging from personal computers and laptops to smartphones in the learning process, which has blurred the distinction between CALL and MALL and introduced the concept of Technology Enhanced Language Learning (TELL). Although TELL emerged as a term describing the use of computers with the Internet connection for educational purposes at first, it refers to learning which is supported by any kind of technological tools (Beatty, 2013). Owing to the comprehensible meaning of TELL, this term has been preferred to point at the studies including educational technologies to support learning.

Different from previous approaches, TELL enables learners and teachers to utilize various kinds of devices for educational purposes by extending the boundaries of the classroom setting. As a result of temporal and contextual flexibility and rich context provided by new technologies, researchers in the field of language education have shown great interest to examine the impact of technological tools that have a non-negligible role in learning and teaching process and are effective in catching up the interest of students who grow up with technology in every aspect of their lives. In the related literature, there are many studies indicating the advantages of using technological tools in language education in and out of the classroom. Technology enables us to practice in a limited course time by providing abundant resources in multimodal ways (Gunduz, 2005; Jarvis, 2015; Marek & Wu, 2019; Mayer, 2003; Miangah & Nezarat, 2012). Technological tools also have a prominent and facilitating role in terms of supporting learners by providing a more entertaining learning environment (Levy, 2009), an opportunity to practice in the target language (Hawkins & Uzuner, 2008), interaction with native speakers or other EFL learners (Chen & Chung, 2008; Yeh & Lai, 2019), collaborative learning (Lan, Sung, & Chang, 2007; Lim Abdullah, Hussin, Asra, & Zakaria, 2013; Poláková & Klímová, 2019; Zurita & Nussbaum, 2004), and new learning experiences through interaction (Pedersen & Liu, 2003). There are several studies pointing at the importance of using technological devices for educational purposes in language education (Ghanizadeh, Razavi, & Jahedizadeh, 2015; Grgurovic, Chapelle, & Shelley, 2013; Jin, 2018). Using a smart board or projector to teach language skills attracts students' attention with audio and visual elements that address different learning styles to boost the language learning process (Sung, Chang, & Yang, 2015). When tablets or personal computers are used during the course, exercises on language skills can be done in a shorter time in the technology-supported course in which students are able to reach all documents in a few seconds, answer the questions and check their answers in a shorter time without waiting for completion of other students, which also improves individualized learning (Heinrich, 2012).

Besides presenting the advantages of technology integration into language education, related studies have also examined the development of specific language skills focusing on vocabulary development, reading comprehension and writing skills (Burston, 2015; Darmi & Albion, 2014; Elaish, Shuib, Ghani, & Yadegaridehkordi, 2019; Kim & Kwon, 2012; Shadiev & Yang, 2020; Sung, *et al.*, 2015).

Lu (2008) aimed to improve vocabulary knowledge of the students by using Short Message System (SMS) and examine their attitudes towards technology use in language education and the results revealed that even if there were some limitations pertinent to technical issues, the students using SMS outscored those in the control group and had positive attitudes towards learning the vocabulary by using mobile phones. Zhang, Song, and Burston (2011) exploited SMS for improving vocabulary knowledge of university students and in the short term, the students supported by SMS became more successful than the students using text-based material. Considering reading skills, Marzban (2011) examined the effect of CALL on the reading skill of 60 Iranian university students and concluded that CALL had a positive effect on improving the students' reading comprehension. Focusing on writing development, Pinkman (2005) utilized blogs that were the most common tools used for developing writing skill in order to help students during out of class activities. At the end of the intervention, it was found out that blogs were effective in terms of developing writing skills besides motivating the students to use the target language actively, providing interaction among them and getting feedback. Shih (2011) used a social media platform and peer assessment with the aim of improving the writing skill of a group of college students in an 18-week-writing class. The results of the study revealed that writing via a social platform motivated the participants to study and increased cooperation among them besides enhancing writing skills in English.

In terms of listening and speaking skills, the studies are comparatively limited albeit their findings are valuable for the researchers (Bachate, 2016; Elfeky & Masadeh, 2016; Liu, 2009). Hsu, Wang, and Comac (2008) preferred audio blogs for the development of oral skills and interaction between students and instructors. The results indicated that using audio blogs affected the students' success positively besides providing individualized feedback and an enjoyable learning process. Nomass (2013) conducted a case study with the aim of examining ELT students' acceptance level of technology in Libya and underlined the impact of technological tools such as podcasts, iPods and video players on learners' pronunciation and intonation through listening activities and the development of vocabulary and pronunciation through speaking activities in the light of the findings. Elfeky and Masadeh (2016) explored the impact of technological devices on conversational skills of 50 Arabian students and found a significant difference between the scores of the students. Hwang, Shih, Ma, Shadiev, and Chen (2016) aimed to develop conversational skills of the students through game-based activities. The results revealed that although there was no difference between the listening scores of the students, game-based activities enhanced the students' oral performance by increasing practice chance in an authentic context promoting the production of more accurate and meaningful sentences.

The analysis of the related literature shows that the integration of technology into language education brings various advantages and provides learners with different options to study and develop different language skills. Considering reading skills, Chen, Chen, Chen, & Wey (2013) indicate that using digital technologies such as e-books is effective in the improvement of reading comprehension as learners can have access to original texts in the target language, which provides more accurate learning. With the aim of promoting writing performance, using various programs or applications through technological devices boosts learners' motivation (Khadem Estarki & Bazyar, 2016), and increases the quality and quantity of writings by minimizing errors and punctuation mistakes (Fattah, 2015; Gharehblagh & Nasri, 2020; Jafarian, Soori, & Kafipour, 2012). With regard to vocabulary development, technology presents input in target language that is comparatively limited in classroom activities and multimedia helps learning in a shorter time and promotes retention (Siyanova-Chanturia & Webb, 2016). In terms of listening skill, learners are exposed to the actual use of the target language and appropriate pronunciation of the words; in this way, they can avoid possible mistakes produced by classmates and teachers (Fouz-González, 2017; Mahdi & Al Khateeb, 2019; Sidgi & Shaari, 2017). In terms of speaking skills, learners have a chance to practice the target language in input-rich contexts and interact with native speakers and other EFL learners all over the world (Azar & Nasiri, 2014; Zhang, 2016). However, the review of the literature points at the focus on the examination of vocabulary, reading and writing skills while there is still scarcity of research on listening and speaking skills. The studies on listening and speaking skills are comparatively limited whilst one of the main requirements of language learning is to develop communication in the target language (Luo, Lin, Chen, & Fang, 2015). Alptekin and Tatar (2011) explain this scarcity with the ignorance of aural and oral skills in the courses despite their presence in the syllabus.

Setting out from this gap, this study aims to examine the impact of technology integration on ELT students' conversational skills and vocabulary development by raising their awareness with regard to educational technologies and their benefits. As multi-functional mobile devices have great potential to present a more comprehensive and authentic language-learning environment (Yang, 2013), it is thought that the integration of technology will promote EFL learners' conversational skills and their vocabulary development (Christiansen & Koelzer, 2016).

Statement of the Problem

In tandem with technology integration into education, language education has also been reshaped by the improvements in the field of technology. Showing the advantages of technology use and presenting a framework on the importance of technology in language education, several researchers reviewed the studies on mobile technologies used in the learning process (Chinnery, 2006; Godwin-Jones, 2011; Kukulska-Hulme & Shield, 2007, 2008; Wu, *et al.*, 2012). Research revealed that a learning environment supported by technological tools provides a rich context to learners so that they are able to be exposed to the target language more (Cziko, 2004; Domingo, 2020; Parvin & Salam, 2015). In addition to abundant sources, technology allows learners to interact with native speakers and other EFL learners (Ahn & Lee, 2016). Due to the changing roles of the students, more collaborative learning takes place in a more student-centered learning environment (Sung, *et al.*, 2015). Besides the benefits in the classroom, learners are able to reach information behind the classroom walls (Hani, 2014). With the integration of technology, the negative effects of some barriers such as time (Yang & Chen, 2007), and limited material (Kabaharnup, 2010; Kukulska-Hulme & Shield, 2008), and contextual limitations (Baykal & Daventry, 2000; Han, *et al.*, 2010) can be minimized.

When the particular case of the development of conversational skills in language education is considered, technology can be claimed to have an undeniable place. Language learners are provided with many opportunities among which authentic sources presenting original language use are available (Alsied & Pathan, 2013; Chun, Kern, & Smith, 2016; Garrett, 2009; Lan, Fang, Legault, & Li, 2015; Smith, Higgins, Wall, & Miller, 2005; Sung, *et al.*, 2015; Young, 2003; Zhao, 2003). Being exposed to authentic forms of language, learners can become more motivated (Ciampa, 2014; Golonka, *et al.*, 2014; Gray, Hagger-Vaughan, Pilkington, & Tomkins, 2005; Kuru Gonen, 2019; Lan, *et al.*, 2007, 2009; Mathews-Aydinli &

Elaziz, 2010) and more eager to take responsibility in learning (Gunuc & Kuzu, 2014; Gurluyer & Elkilic, 2019; Hwang, Huang, Shadiev, Wu, & Chen, 2014; Kuru Gonen, 2019; Tozcu, 2008; Zhang, *et al.*, 2011), which increases their success (Sung, *et al.*, 2015).

When the relevant studies are examined, it is seen that there is a growing body of research pertinent to technology integration. However, the most frequently examined points are learner perceptions (Felix, 2005, Hwang & Fu, 2019; Shadiev, Hwang, & Huang, 2017), learner and teacher beliefs, their acceptance and attitudes (Aydin, 2013; Bate, 2010; Bozdogan, 2015; Burston, 2015; Hwang & Fu, 2019; Levin & Wadmany, 2006; Nim Park, & Son, 2009; Yurdagul & Oz, 2018), language proficiency (Shadiev, *et al.*, 2017) and learner motivation (Wu, *et al.*, 2012).

As regards the specific skills studied in technology-integration research, reading, writing, and vocabulary are reported to be the frequently examined language skills (Alemi, Sarab, & Lari, 2012; Attewell, 2005; Begum, 2011; Clarke, Keing, Lam, & McNaught, 2008; Elaish, *et al.*, 2019; Felix, 2005; Golonka, *et al.*, 2014; Kim, 2011; Kim & Kwon, 2012; Liu, Moore, Graham, & Lee, 2002; Lu, 2008; Motallebzadeh, Beh-Afarin, & Daliry Rad, 2011; Motallebzadeh & Ganjali, 2011; Shadiev & Yang, 2020; Song, 2008; Song & Fox, 2008; Stockwell, 2007a; Tabatabaei & Goojani, 2012; Thornton & Houser, 2001; 2004; Zhang, *et al.*, 2011). AbuSa'aleek (2014), Burston (2014, 2015), Darmi and Albion (2014), Hwang and Fu (2019), and Sung, *et al.* (2015) maintain that while there are many studies on reading, writing and vocabulary, there is a scarcity of research on listening and speaking skills in technology studies. Godwin-Jones (2017) draws attention to this deficiency by pointing to the focus on drill-type exercises instead of communicative activities. Similarly, some meta-analysis studies (Sung, *et al.*, 2015; Viberg & Gronlund, 2012) reveal that mobile devices are not preferred for communicative activities despite the great potential in connection, interaction and collaboration they offer. A possible reason for limited studies on conversational skills can be the negligence of listening and speaking skills in classroom practices although they are involved in syllabus and curriculum. Another possible reason is the limited materials that make learning more engaging.

The related research in the national context also points at similar conclusions referring to the scarcity of research on technology integration into conversational skills (Karaca, Can, & Yildirim, 2013; Merc, 2015; Zengin & Aksu, 2017). Duman, Orhon, and Gedik (2015) conclude that vocabulary is the most preferred skill to teach via mobile technologies and SMS is the dominant tool to transport and deliver the content. Urun (2015) supports the idea by indicating that although the focus is on productive skills in the international areas, researchers in Turkey focus on receptive skills. Likewise, Zengin and Aksu (2017) state that the most dominantly studied skill is vocabulary in Turkey and in the studies related to vocabulary learning, SMS is mainly used as a technological tool. Pointing at the focus on reading and vocabulary in existing studies, Munzur (2017) suggests that further research is needed to assess the impacts of technology-enhanced classrooms designed for teaching listening, speaking and writing skills.

In the light of the national and international studies, it can be concluded that technology integration has been among the focal points in the field of language education centering on reading, writing and vocabulary skills (Celik, 2013; Lin & Yang, 2011; Ozdemir & Aydin, 2015; Shadiev & Yang, 2020; Solak, 2014; Thornton & Houser, 2001; Tseng & Yeh, 2018; Yuksel & Tanriverdi, 2009; Zhao, 2003). However, the impact of technology integration on listening and speaking skills has comparatively remained unclear as there is scarcity of research on conversational skills.

Liu, *et al.* (2002) underline this deficiency and suggest conducting more research on conversational skills. Nunan (2005) pinpoints the deficiency of studies on oral skills by underlining the need for more studies focusing on these skills. In the light of their meta-analysis study examining research from 1993 to 2013, Sung, *et al.* (2015) indicate that listening and pronunciation are the least studied language skills which need further investigation. Likewise, Hwang and Fu (2019) report that research on listening and speaking skills are more limited compared to other language skills while Salih (2019) points at the limited number of studies focusing on listening skill and the need for more investigation to understand the effectiveness of technological tools on this skill. In their meta-analysis from 2008 to 2018, Chen, Chen, Jia, and An (2020) also point out that listening and speaking skills are comparatively less studied skills with lower percentages and it is essential to explore these skills. Therefore, more research investigating the impact of technology use on the improvement of conversational skills is needed to be more knowledgeable about the contributions of technology and support teachers and instructors to integrate technology at all educational levels and in all educational fields so that possible boundaries interfering with the teaching and learning process can be overcome (Chun, *et al.*, 2016; Golonka, *et al.*, 2014).

Purpose of the Study

This study places emphasis on raising awareness regarding technology integration into language education and minimizing the disadvantages brought by conventional teaching methods. In this regard, digital literacy awareness and attitudes of EFL students towards technology use in language education is examined at first. After increasing the students' consciousness of using technology for educational purposes with instructional education, the present study investigates whether technology integration really makes a significant difference in the conversational skills of ELT students and their indirect vocabulary development in the learning process by providing abundant materials for targeted skills, opportunities for communication and interaction, changing roles of students from passive receivers to active participants and expanding the borders of learning settings through technological tools.

As a longer-term purpose, it is planned to make suggestions regarding effective technology integration into language classrooms after the results are evaluated with a pedagogical perspective.

In line with the aims stated above, the following research questions were addressed:

1. What is the students' level of awareness as regards digital literacy?

2. What are the attitudes of the students towards technology use in language teaching?

3. Is there a statistically significant difference between the experimental and control groups in terms of success in vocabulary development and conversational skills?

3.1 Is there a statistically significant difference between the experimental and control groups in terms of success in vocabulary development?

3.2 Is there a statistically significant difference between the experimental and control groups in terms of success in conversational skills?

4. What are the differences between students´ scores in self-assessment checklists and mini questionnaires in the control and experimental groups?

4.1 What are the differences between students´ scores in self-assessment checklists in the control and experimental groups?

4.2 What are the differences between students´ scores in mini questionnaires in control and experimental groups?

5. What are the perceptions and suggestions of the students in regard to the course content and supportive activities in and out of the classroom?

5.1 What are the perceptions of the students in regard to the course content and supportive activities in and outside the classroom?

5.2 What are the suggestions of the students in regard to the course content and supportive activities in and out of the classroom?

Significance of the Study

Technology integration into language education is becoming an area attracting attention in the last few decades (Hu & McGrath, 2011; Sung, *et al.*, 2015; Vázquez-Cano, 2014). However, the relevant studies have mostly examined teacher and student perceptions of technology use (Duman, *et al.*, 2015; Hwang & Fu, 2019; Gikas & Grant, 2013; Zengin & Aksu, 2017) and attitudes towards technology and beliefs in language education (Burston, 2015). By pointing at the need for studies on the effectiveness of technological tools, Kessler (2018) suggests that studies focusing on the impact of technology on learner success should be conducted to highlight the significance of technology integration into language education. As regards the impact of technology on learners' achievement and language skills, the examination of the related literature shows that the integration of technology into language education has been studied in relation to the specific language skills of reading, writing and vocabulary (Elaish, *et al.*, 2019; Shadiev & Yang, 2020; Tseng & Yeh, 2018) while there is scarcity of research examining the effects of technology integration on learner achievement in listening and speaking skills that have a crucial role in communication (Burston, 2015; Godwin-Jones, 2017; Munzur, 2017).

Setting out from the gap in the related literature which mainly presents research examining learners' perceptions of technology integration and its effects on the development of specific language skills of reading and writing, the current study aims to investigate the impact of technology-supported language learning on conversational skills that are comparatively ignored in language learning environments. The study also examines the effect of technology integration on vocabulary development that is required to understand and produce the language efficiently.

As a further aim, this study is thought to offer an opportunity for EFL students to familiarize themselves with technology use for educational purposes in line with Kessler's (2018) suggestion in which it is pointed out that pre-service teachers educated in teacher training programs should be more conscious about how to utilize technology effectively for educational purposes. Additionally, by using technology for these less-explored skills, it is intended to fill the gap in this field by investigating the impact of technology utilization in and out of the classroom, that is, in formal and informal learning, which has great importance in terms of improving individualized and collaborative learning.

The outcomes of the study are expected to enable educators to use technological tools in their courses effectively and guide researchers who are interested in technology use to facilitate the development of listening and speaking skills.

Limitations of the Study

The terms “Digital Literacy and “Technology Enhanced Language Learning” can be stated as the main limitation of this study as these concepts have emerged recently and have been defined in various ways by different researchers. Numerous expressions such as m-learning, computer-assisted learning, mobile-assisted learning, ubiquitous learning and technology-supported learning prove the variability of the perceptions and approaches in this kind of learning and teaching. Thus, various definitions of the terms and approaches are explained in this study.

Considering the scope of the term TELL including any kind of portable or non-portable technological devices used for learning, the study is intended to be comprehensive in terms of the methodology. Therefore, for the purposes of this study, a mixed-methods research design was adopted to reach comprehensive results. In order to conduct the whole process effectively, the researcher also actively participated in every phase of the study. However, though the study was conducted in a 12-week process, the longer-term effects of the application could not be evaluated. Therefore, a longitudinal study carried out over a few academic terms can be suggested to evaluate the effects of technology integration over a longer period. Another limitation can be the number of participants. Due to the issues of accessibility, there were 48 participants in this study. In order to reach more generalizable results, future research is suggested to have a higher number of participants.

Another limitation was the participants’ inadequate knowledge of digital skills and some technical problems they faced in and out of the classroom environment such as the Internet connection problems, lack of knowledge about the applications, and low battery. Although an information meeting was held about the technological tools to be used at the beginning of the semester and the experimental group was formed in line with questionnaires on digital literacy awareness and attitudes, most of the participants had almost no experience in educational technology and they did not exactly know how to actively participate in the process. Therefore, the researcher informed, in detail, all the participants, especially those with limited technological knowledge, about what they were expected to do in the process.

Taking the quotations of the interviewees both in evaluation and suggestion forms and semi-structured interviews into consideration, it can be stated that their expressions are limited and similar to each other. This may be explained with the interviewees’ limited experience in and unfamiliarity with a technology-supported course taking place in and out of the classroom as this study was implemented through online educational tools in and outside the classroom setting before COVID-19. Therefore, designing and implementing a technology integrated course for language learning after COVID-19 may have revealed more clarifying findings about the learners' perceptions of and their attitudes towards language learning with technology. Likewise, the quotations of the interviewees may have been more comprehensive regarding their experiences in a technology integrated learning environment.

Assumptions of the Study

During the intervention, it was assumed that the participants in the experimental group used the applications and websites actively in accordance with the aims of the study as Chun, *et al.* (2016) underlined that learners' improper use of technological tools during the intervention may affect the outcomes negatively. In this sense, it was also posited that the participants in the control group did not use any technological tool to learn.

Definitions of Key Terms

The key terms which are regarded to be prominent in this study are as follows:

Digital Literacy: Despite the fact that this term is expressed in a different way with various components by many researchers, the term was first introduced by Gilster and Glister (1997, p.1) who defined digital literacy as "the ability to understand and use information in multiple formats from a wide range of sources when it is presented via computers".

Computer-Assisted Language Learning (CALL): CALL is a teaching and learning approach in which computers and computer-based resources are utilized to support teaching and it is defined as "the search for and study of applications of the computer in language teaching and learning" (Levy, 1997, p.1).

Mobile-Assisted Language Learning (MALL): MALL refers to "mobile technologies in language learning, especially in situations where device portability offers specific advantages" (Kukulska-Hulme, 2013, p.3701).

Technology Enhanced Language Learning (TELL): As a teaching approach, TELL has recently emerged and been substituted for CALL due to advancements in the field of technology. Patel (2014, p.1) describes TELL as "the use of the computer as a technological innovation to display multimedia as a means of complementing a teaching method language teacher". However, the term TELL in this study refers to various forms of technological devices such as mobile devices, smart boards, laptops, handheld devices, and computers to support the learning and teaching process.

Organization of the Dissertation

This chapter presents the background, problem, purpose, research questions, significance, limitations, assumptions and key definitions of the study. In Chapter II, a literature review about digital literacy, current teaching approaches, the historical development of technology integration into education, and related international and national studies are presented. Chapter III gives detailed information about the methodology of the study including research design, setting, participants, data collection instruments and qualitative and quantitative data collection analysis procedures. Chapter IV shows the quantitative and qualitative results of the study and it is followed by Chapter V, Discussion and Conclusion.

CHAPTER TWO

Review of Literature

This chapter presents a discussion on the related literature guiding the research questions and the design of this study. The chapter starts with the definition of digital literacy referring to the competence and ability to use technological tools. It continues with the historical development of technology integration into education in which such main concepts as CALL, MALL, and TELL are described. Afterwards, international and national studies on technology integrated language education are elaborated. The chapter concludes with a summary of the reviewed literature.

Digital Literacy

The term 'digital literacy' was introduced by Gilster and Glister (1997) in the late 1990s and being digitally literate is defined as possessing diverse information skills that bring new responsibilities for users in an educational context (Meyers, Erickson, & Small, 2013). However, with the improvements and expanded use of technological tools, the definition of the concept has broadened. At present, there is a range of definitions from different perspectives according to different disciplines. For instance, according to Bawden (2001), digital literacy refers to an ability to read and understand information in various digital formats such as hypertext and multimedia while Hague and Payton (2010) describe being digitally literate as having access to technological tools, understanding and sharing meaning, creating, collaborating, communicating and being conscious about the appropriate time and the way meaning is delivered. Likewise, Jones and Hafner (2012) define it as "the practices of communicating, relating, thinking and 'being' associated with digital media" (p. 13). All these definitions, without clear-cut distinctions, refer to either basic technological skills or complex literacy skills. Considering the wide-ranging characteristics of the term, Meyers, *et al.* (2013) emphasize that being digitally literate is not restricted to the school environment or education since it is required to be a part of the new digital world actively. In other words, activities such as sending messages, using navigation, shopping online all necessitate literacy. Therefore, Meyers, *et al.* (2013) handle digital literacy in three perspectives: digital literacy as the acquisition of "informing age" (p. 358) skills focusing on users' observable performance in the digital environment, digital literacy as the cultivation of "habits of mind" (p. 359) focusing on the way the users perceive activities in digital content cognitively, and digital literacy as engagement in digital cultures and practices (p. 360) focusing on active participation as a digital citizen in daily life. Likewise, Ng (2012) defines digital literacy as a variety of literacies that are related to the use of digital technologies and he classifies digital literacy sub-disciplines under three headings: the cognitive dimension, including critical thinking, evaluation, access to information and the use of software; the technical dimension including information about how digital tools are used as hardware, and socio-emotional dimension including taking responsibility while communicating, and the ability to deal with threats or information about the protection of personal information. The relationship among these dimensions is shown in Figure 1.

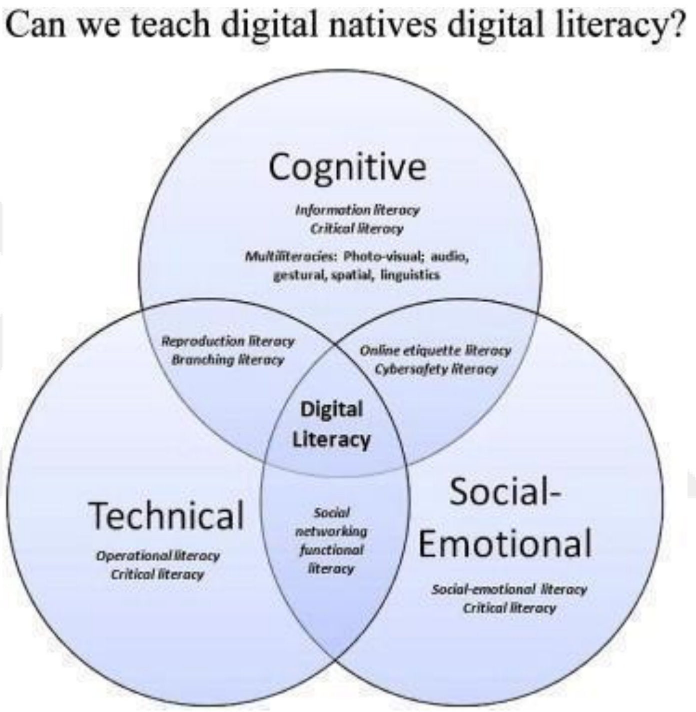

Figure 1. Digital literacy model (Ng, 2012, p.1067).

As seen in Figure 1, the cognitive dimension is related to information literacy while searching for and evaluating digital information in light of users' objectives and needs. The cognitive dimension also includes the ability to choose appropriate software programs or applications to accomplish a particular task. Ethical and legal issues such as plagiarism and copyrights are also within the scope of the cognitive dimension. The technical dimension is related to operational literacy, namely, the ability to use hardware and basic software applications for the purposes of education and daily life. It can be defined as the required skills and knowledge such as data transfer, information storage, downloading and installing, and setting up the programs to use Information and Communication Technologies (ICT). The social-emotional dimension is related to the suggestions for etiquette and courtesy besides rules for safety and privacy in order to be gentler towards the ones we contact and careful about the threats while communicating. In this respect, what is clear is that each dimension requires multi-literacies while critical literacy is the common item for all.

According to Covello and Lei (2010), sub-disciplines of digital literacy can be listed as information literacy, computer literacy, media literacy, visual literacy, communication literacy, and technology literacy. Considering the sub-disciplines, access to resources and the use of information in an ethical manner refer to information literacy while the ability to use computers as software and hardware is defined as computer literacy. Access to and use of information in different forms are called media literacy while understanding the information in different forms such as visual materials and graphics for effective communication can be expressed as visual literacy. Lastly, the ability to communicate through technological devices refers to communication literacy while the use of technological devices for the purposes of learning and producing information is defined as technology literacy. When previous studies on digital literacy are extensively examined, it is possible to come across other classifications of digital literacy components. For example; Eshet (2004) divides literacy into five groups: photo-visual, reproduction, branching, information and socio-emotional while Calvani, Cartelli, Fini, and Ranieri (2008) describe four components that are technological, cognitive, ethical dimensions and a combination of these three dimensions. Figure 2 shows a more concrete framework for digital competence.

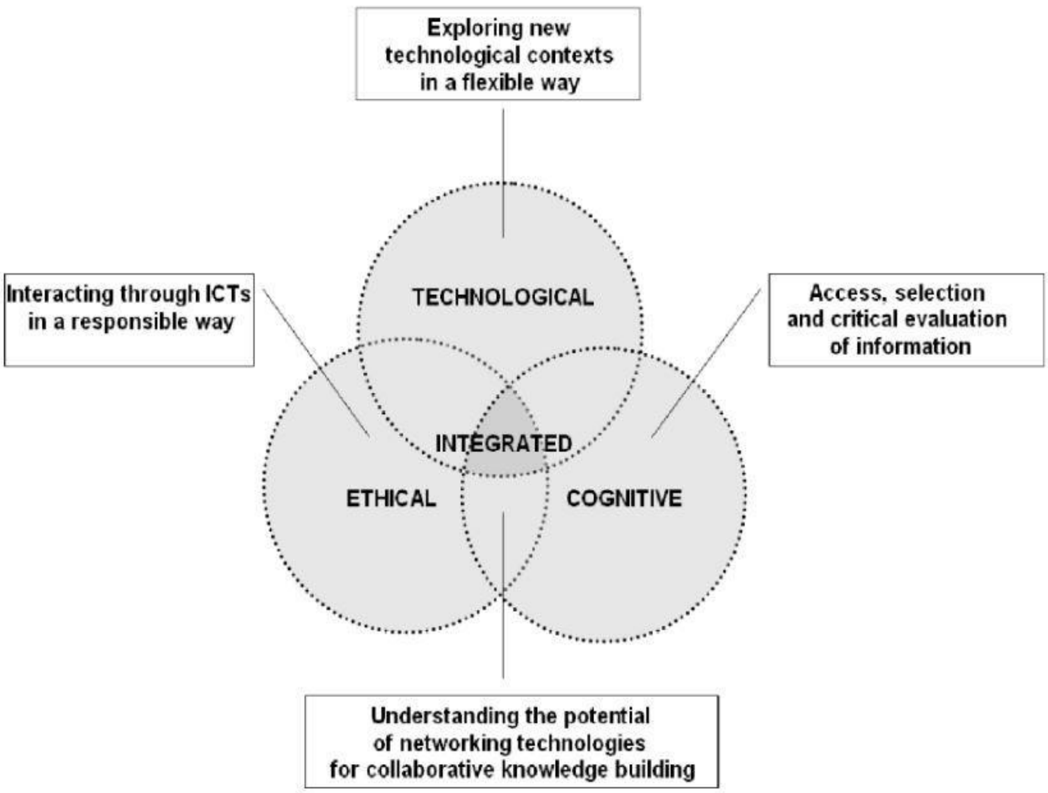

Figure 2. Intersection of digital competence (Calvani, *et al.*, 2008, p.187).

As seen in Figure 2, technological dimension represents the ability to use technology and overcome technical problems while cognitive dimension symbolizes the capability of understanding the information by recognizing unreliable data. Ethical issues include interaction with other users by using technological devices. Correspondingly, the integration of these three dimensions means having technical and cognitive knowledge in an ethical manner.

Ferrari (2013) presents five components as information, communication, content creation, safety and problem solving while Belshaw (2016) lists up to eight components which are cultural, cognitive, constructive, communicative, confident, creative, critical and civic dimensions. Alternatively, Son, Park, and Park (2017) express five different dimensions that are information research and evaluation, creation, communication, collaboration, and online safety.

Although the components differ in content and number, it is clear that digital literacy denotes a combination of various literacies, cognitive skills, and practices in accordance with de Oliveira Nascimento and Knobel's (2017) suggestion in which the term "digital literacies" is offered due to its variety in terms of notions. No matter which term is prefered, there is no doubt that it is one of the main requirements to keep up with the era we live in.

The History of Technology Integration into Language Education

As a natural consequence of technological improvements, there has been a great interest in using technology in language education as experienced in many other fields (Berrett, Murphy, & Sullivan, 2012; Inan & Lowther, 2010; Jeng, Wu, Huang, Tan, & Yang, 2010; Salaberry, 2001; Takkac Tulgar, 2019; Yurdagul & Oz, 2018; Zhao, 2003). Chinnery (2006) points at recording and broadcast devices as initiative tools of technology integration. It continued with the creation of language laboratories as a result of Audio-lingual method in the 1950s (Salaberry, 2001). Afterwards, there was a transition from language laboratories to computer-based instruction as an impact of Behaviorism in the 1960s. Finally, the Internet-connected technological devices emerging in the 1990s enabled technology to take its current place in education. Literature related to technology integration into education presents research on how to improve materials, applications and systems for technology integration (Anaraki, 2009; Cavus & Ibrahim; 2009; Chang & Hsu, 2011; Chen & Li, 2010; Cheng, Hwang, Wu, Shadiev, & Xie, 2010; Godwin-Jones, 2011; Huang, Huang, Huang, & Lin, 2012; Kukulska-Hulme & Shield, 2008; Petersen & Markiewicz, 2008; Salameh, 2011; Saran, Cagiltay, & Seferoglu, 2008; Segaran, Ali, & Hoe, 2014; Stockwell, 2007b; Todd & Tepsuriwong, 2008), how to integrate technology effectively (Armstrong & Yetter-Vassot, 1994; Attewell & Webster, 2005; Chinnery, 2006; Cui & Bull, 2005; Garrett, 1991), how technology affects learning process (Barrette, 2001; Burston, 2001; Felix, 2005; Lamy, 2004; Naismith, Sharples, Vavoula, & Lonsdale, 2004; Nutta, 1998; Payne & Whitney, 2002; Volle, 2005), and how to choose appropriate tasks and activities to enhance learning (Liu, *et al.*, 2002).

Due to the different attempts on the way technology is utilized, various terms such as technology enhanced learning, technology integrated learning, computer-assisted learning, mobile-assisted learning, mobile learning, distance learning, e-learning, web-based learning and teaching environments have emerged (Jarvis & Achilleos, 2013). No matter how many and how different terms are used to represent the presence of technology, the main aim is to provide a rich context in and out of the classroom and develop learners' knowledge and skills. Bull and Ma (2001) pinpoint the boundless resources provided by technological tools to learners who are restricted with text-based materials. By stating that there is no particular border among the terms, Genc-Ersoy and Ersoy (2013) use three main concepts to elaborate the process according to the results of their meta-analysis study on technology-supported language learning: CALL, MALL and TELL. Similarly, Hidalgo (2020) prefers the same three terms in a different order (TELL, CALL and MALL) and emphasizes each as innovative language learning approaches. Johnson (2015) supports that innovative approaches present a bridge to the language gap pointing at the inadequate linguistic proficiency and the divergence of opportunity to access language in lower social groups. In the following section, the history of technology integration into language education is given within the context of these terms.

CALL.

Computers were started to be used in the 1960s (Lee, 2000) and this case has also brought a different dimension to education and training besides making our lives easier in many aspects. Initially, computers were mostly used for entertainment at home because of the lack of appropriate classroom environments and particular factors such as access costs, software and hardware deficiencies, lack of technical and theoretical knowledge, and language laboratories, but in time, they were started to be used both in work environments and in education thanks to computer laboratories. Cunningham (1998) points at the 1980s when technology was included in language education through audio and videotapes in labs, computers and interactive videos. Chapelle (2001) points to the early 1980s for the advent of CALL in language education. Similarly, Baleghizadeh and Oladrostam (2010) explain the emergence of CALL as follows: language laboratories were required first as a result of Audio-Lingual method and with the advent of behaviorism in teaching, drill-based computers were included in language laboratories in the 1960s and afterwards, it evolved into learning with computers in the 1990s.

Consequently, the term “CALL” emerged and has become a focal topic to be studied (Stockwell, 2007a).

CALL refers to using computers and computer-based resources to support learning and teaching process (Levy, 1997). Egbert and Petrie (2006) define CALL as learning a language in different contexts with, through and around computer technologies while Beatty (2013) describes CALL as a process in which learners improve their language skills by using a computer. As understood from the definitions, any kind of computer technology taking part in the learning process is included in the term CALL that is still not the main teaching tool but a complementary tool (Warschauer, 2002).

Considering the importance of this complementary tool, Dhaif (1989) and Nomass (2013) attract attention to the contributions of computers in English language learning process as they support interaction among learners. Hubbard (2005) found out in his review that more than half of the researchers with the percentage of 53 agreed on the supportive role of computers. As a teaching aid, computers have been developed day by day. Debski (2003) supports this idea by stating that with the emergence of the theories and methods used on this approach, CALL is developing fast. For instance, due to the abundance of new media, more interactive activities rather than the limited drill exercises were included in CALL courses and these activities became more effective in the learning process (Pusack & Otto, 1990).

In an overview study examining the impact of CALL on language learning, Warschauer and Healey (1998) identify three stages of CALL each of which has a particular level of technology and a pedagogical approach. After deliberating on the phases over years, Warschauer (2000) presents the three stages of CALL by underlining the need for revision of CALL in terms of new contexts, new literature, new genres, new identities, and new pedagogies.

Stage	1970s–1980s: Structural CALL	1980s–1990s: Communicative CALL	21st Century: Integrative CALL
Technology	Mainframe	PCs	Multimedia and Internet
English-teaching paradigm	Grammar-translation and audio-lingual	Communicate [sic]language teaching	Content-Based, ESP/EAP
View of language	Structural (a formal structural system)	Cognitive (a mentally constructed system)	Socio-cognitive (developed in social interaction)
Principal use of computers	Drill and practice	Communicative exercises	Authentic discourse
Principal objective	Accuracy	And fluency	And agency

Figure 3. The three stages of CALL (Warschauer, 2000, p.64).

As it is presented in Figure 3, Warschauer (2000) revised the stages. The first stage "Structural CALL" previously called "Behavioristic CALL" covered the 1960s and 1970s while the second one "Communicative CALL" covered the 1970s and 1980s (Warschauer & Healey, 1998). The third and the most recent one "Integrative CALL" starts in the 21st century. Structural CALL features extensive language drills called "drill-and-practice", explicit grammar instruction and translation. Therefore, it is limited in terms of activities. As a reaction to Behavioristic CALL, Communicative CALL emphasizes real language use that is learned implicitly. Integrative CALL, however, tries to combine four basic skills in language learning through methods such as task-based and content-based instruction with the integration of technology as much as possible into language teaching (Warschauer & Healey, 1998). While Structural and Communicative CALL in which the main aim is accuracy and fluency are restricted to basic tools and personal computers, the Internet and multimedia brought a new dimension to Integrative CALL in which agency was aimed. However, Bax (2003) criticized the model by underlining the inconsistency in the periods of CALL and unclear criteria for the stages. According to Bax, the CALL model should not be based on periods. Therefore, he offered an alternative outline for CALL, as presented in Figure 4.

Content	Type of task	Type of student activity	Type of feedback	Teacher roles	Teacher attitudes	Position in curriculum	Position in lesson	Physical position of computer
Restricted CALL								
Language system	Closed drills Quizzes	Text reconstruction Answering closed questions Minimal interaction with other students	Correct/incorrect	Monitor	Exaggerated fear and/ or awe	Not integrated into syllabus—optional extra Technology precedes syllabus and learner needs	Whole CALL lesson	Separate computer lab
Open CALL								
System and skills	Simulations Games CMC	Interacting with the computer Occasional interaction with other students	Focus of linguistic skills development Open, flexible	Monitor/ facilitator	Exaggerated fear and/or awe	Toy Not integrated into syllabus—optional extra Technology precedes syllabus and learner needs	Whole CALL lesson	Separate lab—perhaps devoted to languages
Integrated CALL								
Integrated language skills work Mixed skills and system	CMC WP e-mail	Frequent interaction with other students Some interaction with computer through the lesson	Interpreting, evaluating, commenting, stimulating thought	Facilitator Manager	Normal part of teaching—normalised	Tool for learning Normalised integrated into syllabus, adapted to learners' needs *Analysis of needs and context precedes decisions about technology*	Smaller part of every lesson	In every classroom, on every desk, in every bag
	Any, as appropriate to the immediate needs							

Figure 4. An outline for CALL (Bax, 2003, p.21).

As understood in Figure 4, restricted CALL, in which the teacher is just the monitor and there is no interaction among students, represents a learning environment with limited feedback. Open CALL, in which the teacher is the facilitator and there is interaction according to the situation, represents the development of language proficiency through particular software. Integrated CALL, in which the teacher is the manager and there is frequent interaction, represents a complete integration of language skills into language teaching. In the final step in this model, Bax (2003) aims normalization that refers to the stage when technology is invisible, even hardly recognized as a technology, taken for granted in everyday life in order to handle the needs of learners by embedding technology into the curriculum. For Bax, using computers for educational purposes should be so common that the term “CALL” should disappear.

In line with the aim of technology integration into the curriculum, Hubbard (2008) suggests four main approaches: (a) a single course focusing on a wide range of CALL alternatives from whole to specific interests by providing technical and pedagogical knowledge, (b) a single course focusing on a more specific and intensive experience by gaining technical and pedagogical skills through possible projects, (c) an integrated approach including the use of technology in different kinds and places in line with Bax’s normalization view and (d) online courses as a way of learning about technology by using technological tools for various reasons such as eliminating physical barriers and providing online instruction. The consideration of the emphasis placed on the integration of computers into language education highlights the need to present the merits of CALL as an indispensable part of education.

Benefits of CALL.

Computers have become an integrative part of formal education, especially language education since the 1960s (Warschauer & Healey, 1998). With increasing capacities, computers have also been preferred for individual studies in informal settings (Chakowa, 2018; Fehr, *et al.*, 2012; Trinder, 2017) Correspondingly, there are various studies (Dina & Ciornei, 2013; Hani 2014; Lai & Kritsonis, 2006) evaluating CALL in terms of its positive and negative properties in and out of classroom settings in the literature.

Taking the students' limited exposure to target language in foreign language learning contexts into consideration, it can be stated that the use of technology in foreign language education has started a new era for EFL learners as they were previously restricted to limited content provided by the teacher and coursebooks (Cziko, 2004). Miangah and Nezarat (2012) support this idea by stating that the use of mobile devices in the learning process provides an abundance of material to language learners and it puts learners at the center of the learning process. Similarly, there are many studies (Al-Jarf, 2004; Brandl, 2002; Chen, Wang, Kirschner, & Tsai, 2018; Elkilic & Akca, 2008; Mutlu & Eroz-Tuga, 2013; Oz, Demirezen, & Pourfeiz, 2015; Poudel, 2020; Schwienhorst, 2004) focusing on the supporting role of technology in terms of factors such as improving language skills, enhancing learner motivation, collaboration, interaction, self-confidence and positive attitudes as a part of the learning process.

In their review study examining for which purposes computer-based technologies are used to enhance language learning between the years 1990-2000, Liu, *et al.* (2002) claim that there is commonsense on the benefits of CALL as a complementary tool although there were some doubts on its value and contributions until the early 1990s in which the main aim of the studies was to define what CALL was and its merits. After the 1990s, research has focused more on investigating the ways to integrate CALL effectively in language learning. Considering this shift in research focus, Kern (2006) underlined the need for research about how computers are used to achieve specific tasks instead of searching whether computers should be utilized or not.

Pederson (1986) states that CALL is more practical in crowded classes where it is comparatively hard to monitor students. Dunkel (1990) points at the potential of using computers as a medium to develop students' self-esteem, language proficiency and academic skills in a positive way. Cononelos and Olivia (1993) indicate the role of computers on reaching native speakers via e-mails. Beauvois (1994) highlights the contribution of CALL to student-student and student-teacher interaction. Warschauer (1995) indicates that students' participation is higher as a result of more equal opportunity to participate in electronically-held discussions. In terms of language skills, Sullivan and Pratt (1996) examine the role of computers in ESL writing skills and report their positive effect on students' writing. Zhao (1997) expresses that because of the flexibility in speech rate in audio files presented through digital tools, it is easier to improve ESL students' listening skills. Cornu, De Decker, Rosseel, and Vanderheiden (1990) point at the effectiveness of utilization of computers on task-based writing skills while Ehsani and Knodt (1998) underline the remarkable effect CALL has on the development of learners' speaking skills. Hoven (1999) asserts that computer use has a great effect on listening skills owing to the fact that it gives freedom and opportunity to get immediate feedback. Kramsch and Andersen (1999) state that having authentic materials has great importance in language learning thanks to multimedia provided by computers. Several researchers (Ehsani & Knodt, 1998; Eskenazi, 1999; Mostow & Aist, 1999) point at the importance of getting effective feedback, especially in speaking activities as a result of technology use.

In a comparison study on discussions implemented in a face-to-face or an electronic environment, Lee (2000) lists the reasons for the preference of CALL as a source of learning material promoting "(a) experiential learning, (b) motivation, (c) enhanced student achievement, (d) authentic materials for study, (e) greater interaction, (f) individualization, (g) independence from a single source of information, and (h) global understanding" (p.1). Examining studies on CALL, Levy (2000) highlights the significance of computer-mediated communication that provides interaction with native speakers in a real context and consequently enhances learners' proficiency levels by making them aware of the target language. Liu, *et al.* (2002) implies that while the use of visual materials increases vocabulary knowledge and reading skill, online communication enhances learners' writing proficiency.

Arslan (2003) expresses that CALL provides a more enjoyable learning environment in which corrective feedback and reinforcement are available. Arslan continues that the fear of being criticized by classmates is minimized in a less stressful setting and numerous activities can be used in order to improve the students' learning according to their own learning pace. Gunduz (2005) points at the communicative role of the computer with the advent of the Internet besides being a tool for information processing and attracts attention to the opportunity to communicate with native speakers or other learners all over the world. She also adds the benefits of using CALL such as immediate feedback through error-check programs, more individualized learning according to learners' ability and pace, pair or small group works to foster collaboration and cooperation, motivation, fun, and abundance of the resources.

Harmer (2007) points at the development of collaboration through computer-based activities. From a different point of view, Kern (2006) highlights the availability of cultural learning and development of intercultural competence thanks to the collaboration with different classes in various countries. Alsied and Pathan (2013) consider the use of computers in English language teaching and summarize the advantages as more enjoyable learning process, various opportunities to practice language in a more learner-centered and self-directed learning environment, a chance for self-assessment, getting feedback, an option to study individually or in-groups, active participation of the students, motivation and interaction, reference to multi senses, more exposure to the target language thanks to authentic language and freedom in learning. Mutlu and Eroz-Tuga (2013) state that CALL is effective in improving learners' autonomy by promoting learners' active participation, making them more motivated and successful in practical use of the target language. Similarly, Ahn and Lee (2016) indicate that computer-assisted learning is effective in student motivation, achievement, interaction, and independent learning. Ghashghaei, Kashefian-Naeeini, and Marzban (2020) imply that CALL facilitates learning and teaching, enables learners to study in a shorter time and attracts learners' attention more. Muhammad, Noor, Khalid, and Imran (2020) underline the significance of multimodality presented by technological tools in implementing more effective language learning process to increase success. Tafazoli, Gómez-Parra, and Huertas-Abril (2020) indicate that computers enable learners to reach abundant resources and learning materials, which improves learners' language skills.

In brief, computers as educational tools provide learners and teachers various advantages in the learning and teaching process. However, the way it is used can be said to be the major factor affecting its effectiveness. Therefore, the consideration of the drawbacks hindering the quality of the teaching and learning process is also essential. The following section presents the obstacles faced by the researchers, teachers, and learners while using computers as an educational tool.

Drawbacks of CALL.

Despite the benefits mentioned above, there are also various studies indicating the problems faced while integrating computers in education. Lee (2000) lists the categories of the barriers preventing the utilization of computers efficiently as “(a) financial barriers, (b) availability of computer hardware and software, (c) technical and theoretical knowledge, and (d) acceptance of the technology” (p.4). Gunduz (2005) considers uneasiness of students, technical problems such as power cut, absence of the Internet access, inappropriateness of some activities to deliver through computers, and cost as the main disadvantages of CALL. Different from technological demerits, Kessler (2006) points out that the problems arise from teachers’ little or no knowledge on how to use computers effectively for education and suggests CALL training to improve pre- and in-service teachers. Arnold and Ducate (2015) support the need for CALL training by emphasizing the significance of combining theory and practice. Garrett (2009) elaborates the problematic issues related to the infrastructure in three levels: physical environment, professional development support at the institutional level, and national support in terms of education policy. Unlike hardware and setting problems, Aydin (2013) indicates that most Turkish EFL teachers have relatively more negative perceptions of computer integration due to lack of guidance and knowledgeable educators, the infrastructure of the schools, limited technical knowledge causing problems in implementation, and cooperation problems with ICT educators as well. Golonka, *et al.* (2014) report that CALL has some limitations such as distraction, extra workload, lessened interaction, imprecise feedback, insufficient software, and inadequate teacher training.

The drawbacks faced in using CALL provide initial evidence that learners need alternative technologies to remove temporal and spatial barriers and to experience more individualized learning over time. Not surprisingly, the increasing and changing needs of learners are also effective in this demand. As a result, the need for information anytime and anywhere, a sense of curiosity towards different languages and a sense of self-efficacy besides the developments such as handheld computer-based devices, processing power, increased storage capability, the availability of graphics, high-speed wireless connectivity (Chu, Hwang, Tsai, & Tseng, 2010), and GPRS, Bluetooth, and 3G technology (Duman, *et al.*, 2015) in recent years have revealed a new trend in language teaching: Mobile-Assisted Language Learning that is more practical in terms of eliminating the drawbacks of CALL especially in terms of mobility (Hsu, 2013; Kukulska-Hulme, 2009; Stockwell & Hubbard, 2013) and brings a new dimension of mobile device use beyond communication and entertainment. Several researchers (Jeng, *et al.*, 2010; Ogata, Yin, El-Bishouty, & Yano, 2010) state that more personalized, more situated, and more ubiquitous learning in informal settings are the main factors in emergence and preference of mobile-assisted learning.

MALL.

Mobile-assisted language learning emerged as a subarea of mobile learning due to the increasing interest in using mobile devices for language education (Viberg & Gronlund, 2012) and has existed in our lives nearly for three decades (Burston, 2014). Geddes (2004) defines mobile learning as learning in which the borders of learning out of time and place are extended through digital tools while Kukulska-Hulme and Shield (2008) explain it as a formal or/and informal learning implemented via any kind of portable devices out of time and place. Similarly, Han, *et al.* (2010) describe mobile learning as learning supported with numerous resources out of time and place.

In mobile learning, mobility is possibly stated as the most prominent feature. Li (2008), for example, expresses that the main aspect in mobile learning is the mobility of learning in a flexible and convenient environment. Kakihara and Sorensen (2002) similarly highlighted this feature by including human interaction into the scope of mobility and defined three interconnected dimensions: spatial, temporal and contextual. El-Hussein and Cronje (2010) offered an expansion and defined three main concepts: the mobility of technology, the mobility of learners and the mobility of learning. The mobility of technology refers to technological devices having a Wi-Fi connection or wireless application protocol (WAP) and providing learning out of time and place. The mobility of learners refers to more individualized and flexible learning. Lastly, the mobility of learning refers to various modes of learning such as learner-centered, collaborative, and situated learning.

As a result of the developments presenting learning independent from time and space, the term “MALL” was proposed by Chinnery (2006) for the first time. Yang (2013) even stated MALL as a sub-division of CALL because of the portability and mobility of the tools. In a general sense, MALL refers to a model in which individuals learn a language through applications in portable electronic devices or smartphones. According to Miangah and Nezarat (2012), MALL refers to the utilization of mobile technologies for language learning. Kukulska-Hulme (2013) describes MALL as preferring mobile technologies during language education due to the leverages on time and place. In line with this definition, Wong and Looi (2011) underline that portable devices provide seamless learning. AbuSa’aleek (2014) defines MALL as a kind of learning in which mobile devices are included in the learning process different from conventional learning and remind that mobile devices are just supportive tools in order to enhance learners’ proficiency. Sharples, Taylor, and Vavoula (2005) pinpoint the mobility of learners instead of focusing on the mobility of technological devices while defining MALL in which technology and learning have a complex relationship. Palalas (2011) adds the mobility of the learner and the portability of the devices in the same definition.

Burston (2013) indicates that MALL consists of five mobile technologies that are portable electronic dictionaries, personal digital assistants (PDAs), mobile phones, MP3 players, and ultra-portable tablet PCs at first whilst the main devices are smartphones nowadays. Similarly, Burston (2014) enumerates MP3 players, personal digital assistants and mobile phones as the dominant technological devices making applications available. However, with the transfer of the functions such as recording and video playback, the Internet access, storage capacity and high quality available on MP3and PDAs to mobile phones, Burston (2014) indicates that MALL is basically unified to mobile phones.

Thanks to diverse applications, several researchers (Chen & Li, 2010; Saran, Seferoglu, & Cagiltay, 2009) emphasize the continuous support of mobile devices in formal and informal settings. Besides the flexibility of access to information, many features of mobile devices enable learners to have more qualified learning. In the light of previous studies in the relevant literature, the merits are summarized in the following section.

Benefits of MALL.

There are many studies examining the effects of mobile devices on learning and teaching English (Ally, 2009; Cheung & Hew; 2009; Hung & Zhang, 2012; Hwang & Tsai, 2011) because of various merits they offer. When the related literature is reviewed, the most salient features of MALL can be stated as portability, diversity, accessibility, interactivity, connectivity, individuality, sustainability, flexibility in time and space, immediacy and increased motivation (Bezircilioglu, 2016; Chinnery, 2006; Golonka, *et al.*, 2014; Huang, Yang, Chiang, & Su, 2016; Kim & Kwon, 2012; Looi, *et al.*, 2009; Soruc & Tekin, 2017).

In the studies conducted on the advantages of MALL, the most common features mentioned are portability, flexibility and independence out of time and place. For instance, Baykal and Daventry (2000) indicate that mobile devices permit the implementation of learning in the classroom and continue it out of the classroom by giving responsibility to students and supporting their learning. Klopfer, Squire, and Jenkins (2002) describe the most prominent features of mobile devices as portability, social interactivity among learners, context-sensitivity referring to location-based content delivery, connectivity and individuality. Thornton and Houser (2004) point out that mobile phones as complementary tools expand the borders of learning out of classroom settings. Thornton and Houser (2005) indicate that portability and connection via messages or social platforms supported by MALL applications are also considered advantageous in developing English language skills in formal settings. Chen and Li (2010) state that learners can be active in various activities in different places where they are able to learn new information connected to the location thanks to some applications. Huang and Sun (2010) emphasize the significance of accessibility to learning materials due to their portability and the Internet connection. Lam, *et al.* (2010) attract attention to the opportunity to learn across contexts where learners are independent of the place. In a different perspective, Begum (2011) emphasizes that learners can learn any language they prefer through MALL without a formal learning environment. Elias (2011) lists four prominent advantages of mobile learning as simple format, flexible use, tolerance for error and continuity in learning through reminders and tests. Huang, *et al.*, (2012) note that mobile technologies present more flexible learning due to low cost, small size and practicality. Miangah and Nezarat (2012) express that using a portable device for educational purposes provides learning in and out of the classroom by minimizing learning barriers resulting from time and place by underlining portability and connectivity functions of MALL. In other words, CALL requires a specific place that can be a class or home while MALL makes every place a learning environment. Ahmad, Armarego, and Sudweeks (2013) enumerate the advantages of MALL as spontaneous learning, portability, easy connection, interaction and collaboration in the learning process. Sung, *et al.* (2015) highlight the role of mobile devices in emerging new approaches and styles in teaching and learning a language as well as the ubiquity of learning.

The second mostly stated advantage of MALL is that mobile devices allow learners to study individually or collaboratively. In tandem with this view, Sharples (2006) underlines that MALL offers more individualized learning due to flexible activities that are compatible with the learners' needs. Lan, *et al.* (2007) highlight that collaborative activities implemented via mobile devices increase the efficiency of learning as a group and interaction among learners. Korkmaz (2010) states that mobile applications are designed according to students' needs and provide autonomous and self-managed learning. Park (2011) addresses the issue from a different point of view and indicates that MALL enables instructors to initiate a learning process supported by scaffolding and to give learners responsibility of their own learning by decreasing the support given by instructors over time. Wong and Looi (2011) point at the role of mobile devices in increasing collaboration in a seamless learning environment at any time. Alemi, *et al.* (2012) pinpoint learner-centered and autonomous learning while defining MALL. In their study in which 87 mobile applications for English language learning are examined, Kim and Kwon (2012) conclude that mobile applications support and improve learner-centered learning in a less stressful and ubiquitous learning environment. They also state that MALL provides easy access to learning materials with aural and visual elements and increases learners' motivation. Kondo, *et al.* (2012) point at the supporting role of MALL in learners' self-regulated learning. Miangah and Nezarat (2012) pinpoint that MALL is more convenient for interaction and collaboration among learners and provides real-life experiments through the activities implemented in location-based contexts and they continue that apart from formal settings, individuality and ubiquity in the learning process are the prominent properties of learning through mobile devices. Burston (2014) expresses the significance of more individualized learning with mobile devices in a ubiquitous learning environment, which is not possible while using desktop computers. Zurita and Nussbaum (2014) emphasize interaction and collaboration presented by MALL. Hassan Taj, Sulan, Sipra, and Ahmad (2016) imply the practical use of MALL as a practice tool.

Considering the changing roles of students and teachers with the integration of mobile devices into the language learning process, Muir-Herzig (2004) emphasizes the shift in the role of students who have become more active in using the target language practically in authentic learning environments. Lai and Morrison (2013) emphasize the dominant role of the students in terms of designing the course content and learner outcomes in a technology-enhanced learning and teaching environment. Chai, Wong, and King (2016) point out that MALL can reduce environmental barriers in formal classroom settings and increase autonomy and willingness in the learning process so that learners have more active roles. Gilakjani (2017) and Eliash, *et al.* (2019) imply a gradual shift from teacher-centered and text-based courses to a more learner-centered and rich-content course with the help of MALL.

In brief, although the need of learners and conditions of the physical environment may change, Sung, *et al.* (2015) summarize the prominent features of mobile learning compared to conventional learning by indicating that mobile devices can present movable and embedded technologies, provide individualized and/or collaborative learning, change the roles of teacher and students in formal and informal learning environments while Chartrand (2016) highlights the importance of receiving immediate feedback, accessing the Internet, using multimedia elements and communication through social networks. As seen in the studies on MALL, the preference of mobile devices that are more practical compared to computer technologies presents plentiful merits in language education. However, exposure to technology at any time and any place results in several challenges, as well. The following section presents the disadvantages of using mobile technologies stated in the related literature.

Drawbacks of MALL.

Contrary to the many advantages offered, limited content and interaction, inadequate content for the students with advanced language knowledge, difficulty in reading from small screens, memory capacity, battery life, extra payment for the Internet connection and access limitations are cited as negative aspects of mobile-assisted learning (Hemmi, Narumi-Munro, Alexander, Parker, & Yamauchi, 2014; Kukulska-Hulme & Shield, 2008; Miangah & Nezarat, 2012; Rogers, 2011; Stockwell, 2007b, 2008, 2010; Thornton & Houser, 2002).

Most of the studies reveal that although users are pleased to have a portable tool to study, they have various technical problems such as small screen size, limited battery and storage capacity. For instance, Thornton and Houser (2001) indicate that screen size and delivery methods are the most salient physical barriers. However, Thornton and Houser (2002) assert that though screen size may not be proper for learning new materials, it is convenient to practice and review the learnt material. Corlett, Sharples, Bull, and Chan (2005) list the most related constraints of mobile devices as small screen size, inadequate battery life and limited storage capacity. In a study where psychological, pedagogical and technical constraints of mobile learning are examined, Shudong and Higgins (2005) present the uneasiness of learners as a psychological barrier, inadequate knowledge as a pedagogical barrier and small screen size, resolution problems, limited storage capacity, inconvenient input and absence of standards as technical barriers. Similarly, Chinnery (2006) lists such limitations as small screen size, restricted audiovisual quality, virtual keyboarding and one-finger data entry, and limited power. Stockwell (2008) signifies that some students prefer personal computers to accomplish tasks instead of mobile phones because of limited access to the Internet, screen size and keypad. Cavus and Ibrahim (2009) state the cost, network and the Internet connection as the constraints faced in using MALL. Koole (2009) states that the capacity for storage, processor speed, battery life and device unity can be among the problematic matters encountered in the integration of MALL. Huang and Lin (2011) indicate that mobile phones are the least suitable tools because of the small screen size and font in terms of improving reading skill especially for longer texts. Kim and Kwon (2012) pinpoint the high cost as a limitation of MALL and emphasize the need for more programs and applications for different language skills such as listening and speaking.

Apart from technical issues, several researchers (Calderwood, Ackerman, & Conklin, 2014; Gaudreau, Miranda, & Gareau, 2014; Handal, MacNish, & Petocz, 2013; Kuznekoff & Titsworth, 2013; Reinders & Hubbard, 2013) assert that using mobile devices for educational purposes may be distracting for students because of irrelevant notifications and the places such as cafes, and parks in which there is too much noise. Hall and Higgins (2005) emphasize that the efficacy of technology use depends on how and to what extent it is used and add that extensive use of mobile devices may be distracting for teachers and students.

With a different perspective, Burston (2014) indicates that despite the improvements of numerous functions in MALL, there are pedagogical deficiencies that result from teacher-centered, behaviorism-based teaching methods. In order to overcome these deficiencies, Burston suggests to develop more student-centered applications in which content delivery, feedback and monitoring, personalized instruction, and constructivist/collaborative approaches are taken into consideration and supported with proper training in line with foreign language pedagogy.

In brief, though there are several drawbacks of MALL, mobile technology, especially smartphones and tablets that are easier to carry and have high capacity properties are seen as the most effective learning tools to be used in and out of the classroom in the near future (Sung, *et al.*, 2016). No matter what term is used to convey the technology integration into education, Hu and McGrath (2011) and Vázquez-Cano (2014) underlines the critical role of mobile devices in supporting teaching and learning.

TELL.

In many studies, TELL is just one of the terms referring to technology integration into the language learning process. However, it is too difficult to make an exact distinction among the terms used for learning with technology. Several researchers (Hubbard, 2013; Oxford, 2006; Yang & Chen, 2007) define TELL as an alternative acronym to CALL with the emergence of the Internet. Thelmadatter (2007) similarly indicates that the advent of the Internet has brought a new dimension in which CALL was converted into TELL by providing interactive activities in which the students can be supported, reinforced and assessed with visual and aural elements. Bush and Terry (1997) propose TELL to emphasize the technology as a communication tool provided by the computer. Therefore, it can be said that computer use is a part of technology enhanced learning. However, technological developments have broadened the scope of TELL from solely computers or desktops to handheld devices with numerous functionalities (Yang, 2013). According to Beatty (2013), TELL refers to any technological tool used in the classroom such as video, tape recorders or even entire listening labs. As can be seen from the definitions, TELL covers technology integration into language without having a specific distinction among the technological tools. Bax (2003) supports this idea by asserting that even if the technological tools change in time, approaches are shaped in the frame of normalization theory. Walker and White (2013) point at one of the most salient differences between CALL and TELL as the evolving role of technology that is a part of the language learning environment instead of being a language learning assistance used in the learning environment. Conversely, Patel (2014) describes TELL as an approach and defines it as the use of technological devices in order to provide multimedia and adds that TELL is the use of computer technology in different ways such as looking up a word from an online dictionary, communicating with other people, reading news, producing content, taking part in a discussion, listening to music, playing games or practicing language skills by using hardware, software and the Internet. Figure 5 offers a visual presentation to make the differences between CALL and TELL clear.

Approach	**Structural/ restricted CALL**	**Communicative CALL Open CALL**	**Integrative CALL**	**TELL**
Technology	From mainframe to mobile	PCs	Multimedia, internet	Mobile devices, tablets, multiplayer games, virtual worlds
English-teaching paradigm	Grammar-translation and **audio-lingual**	Communicative language teaching	Content-based ESP/EAP	Communication, interaction
View of language	Structural (a formal structural system)	Cognitive (a mentally constructed system)	Socio-cognitive (developed in social interaction)	Structural, cognitive, socio-cognitive, adaptable
Principal use of technology	Drill and practice	Communicative exercises	Authentic discourse	Normalized
Principal objective	Accuracy	Fluency	Agency	Autonomy within community
View of learning	Behaviourism	Constructivism	Social constructivism/ situated learning	Connectivism
Role of technology	Tutor	Tutee	Mediational tool	Environment, resource

Figure 5. From CALL to TELL (Walker & White, 2013, p.19).

As seen in Figure 5, TELL includes a great variety of technological tools compared to CALL that is limited to computer technologies. Another salient shift from CALL to TELL in terms of English teaching paradigm is the opportunity for communication and interaction of learners. Considering the socio-cognitive approach provided by TELL, Warschauer (2000) describes two ways of technology integration: cognitive and social approaches. In cognitive approach, the main focus is to boost the exposure to the target language in a meaningful way while in social approach, it is aimed to have authentic social interactions by practicing in real life situations. In line with this definition, the opportunity for exposure and interaction is provided together by TELL in which technology is not an integrated part of learning but an inseparable element referring to Bax's (2003) normalization. Zhou and Wei (2018) explain the process of normalization as the constant use of technology as a part of education rather than a supporting material.

From a different perspective, technology integrated learning is categorized not according to the tools used but the way of learning. For instance, Zhao (2003) classifies the technologies as technologies providing access to resources, technologies providing an opportunity to communicate and get feedback and technologies used in classroom setting while Golonka, *et al.* (2014) indicate that technologies can be categorized as technologies for individualized learning, technologies for classroom setting and mobile tools, and social network-based platforms. No matter how and where technological devices are utilized, the borders among them are overlapped and each is an effective tool for self-directed or collaborative learning in and out of classroom settings.

In tandem with the studies on CALL and MALL, TELL presents similar advantages such as more student-centered learning environment and learners' motivation and active participation (Dawson, Cavanaugh, & Ritzhaupt, 2008; Gilakjani, 2017; İlter, 2015; Kintu, Zhu, & Kagambe, 2017; Rico García & Vinagre Arias, 2000; Rodinadze & Zarbazoia, 2012; Saritepeci & Cakir, 2019; Stepp-Greany, 2002; Tomlinson, 2011), critical thinking (Bagdasarov, Luo, & Wu, 2017; Jin & Erben, 2007), problem-solving (Ghanizadeh, *et al.*, 2015), improvement of collaboration and interaction (Craig & Patten, 2007; Gillespie, 2006), reduced learner anxiety (Kaid Mohammed Ali & Rashad Ali Bin-Hady, 2019; Riasati, Allahyar, & Tan, 2012), enhanced learner autonomy (Braul, 2006), more exposure to the target language (Parvin & Salam, 2015), students' success (Hwang, *et al.*, 2014), and immediate feedback (Costley, 2014).

Becker (2000) emphasizes the function of the computers as an instructional instrument providing access to the Internet and flexibility in the curriculum. Barron, Orwig, and Ivers (2002) summarize the contributions of technology in education as increasing learners' achievement through multimedia, encouraging learners to take an active role in a cooperative learning environment and think critically, supporting individualized learning process, motivating learners, providing flexibility according to learners' own learning pace, enhancing communication skills, addressing different learning styles and enabling learners to build cultural bridges. Stepp-Greany (2002) indicates that learners are more interested in participating in the course and having a more active role while the learning process is supported by technological tools. Thornton and Houser (2002, 2003, 2005) indicate that it is possible to learn more vocabulary with technological tools than text-based training. Wang (2005) emphasizes the merits of technology integration such as improving language skills, reaching rich context through the Internet, and communicating with other learners all over the world. Yang and Chen (2007) imply that using new technologies for various tasks are shown to have provided different learning opportunities in terms of students' interests by improving their English language skills besides technological skills. Godwin-Jones (2011) points at user-friendly interfaces, flexibility, portability and low cost. Deng and Shao (2011) and Tai (2012) imply that in technology-supported learning environments, learners feel free and more comfortable in terms of the setting and time besides engaging in self or collaborative activities. Alberth (2013) underlines the role of technological devices in and out of the classroom by emphasizing their potential to facilitate the learning process by minimizing the drawbacks such as inadequate exposure to the target language, limited authentic resources and lack of opportunity to practice language skills. Burston (2013) points at the flexible access to language materials via technological tools used for learning. Patel (2014) indicates that technology integration provides more flexible, active and learner-centered language learning, boosts motivation, deepens experiences and develops more positive attitudes among learners. Especially for speaking skill, Ghanizadeh, Razavi, and Jahedizadeh (2015) express that students have a more enjoyable learning environment supported by TELL. Ahmadi (2018) refers to the advantages of technology integration into the learning and teaching process underlining interaction between individuals, development of critical thinking skills and creativity, more student-centered activities, enjoyable learning process, unlimited alternatives for the targeted skills, motivation for learning and self-directed study. Hwang and Fu (2019) highlight the role of technology integrated learning as it supports creativity, communicative competence and critical thinking ability while in a qualitative study on teachers' and students' perceptions of technology enhanced lessons. Kuru Gonen (2019) emphasizes the entertaining aspect of technology integration in a more interactive learning environment.

In the same vein, the barriers encountered and experienced in TELL are also similar to the ones encountered by the users who prefer technology for educational purposes. These are exemplified as technological malfunctions, limited time, limited or no access (Coghlan, 2004), teachers' inadequate knowledge and practice (Lai & Kritsonis, 2006), and negative attitudes of teachers and students (Becta, 2004; Coghlan, 2004; Kuru Gonen, 2019; Lai & Kritsonis, 2006; Yang & Chen, 2007).

To sum up, the role of technology in language education can be explained with four main conclusions in the light of previous studies in the relevant literature. The first conclusion is that there has been great interest in exploring the relationship between technology use and language learning in terms of different variables such as teachers' and learners' perceptions of educational technologies, their attitudes towards technology integration into language education, and achievement level of learners on targeted skills. The second conclusion is that regarding the skills studied, listening and speaking skills are comparatively less-explored ones in language learning process. Therefore, there is a need for further research to explore how technology integration affects the development of conversational skills. The third conclusion is related to the digital tools used in and outside the classroom with the aim of language learning. Due to the innovations in the field of technology, it is hard to classify technological tools as portable or non-portable devices, which has blurred the distinction among the terms about learning with technology. This situation necessitates preferring an umbrella term, TELL, to refer to any kind of technological tool used for language learning. The final conclusion is that most of the studies have explored the impact of technology use either in the classroom setting or out of the classroom. There is, therefore, further need to investigate the impact of technology use in-class and out-of-class settings. In line with these conclusions, this study aims to examine the effectiveness of TELL on learners' development of vocabulary and conversational skills in and out of the classroom to fill the gap in the related literature.

International Studies on Technology Integration into Language Education

Over the last three decades, there has been a growing interest in using technological tools in language education around the world. Related literature presents numerous studies examining various topics such as the advantages provided by technology (Costley, 2014; Kim, 2018), learners' and teachers' perceptions of and attitudes towards learning with technology (Alzubi, 2019; Nariyati, 2020; Tafazoli, *et al.*, 2018) learner autonomy (Amir, 2018; Lenkaitis, 2020; Reinders & White, 2016; Stockwell & Reinders, 2019), motivation (Akobirov, 2017; Stockwell, 2013; Hsu, 2017), collaboration (Cobcroft, Towers, Smith, & Bruns, 2006; Denk, Weber, & Belfin, 2007), task-based learning, contextual learning, multimedia and self-directed learning (Lai, 2019; Lai, Shum, & Tian, 2016).

Before exemplifying the relevant studies on language skills in the international context, the researcher presents the studies evaluating the effectiveness of technological devices in language education in terms of various factors such as motivation, interaction, collaboration and attitudes. Thornton and Houser (2003) trialed an audience response system to enable interactivity in large classes in Japan by using the students' mobile phones that were connected to a website where polls, students' comprehension checks and a discussion platform were available and it was concluded that using such a system improved interactivity and provided feedback by displaying the students' responses in the class. Kiernan and Aizawa (2004) investigated the effect of mobile devices in a task-based learning environment via three different delivery options that were text messages, e-mail and oral communication and the study showed that mobile devices were effective tools in task-based learning by presenting various advantages in Japan. Attewell (2005) conducted a mobile learning project in three different countries, Italy, Sweden and the UK, to examine the impact of SMS-based courses on learners' motivation for learning L2 and evaluated cross-cultural differences of learners. The results demonstrated that learners were keen on using technology for learning and they believed that mobile learning improved their ability in terms of literacy and language skills besides boosting collaborative learning and self-esteem. Lan, *et al.* (2007) conducted a comparative study in Taiwan to explore the effect of a developed system that depended on peer assistance through Tablet PC with the aim of improving collaboration in EFL reading course. The results indicated that the system facilitated collaboration by minimizing the weakness encountered in conventional classrooms and learners' motivation and confidence increased thanks to the peer-assisted learning system. Taking instructional strategies including written and visual elements and learners' cognitive models including verbal and visual short-term memory into account, Chen and Hsieh (2008) explored the impact of Learning Content Representation (LCR) for a better content adaptation confined by small screen size in Taiwan. The researchers concluded that the more visual elements were included into the learning process, the more success the learners achieved. Hsu, *et al.* (2008) explored the use of audio blogs by instructors in ESL environments with the aim of managing oral assignments, interacting with learners and evaluating the performances of the students who made recordings for oral assignments and delivered their assignments through audio blogs keeping an assignment archive. The results revealed that using audio blogs supported mutual interaction and permitted individualized feedback both of which had a great effect on oral performances of learners who were from Thailand, South Korea, Colombia, Taiwan, Pakistan, Israel and India. Song (2008) showed that SMS motivated L2 learners and functioned as a reminder in developing English vocabulary skill in her study where SMS was integrated into a website that increased positive attitudes of the students.

Borau, Ullrich, Feng, and Shen (2009) used Twitter to investigate the effectiveness of microblogging on learning English in China over a seven-week-period with the aim of evaluating how the use of a social network developed communicative and cultural competence. They found out that interacting in the target language minimized the need for face to face contact by providing active use of the target language. Al-Shehri (2011) examined the contribution of reaching an online community on Facebook through Arabian students' mobile phones by sharing photos, video clips and texts during a 16-week study and concluded that using a mobile social networking media provided contextual learning in an environment where in-class activities could be transferred to the outside world. Brown, Castellano, Hughes, and Worth (2012) integrated iPads that were used as presentation tools, voice recorders, and devices to reach web-based resources and digital handouts into EFL context at tertiary level in Japan. The results showed that the integration did not work as effectively as expected as students' familiarity and experiences affected the process negatively. Kim and Kwon (2012) explored the effectiveness of mobile-assisted language learning applications in terms of properties, strengths and weaknesses and after a detailed analysis of 87 applications, it was concluded that although they were effective tools providing individualized learning, flexibility and easy access, collaborative practices were needed to be improved. Kondo, *et al.* (2012) aimed to improve self-regulated learning of Japanese university students studying English language through a learning module for listening and reading skills and the findings showed that MALL practices presented the freedom for time management, increased level of satisfaction for self-measured achievement and the customized creation of learning tasks. Oberg and Daniels (2013) compared the impact of iPod Touch as a mobile learning tool in an individual-oriented (self-paced instruction) and group-oriented learning environment for 15 weeks in a 122-participant-study in Japan and the results showed that besides a greater success in the experimental group, the positive attitudes emerged towards self-paced study through technology. Lai, *et al.* (2016) aimed to promote 64 Chinese university students' self-directed use of technological tools for language learning through an online training program during 12 week. The results revealed that the students trained online were more willing to learn and knowledgeable about self learning.

Different from the studies evaluating the impact of technology use in terms of some internal and external factors on learning process, there are a great variety of studies focusing on language skills (Akbari & Erfani, 2018; Albahiri & Alhaj, 2020; Guaqueta & Castro-Garces, 2018; Namaziandost & Nasri, 2019; Wulandari, 2019). Reading was one of the most frequently studied skills in the literature. In their examination the effect of technological tools on reading skill, Chen, Hsu, Li, and Peng (2006) used a PDA-based learning system called PIMS suggesting English news articles according to the learners' abilities determined by a fuzzy Item Response Theory and identifying unfamiliar words for further readings. The results confirmed PIMS was an efficient tool in the improvement of reading skill. Wu, Sung, Huang, Yang, and Yang (2011) developed and trailed a situated-based English learning system suggesting translations, pronunciation, and explanations of the related material offered according to the location with the aim of facilitating and improving reading skill of Taiwanese students. At the end of an eight-week implementation, two groups using a location-based reading program with or without guidance significantly outperformed the third group using only a text-based material without having any environmental instruction. Especially learners who were guided by Learning Portfolio system had the highest scores. Tseng and Yeh (2018) investigated whether reciprocal teaching instruction accompanied with annotation tools in an online environment were effective in boosting reading comprehension of 22 Taiwanese students and the results suggested that there was a significant improvement in reading skill with the help of annotation tools that provided collaborative environment, organization of the content in various forms and an opportunity to review what they understood.

As one of the basic language skills, writing skills are also among the popular topics to be studied. For instance, in Callan's study (1994) that was the first published MALL study, the effect of PDAs on English writing skills was examined and the results showed that using PDAs made learning more flexible apart from time and place and provided more organized writing due to grammar- and spell- check features. Shang (2007) utilized email in order to increase writing performance of 40 Taiwanese EFL students in terms of producing more complex and accurate paragraphs with diverse vocabulary and the results showed that sending and getting emails contributed to the achievement level of the students in writing except for lexical density. Hwang, Chen, and Chen (2011) aimed to improve EFL learners' writing skill by using a situational learning system offering vocabulary, phrases and sentence patterns for familiar context-based writing tasks in Taiwan and at the end of six-week study students in the experimental group performed better in terms of the number of the sentences produced in a more logical and organized context. In their study on Wiki technology and peer review, Lin and Yang (2011) aimed to improve the writing skills of 32 Taiwanese ELT students who were supposed to write passages in an interactive environment with their classmates. The results revealed that although learners had some problems pertaining to technology use and attitudes, getting immediate feedback from the course instructor and their classmates and using Wiki for writing activities improved learners' ability to write. In China, Tang, Xie, and Wang (2011) tested the impact of a Wiki-based collaborative writing environment in terms of three learning strategies that were collaboration and knowledge sharing, peer assessment, and monitoring of the writing process. The results revealed that the use of Wiki-based learning tool increased the students' success and facilitated their ability to work as a group. Vurdien (2012) used blogs as a writing tool in order to make Spanish learners more active and motivated in a collaborative environment and the results indicated that writing blogs improved the students in terms of better planning and producing an error-free content. After the intervention, it was concluded that collaborative writing through Wiki enabled learners to be more active, promoted group work and increased reader awareness. Li and Hegelheimer (2013) developed a web-based mobile application called Grammar Clinic that was used in academic writing courses by focusing on grammar practices during 16 weeks and the findings indicated that there was progress in favour of the students from different nations in USA who made fewer mistakes and self-edited their assignments more effectively.

As regards the conversational skills that are the main focus of this study and pronunciation as a sub-skill, various systems and applications are available due to the developments in the field of educational technology. To exemplify, Anaraki (2009) used 12 mobile flash-based multimedia lessons, which were created and tested for four weeks, on smartphones or PDAs to learn English as a second language in Thailand and the results of post-test indicated that there was a remarkable improvement in the students' pronunciation followed by listening skills. In Iranian context, Baleghizadeh and Oladrostam (2010) utilized mobile phones in order to improve six selected grammatical structures via class discussions in which the students in the experimental group recorded their voices and in a further session, they commented on their speech after analyzing their spoken mistakes as an out-of-class assignment. The study showed that the students benefiting from mobile-assisted learning significantly performed better in terms of grammatical accuracy and speaking quality compared to the students in the control group who had no extra support. Liu and Chu (2010) studied the impact of games on L2 English conversational skills through a location-aware language learning system called HELLO in a ubiquitous environment in Taiwan over an 8-week period and they found out that learning outcomes and motivation level of experimental group students were higher than those of the control group. With the aim of developing listening skill, Palalas (2011) implemented a study for 15 weeks in a hybrid, also called blended, L2 English context with three different implementation forms that were in-class, online and mobile learning environments in Canada. The results indicated that using iPod Touch as a mobile component had a positive effect on learning English whilst the cost and the Internet connection were stated as the barriers in the learning process. Al-Jarf (2012) investigated the impact of self-study English lessons through electronic devices such as computers, mobile phones and MP3 players as a complementary resource out of class on the students' oral skills in English lessons in Saudi Arabia during 12 weeks and the results showed that there was a significant difference between control and experimental groups in favor of the experimental group who had higher scores in the post-test in terms of both speaking and listening skills.

In order to examine the effect of video creation on learners' L2 English speaking skills during a 14-week project, Gromik (2012) conducted a case study where 9 Japanese students were requested to produce monologue videos on a topic selected by the teacher via their phones each week. The results revealed that there was a positive effect of the pilot test on the students' speaking skill as almost half of the students produced more words and recorded longer videos compared to the pre-video and all agreed on the contribution of producing videos to their speaking skills. From four different universities in Tehran, Rahimi and Katal (2012) aimed to develop students' listening skills by exploiting podcasts over 18 weeks after 141 college students' metacognitive strategy awareness for listening and podcasts-use readiness were examined through two different questionnaires. The results showed that awareness of metacognitive strategies such as problem solving, mental translation, and directed attention were significant as indicators in podcast use for language learning and podcasts had a positive effect on listening skill. Hwang and Chen (2013) utilized PDAs in a situated language learning environment with the aim of providing listening and speaking practice to Taiwanese students during a two-month period and the results showed that the experimental group who were exposed to basic vocabulary sentence structure related to food via PDAs during their lunch break outperformed the control group who were exposed to paper-based materials in a non-contextual learning environment. Chang and Chang (2014) evaluated the impact of online videotext self-dictation-generation (video-SDG) activities through YouTube's caption manager platform on 48 Tawainese college students' metacognitive listening skills during 16 weeks divided into two parts: 8 week for general listening strategies such as listening and predicting, listening and making inferences, listening for vocabulary and listening for pronunciation and 8 week for metacognitive strategies focusing on recalling and reflection of what they learned. The results revealed that using online learning activities via YouTube videos compared to conventional listening comprehension tests enhanced students' success in listening comprehension.

Elfeky and Masadeh (2016) aimed to develop conversational skills of 50 Arabian ELT students through mobile devices during 14 weeks. The results indicated that the experimental group students were more successful than the ones in the control group in terms of academic achievement and targeted skills. Hsu (2016) investigated whether voice blogging contributed to 30 Taiwanese EFL students' speaking performance in terms of complexity, accuracy and fluency over a semester. During the intervention, the students were asked to make a recording on the selected topic, share it with their classmates through a blog and make comments on the recordings of other students weekly. The comparison of recordings belonging to the first two weeks and the last two weeks revealed that although there was progress in terms of complexity, more accurate and fluent speech could not be achieved with voice recording. Hwang, *et al.* (2016) examined the impact of storytelling individually and interactively on facilitating EFL students' speaking performance and the findings demonstrated that the use of storytelling enabled the students to make more practice and to recall the vocabulary easily and especially individual storytelling developed the speaking skill by providing a more independent learning environment. Huang, Shadiev, and Hwang (2016) used speech to text recognition (STR) technology in language learning classrooms to investigate the effects of the system on learning and cognitive load. The researchers reported that the success of Taiwanese students supported by speech recognition confirmed the positive effect of STR technology that also decreased cognitive load of the students. Mompean and Fouz-González (2016) used a social network platform, Twitter, as a complementary tool to examine whether it would contribute to Spanish EFL students' active participation and improve their pronunciation over an 11-week period. The results indicated that students had better pronunciation on the targeted words and had a more active role in the learning process. Xu, Dong, and Jiang (2017) examined Chinese learners' perceptions of feedback given through mobile devices on speaking skill and the results revealed that learners became more confident in speaking when they got mobile-assisted feedback. Yeh and Lai (2019) explored whether online tutoring had an impact on Taiwanese students' speaking proficiency and their negotiation of meaning and it was concluded that negotiation enables the students to practice more that resulted in more fluent and accurate speech with rich vocabulary knowledge.

The review of the relevant literature on technology-supported language learning reveals that vocabulary is the most studied skill among language skills and SMS, media platforms or different websites and applications were the predominant tools. Thornton and Houser (2001) used SMS that were sent at regular intervals to teach the target words through rote memorization and the results indicated that teaching implemented via SMS improved learning in an enjoyable way compared to using a desktop computer or printed text. Osaki, Ochiai, Iso, and Aizawa (2003) examined the effect of electronic dictionaries on vocabulary retention in reading comprehension through three groups with an electronic dictionary, with the printed counterpart and without a dictionary. The results showed that Japanese students using electronic dictionaries performed better compared to the students using printed one while the students who did not use a dictionary had the lowest degree. Ogata and Yano (2004) used a computer-supported collaborative ubiquitous learning system called CLUE in order to teach English expressions in a location-awareness environment where the students shared knowledge and experience through interaction. The results of the post-test used to evaluate the vocabulary retention revealed that students using CLUE outperformed the students using a paper-based vocabulary list. Thornton and Houser (2005) examined the progress of Japanese learners to whom the vocabulary sets were delivered through PC email, mobile email or paper-based learning environment and the learners who used mobile email were more successful compared to other groups. Amemiya, Hasegawa, Kaneko, Miyakoda, and Tsukahara (2007) used vodcasts to teach vocabulary to Japanese learners with its spelling, pronunciation and L1 equivalent in subtitles through short movies accessible in iPods and concluded that this online education system had a great effect on rote learning in the long term. Chen and Chung (2008) preferred PDAs to utilize an English vocabulary learning system designed for individuals' own learning pace and depending on Item Response Theory and learning memory cycle. At the end of the five-week process, the results demonstrated that the system attracted learners' attention and improved their vocabulary performances due to the flexible and effective learning environment provided by PDAs. Kennedy and Levy (2008) discussed the effect of SMS that was scheduled by teachers and sent per week to support vocabulary learning of Australian university students. The results showed learning vocabulary was more entertaining with the use of technology and vocabulary was easier to recall. Lu (2008) compared the difference between conventional and SMS-based vocabulary learning in terms of 30 Taiwanese learners' success and attitudes for two weeks and concluded that learners in SMS-based lessons outperformed the ones using text-based material and despite some limitations resulting from limited technological issues, learners had positive perceptions of mobile learning.

In her study on vocabulary development, Begum (2011) searched for the potential of mobile phone SMS-based class tests as a supportive tool in the EFL classrooms in Bangladesh where the teachers sent messages including multiple-choice questions and feedback after the students answered the questions. Despite the positive potential of mobile phones, the results revealed various difficulties such as lack of teacher training, cost and screen size that hampered text input. Motallebzadeh, *et al.* (2011) examined the retention of collocations in English via SMS in Iran for five weeks and the students getting SMS performed better than the students taking paper-based texts. Motallebzadeh and Ganjali (2011) conducted a similar study on L2 vocabulary retention and reading comprehension via SMS and they likewise found out that the use of SMS was effective on the development of Iranian students' proficiency levels. Zhang, *et al.* (2011) compared the effectiveness of vocabulary learning via mobile phone SMS that was sent regularly at specific intervals and learning via printed handouts that 78 Chinese university students studied according to their own pace. The results indicated that although there was no significant difference between two groups in the delayed test used for evaluating retention rates, the SMS group outscored in a shorter period. Alemi, *et al.* (2012) examined the effect of SMS on vocabulary learning and retention of Iranian EFL students in a 16-week experimental study. The researchers concluded that although all students in both groups had progressed in the post-test, the students who were taught via SMS had better vocabulary retention in longer-term according to the results of the delayed post-test.

Azabdaftari and Mozaheb (2012) implemented a study where printed flashcards and m-learning were compared in terms of vocabulary acquisition in English as a second language in Tehran during seven weeks and the results showed that the students learning through their mobile phones outscored the students using flashcards. Tabatabaei and Goojani (2012) examined the use of SMS and the effect of immediate feedback provided by the teacher on Iranian students' L2 vocabulary knowledge and the results revealed that there was an improvement in favour of experimental group compared to the the control group who used paper-based materials for assignments and received feedback in the class in the following course. Suwantarathip and Orawiwatnakul (2015) investigated L2 vocabulary acquisition of 80 students at tertiary level by providing practices through mobile devices and the results demonstrated that the target vocabulary was learned better and used more actively by the experimental group. Bensalem (2018) examined the impact of WhatsApp on 40 Arabian EFL students' academic vocabulary knowledge and their attitudes towards mobile learning. The results indicated that the students using a mobile application to learn vocabulary were more successful and had more positive attitudes towards mobile learning than the students using paper-based materials. Poláková and Klímová (2019) investigated whether a vocabulary application through mobile devices could increase students' success and they found out that the students were able to remember more words compared to those in the conventional classroom setting. In addition, they stated that utilizing a digital tool provided a more enjoyable and collaborative learning environment.

The salient international studies on technology integration into language education implemented last decade are summarized in Table 1.

Table 1. *Summary of International Studies on Technology Integration into Language Education*

Study	**Aim**	**Participants**	**Skill**	**Results**
Baleghizadeh and Oladrostam (2010)	to study whether mobile phones developed learners' grammar and speaking skill	40 pre-intermediate Iranian students	Pronunciation	Mobile-assisted learning contributed to the learners' performance in terms of grammatical accuracy and speaking quality.
Liu and Chu (2010)	to see the effect of a location-aware language learning system on L2 English conversational skills	64 7th grade Taiwanese students and 3 high school teachers	Conversational skills	Using a game-based learning system improved learners' achievement and motivation.
Hwang, *et al.* (2011)	to explore the effectiveness of a situational learning system	59 Taiwanese students of EFL elementary school	Writing	Preferring an online system for learning developed learners' writing ability in terms of producing more and organized context.

Table 1. *(continued)*

Lin and Yang (2011)	to compare the effects of Wiki technology and peer review on writing skill in an interactive environment	32 Taiwanese sophomore ELT students	Writing	Despite some internal and external problems, the learners had, using Wiki for writing activities improved learners' ability.
Palalas (2011)	to compare how iPod Touch as a mobile component affected language development	21 adult L2 learners and 182 L2 students	Listening	Despite some external barriers such as cost and the Internet connection, using iPod Touch had a positive impact on learners' success.
Tang, Xie, and Wang (2011)	to test the impact of a Wiki-based collaborative writing environment	38 Chinese university students	Writing	Wiki-based learning tool increased the success by facilitating group work.
Wu, *et al.* (2011)	to examine the effects of a situated-based English learning system on learners' reading skills	113 Taiwanese freshman students	Reading	Using a location-based learning system significantly improved the target skill compared to text-based material.
Zhang, *et al.* (2011)	to assess the effect of SMS on vocabulary learning	78 Chinese university students	Vocabulary	Despite insignificant result in the delayed test, the SMS group outscored in a shorter period.
Azabdaftari and Mozaheb (2012)	to explore the impact of mobile learning on vocabulary	80 Iranian university students	Vocabulary	The use of online flashcards through mobile phones developed learners' vocabulary in a positive way.
Rahimi and Katal (2012)	to develop listening skill of learners through podcasts	141 Iranian university students	Listening	The use of podcast improved the target skill.
Hwang and Chen (2013)	to see the effects of PDAs on listening and speaking skills a situated language learning environment	60 5th grade Taiwanese students	Conversational skills	PDAs improved conversational skills compared to text-based materials in a non-contextual learning environment.

Table 1. *(continued)*

Hsu (2016)	to analyze whether voice blogging developed speaking performance	30 Taiwanese EFL students	Speaking	Despite the learners' achievement in terms of complexity, more accurate and fluent speech could not be achieved by using a voice recording.
Mompean and Fouz-González (2016)	to see the impact of a social network platform on learners' pronunciation	16 Spanish EFL students	Pronunciation	The use of Twitter helped learners improve their pronunciation by making them more active in the learning process.
Bensalem (2018)	to investigate the role of WhatsApp on academic vocabulary knowledge	40 Arabian EFL students	Vocabulary	Mobile phones had an influence on learners' success.
Tseng and Yeh (2018)	to investigate the impact of reciprocal teaching instruction accompanied with annotation tools in an online environment on reading comprehension	22 Taiwanese EFL students	Reading	The use of annotation tools contributed to the learners' success by providing a collaborative environment.

In brief, there has been a growing attention among researchers in terms of employing technological tools in language learning environments to examine its effectiveness on different variables such as language skills, learner motivation, collaboration, autonomy, interaction, attitudes and perceptions in international context (Krull & Duart, 2017). However, as seen in the previous studies exemplified in the above paragraphs, the emphasis is on the affective domain while the studies on language skills focus on the improvement of vocabulary, reading and writing. Chee, Yahaya, Ibrahim, and Hasan (2017) point out that while examination of possible factors towards mobile learning, literature reviews, learners' perceptions, and development of new systems and applications are the most popular research topics, the impact of learning with technology on learners' success is a field requiring for further research. Likewise, Chang and Hwang (2019) underline the focus on internal factors rather than the language skills. At this point, it can be stated that research on language skills have great importance to make all stakeholders of the education system aware of its impact and pave way for the approaches, syllabus and curriculum. Enlightening teachers, instructors and other stakeholders in the education system about the merits of technology use and motivating them to integrate technology actively through research is also prominent in national context. Therefore, the related studies in national context are presented in the following section.

National Studies on Technology Integration into Language Education

Despite the variety and abundance of the studies on technology integration into language education in international context, the studies conducted in national context are comparatively scant and more limited to examination of such particular topics as interactivity, collaboration, motivation, autonomy, task-based learning, contextual learning, multimedia and self-directed learning (Avci & Adiguzel, 2017; Genc İlter, 2009; Keser, Uzunboylu, & Ozdamli, 2011; Sert & Boynuegri, 2016). However, conversational skills and learner achievement in integrated skills have also been among the topics attracting attention recently. The following paragraphs exemplify the studies on the use of educational technology in national context.

Research on technology integration into language education focused on four main language skills besides the studies on integrated skills or overall language achievement. For instance, Akbulut (2007) examined the factors boosting vocabulary knowledge and reading comprehension of 69 EFL students by utilizing three different authentic electronic texts that were text only, texts with pictures and texts with short videos. The results of an announced vocabulary test besides reading comprehension test applied after reading sessions showed that while types of learning and reading ability were effective in improving reading skill, types of definitions and prior knowledge about the topic were important in the development of vocabulary skill. Kilickaya (2007) offered computer-assisted instruction with the aim of increasing 37 ELT students' success in an international English proficiency exam for eight weeks. The researcher concluded that although the success of the students did not differ in the overall scores, there was a significant difference in reading and listening scores and the qualitative results showed that the students were more willing to integrate technology into the curriculum as a whole.

Kilickaya and Seferoglu (2013) examined the impact of CALL-based activities through CALL instruction at tertiary level by using journals, questionnaires and interviews and the results indicated that the students were able to use a variety of materials while practicing listening, writing and grammar skills after they took CALL instruction. Turk and Ercetin (2014) explored whether visual and verbal multimedia were more effective on 82 students' reading comprehension and incidental vocabulary learning when the vocabulary items were represented interactively or simultaneously. In interactive display, the students had a choice to select definitions or related pictures while in simultaneous displays, both definitions and visual elements were shown together. The results revealed that the students seeing the meanings and visual information at the same time had higher scores than the students in interactive groups. Hava (2019) explored whether digital storytelling could increase 60 EFL students' motivation and satisfaction level in a 9-week-intervention and it was concluded that the use of digital storytelling was very effective on students' self-confidence level besides enhancing their vocabulary knowledge, writing and speaking skill.

Altun (2005) explored the effect of multimedia and the Internet technologies on learners' attitudes and beliefs through an integrated message board system in the language learning process and preliminary results of this longitudinal study were positive in favor of the students. Oz (2015) explored the differences among EFL teachers' perceptions of MALL in terms of gender, grade level and an average of grade point and the findings revealed that there was a relationship between gender and average of the grade level of learners who had positive attitudes towards technology integration. Bezircilioglu (2016) examined prep class students' and teachers' attitudes towards using mobile phones as an online dictionary and translation tool in English learning process by presenting its practical and ubiquitous use as an important factor to motivate the students. The results of the study showed that although the teachers did not prefer mobile devices during the lesson because of the distracting properties such as social media and games, technology integration presented a more productive learning process and motivated the students who actively used their mobile phones for vocabulary learning and translation.

In the national context, reading and writing skills are among the most preferred skills to be examined in every level of education. Sakar and Ercetin (2005) attempted to investigate the effect of multimedia annotations on 44 EFL learners' reading skill by taking into consideration their preferences. The findings revealed that although annotations with visual elements improved reading skill more compared to annotations with text or audial elements, they had also a negative impact on reading comprehension because of distractive factors. Buyukyazi's (2007) findings concerning web-based activities lasting six weeks on 36 EFL students' reading achievement indicated that the students reading online were more motivated and successful compared to the students in two control groups in which graded readers or traditional instruction-only was used. Arslan and Sahin-Kizil (2010) reported the results of their study in which blog was integrated as an instruction tool to increase the writing performance of 50 university students. The researchers found out that combining writing activities implemented in class and blogs as a complementary tool promoted the students' success. Baturay and Daloglu (2010) explored the impact of e-portfolio on 58 university students' success in EFL writing courses lasting for one semester. Although there were no statistically significant differences between the post-test scores of the groups, the students using e-portfolio stated that learning with e-portfolio was enjoyable.

Erice and Ertas (2011) investigated whether paper portfolio or e-portfolio was more effective on the writing skill of 47 ELT students. The intervention lasted one semester and the results showed that the students using e-portfolio improved their writing skill more than the students using paper portfolios. Arslan (2013) investigated whether blogs or portfolios were more effective on the writing skills of 59 pre-service teachers at an ELT department when they were used for receiving and giving feedback in writing activities for two academic semesters. The findings showed that both blogs used online and paper-based portfolios had a positive impact on the students' writing success in terms of organization of the content, language used, vocabulary selected and accuracy especially by enabling the students to get feedback from their instructor and peer review. Ekmekci (2017) investigated the development of 43 students' writing skills through a flipped instruction model for 15 weeks. At the end of the intervention, it was concluded that the students in the experimental group were more successful than the students in the control group in terms of writing performances. Munzur (2017) used educational technology in reading class with the aim of investigating prep class students' attitudes and academic success in the target skill during an academic year and the results showed that a classroom environment equipped with technological tools enabled the students to do the activities in the coursebook collaboratively and communicatively. As a result, the use of technology contributed to reading comprehension and made the students more motivated.

In relation to the conversational skills that are targeted skills of this study, Seferoglu (2005) attempted to improve the pronunciation of 40 students at tertiary level by using an accent reduction software for one semester. She concluded that technological tools and applications enabled learners to be exposed to the target language more compared to the traditional classroom environment and to boost their skills through the rich content offered by the tools. Over an 8-week-study, Ozgen (2008) aimed to develop listening skills of EFL students who watched authentic videos with or without subtitles besides having worksheets for the targeted words and phrases over an 8-week period. The findings showed that captioning enabled the students to acquire vocabulary and develop listening comprehension by attracting their attention. Saran, *et al.* (2009) used multimedia messages including definitions, examples and visual support to improve L2 English pronunciation with a comparison to websites and printed materials during four weeks. Besides the qualitative results, post-test results showed that the students getting content via multimedia messages had better pronunciation and appreciated the efficiency of mobile phones on improving speaking skill. Cepik and Yastibas (2013) preferred e-portfolio for increasing speaking performance of 17 ELT students who were supposed to create a video or audio recording in order to improve their speaking skill and they concluded that e-portfolio was an effective tool in terms of boosting speaking skills. In a twelve-week-study, Hamzaoglu and Kocoglu (2016) used podcasts as a teaching tool in order to develop the oral performance of 30 high school students and decrease their speaking anxiety. The results indicated that using podcasts besides conventional speaking activities enhanced speaking performance, vocabulary knowledge and pronunciation of the students by lowering their anxiety. Incecay and Kocoglu (2017) studied the effect of input delivery types that were audio only, audio with video, audio with video also including subtitles and audio with a PowerPoint presentation on listening comprehension of the students. The results surprisingly revealed that the students having subtitles in the videos had lower scores compared to the students having other input delivery types and the highest scores belonged to the students having audio with presentation. Bakla (2018) aimed to develop conversational skills including pronunciation of eight EFL students through short podcasts for two semesters. At the end of the intervention in which the students were asked to listen to a podcast and discuss what they listened to, the researcher concluded that the exposure to comprehensible input contributed to the students' targeted skills. Gonulal (2020) explored the impact of podcasts and vodcasts on 49 EFL students' listening skills in a comparison study for one year. The quantitative and qualitative results suggested that using podcasts that were commonly preferred boosted their pronunciation, vocabulary knowledge and overall listening skills at the end of the intervention.

Similar to the case in international contexts, vocabulary is the most commonly studied skill also in the national context. For instance, Bas and Kuzucu (2009) aimed to explore whether CALL that was also supported with a language learning programme called DynED improved 60 students' achievement and attitudes towards educational technology. At the end of one academic year, it was concluded that the students in the experimental group were more successful and motivated, better in terms of retention, and had more positive attitudes. Cavus and Ibrahim (2009) developed and used a mobile learning tool called MOLT that could be used in wireless technologies such as laptops and mobile devices in order to examine its effect on language learning. The results showed that MOLT contributed to students' success in vocabulary development. Basoglu and Akdemir (2010) investigated the effect of a flashcard application in mobile phones on students' vocabulary learning in the English language in a six-week pilot study and the post-test showed that learning with flashcards through mobile phones were more effective and entertaining compared to using printed flashcards. In their study, Kilickaya and Krajka (2010) investigated whether using an online vocabulary program called WordChamp affected the students' success in vocabulary skill and the findings indicated that the students in the experimental group performed better than the students in the control group in terms of the post test scores. Additionally, the follow-up post-test results confirmed that the students using an online program to learn vocabulary were more capable to remember the selected words.

Kayaoglu, Akbas, and Ozturk (2011) examined the impact of animation use on 39 students' vocabulary success for two semesters and they found out that the students in the animation group had higher scores compared to the students in the control group whilst there were not statistically differences between two groups' post-test scores. The opinions of the animation group students supported the contribution of animations to their success as complementary tools. Turgut (2011) preferred SMS for vocabulary teaching to 60 students at tertiary level and after the intervention, it was concluded that SMS was effective in improving vocabulary knowledge of the students besides motivating and encouraging them to study at regular intervals. Saran, Seferoglu, and Cagiltay (2012) used mobile phone multimedia messages in which definitions of the target vocabulary, sample sentences, related visual materials, pronunciation of the words and multiple-choice tests were delivered in order to develop L2 English learners' vocabulary acquisition at tertiary level in a 10-week-study. The results showed that the vocabulary knowledge of the students who got the content via multimedia messages improved more than the groups in which web-pages and printed texts were used. Agca and Ozdemir (2013) used 2D barcodes to examine visual elements for effective vocabulary learning and the findings showed that mobile vocabulary learning supported by multimedia content improved the students' proficiency level. Saricoban and Ozturan (2013) examined the effect of MALL on the prep-class students' vocabulary achievement by sending SMS including the target vocabulary for three weeks and it was concluded that the use of mobile phones for educational purposes made the learning process more enjoyable and contributed to vocabulary skill. Unal (2015) compared the mobile- and paper-based vocabulary notebooks in order to find out to what extent they improved vocabulary knowledge of 40 students at tertiary level. The quantitative results confirmed the positive contribution of mobile-based notebooks to vocabulary knowledge, which was also supported by the qualitative results demonstrating the positive attitudes of the students. Cakmak and Ercetin (2018) used multimedia glosses for text recall and incidental vocabulary learning via mobile-assisted L2 listening tasks that were delivered in four different forms as text-based, visual-based, text- and visual-based glosses and absence of glosses and it was concluded that glosses were supportive tools for vocabulary recall and production whilst there was no effect on text recall.

The prominent national studies on technology integration into language education implemented last decade are summarized to visualize and highlight for a better understanding in Table 2.

Table 2. *Summary of National Studies on Technology Integration into Language Education*

Study	Aim	Participants	Skill	Results
Arslan and Sahin-Kizil (2010)	to explore whether the use of blog as an instruction tool was effective on writing performance	50 intermediate university students	Writing	The use of blog promoted the learners' writing skill.
Basoglu and Akdemir (2010)	to illustrate a comparison of an online flashcard application and printed flashcards on learners' vocabulary	60 prep class students	Vocabulary	The use of flashcards through mobile phones provided more entertaining learning and had a positive effect on vocabulary development.
Kilickaya and Krajka (2010)	to examine whether an online vocabulary program increased learners' success in vocabulary	38 university students from different departments	Vocabulary	The use of an online program to learn vocabulary enabled learners to remember the selected words more easily.
Kayaoglu, Akbas, and Ozturk (2011)	to explore the effects of animation on vocabulary knowledge	39 prep class students	Vocabulary	Despite insignificant results, the students in the experimental group had higher scores on the target skill.
Turgut (2011)	to study whether SMS had any effect on vocabulary development	60 prep class students at ELT Department	Vocabulary	SMS increased the proficiency level of learners on vocabulary by motivation them.
Saran, Seferoglu, and Cagiltay (2012)	to investigate how multimedia messages developed L2 learners' vocabulary acquisition	24 English learners at tertiary level	Vocabulary	The use of multimedia for vocabulary had more effective compared to webpages and printed texts.
Agca and Ozdemir (2013)	to see the impact of 2D barcodes providing	40 ELT students	Vocabulary	Multimedia use through mobile

Table 2. *(continued)*

	visual elements o vocabulary			phones boosted learners' success.
Unal (2015)	to compare mobile- and paper-based notebooks on vocabulary	40 students at tertiary level	Vocabulary	Mobile-based notebooks were more effective on vocabulary.
Gonulal (2020)	to compare how podcasts and vodcasts affected learners' listening skill	49 ELT students	Listening	Podcasts were commonly preferred due to its positive impact on pronunciation, vocabulary and listening.

When international and national studies in the relevant literature are reviewed, it can be concluded that there are numerous studies examining the effectiveness of language learning with technology in terms of teachers' and students' perceptions of and attitudes towards technology integrated learning, internal factors such as motivation and autonomy, and learners' achievement. As regards specific language skills, it can be indicated that a majority of the studies focus on reading, writing and vocabulary skills and relatively on integrated skills. However, there is scarcity of research investigating the impact of technological tools with the aim of improving listening and speaking skills. The deficiency of the studies focusing on conversational skills is also obvious in national context. Considering the requirements of globalized world, individuals need to know how to communicate effectively instead of merely learning a language with its rules in context. In other words, they are supposed to use language actively, which is mostly possible through the development of conversational skills. However, in conventional learning environments, learners have limited resources to study and exposure to the target language. Possible barriers impeding effective interaction and communication can be minimized with the adoption of technological tools so that learners are able to improve their knowledge of vocabulary used in daily life of native speakers and their pronunciation for a better understanding, and gain fluency and accuracy in their speech. Therefore, this study is intended to investigate the effectiveness of technological tools on conversational skills of ELT students in order to improve learners' targeted skills. Touching upon a limitedly-explored area, this study is expected to shed light on how technology integration into language education impact the development of listening and speaking skills of EFL learners. This study also aims to present an example of the implementation process and guide future research on technology integration.

Summary of the Chapter

This chapter presented the term 'digital literacy' and the historical development of technology use under three headings with their advantages and disadvantages. With current digital tools and technologies, people have started to use technology in education besides their daily routines such as work, research, communication and other various purposes. Interactive whiteboards, mobile phones and PDAs are among the common digital devices utilized in and out of the classroom to have seamless learning. After a transition from CALL to MALL in technology integration for educational purposes, a more general term including every kind of technological device used for language education has started to be used: TELL. International and national studies on technology use in language learning and teaching are also presented to display the research focus in the related literature. In the literature, although there are numerous studies researching the effectiveness of technology integration, teachers' or students' beliefs and particular skills such as reading and vocabulary are the dominant research topics. However, there is still scarcity of research on the examination of technology integration into conversational skills in language education. Therefore, this study aims to fill the gap in the related literature by examining the effect of technology integration on EFL students' conversational skills in and out of classroom activities.

CHAPTER THREE

Methodology

This chapter provides detailed information about the methodology followed in this study. Beginning with the description of the research design, the chapter goes on with the presentation of the research setting and the participants. Then, data collection instruments and data collection procedures involving the researcher's role, the issues of reliability, validity, and ethics are presented. Subsequently, the data analysis procedures for both quantitative and qualitative data are explained. The chapter concludes with a summary of the methodology section.

Research Design

The literature on the integration of technology into language education revealed that conversational skills were among the skills receiving limited attention compared to other skills in the language learning process (Burston, 2015; Hwang & Fu, 2019; Sung, *et al.*, 2015). When the data collection methods in the previous studies were examined, it was also found out that most of them employed a quantitative research design. In a meta-analysis about the trend in the research design and mobile language learning applications, Hwang and Fu (2019) reported that most of the related studies adopted quantitative research designs in the last two decades. In the light of the analysis pointing at the gap in the examination of conversational skills and the need for further research combining qualitative and quantitative methodologies, this study aimed to investigate the impact of technology enhanced language learning on EFL students' vocabulary development and conversational skills through a mixed-methods research design. The research design is elaborated in the following paragraph.

Creswell (2002) defines mixed-methods research as a single study where both quantitative and qualitative data are collected and analyzed together to answer research questions. Mixed-methods research depends on the pragmatic perspective as it provides a deeper understanding and enriches reliability and validity by minimizing the errors that can result from a single technique (Patton, 2002). Greene (2007) similarly emphasizes that preferring a mixed-methods research design increases the validity and reliability of the findings and provides a deeper and comprehensive understanding of the facts. Creswell (2012) exemplifies the roles of quantitative and qualitative data by stating that the quantitative data show whether the implementation is effective on the outcomes while the qualitative data offer the experiences and perceptions of the participants. At this point, it must be noted that using qualitative and quantitative research models together is a completion rather than an alteration (Smith, 1983). Therefore, it can be concluded that a mixed-methods research design is more effective than other methods in finding answers to research questions, making strong inferences, and presenting the diversity of different views (Tashakkori & Teddlie, 2003). In order to serve for the stated purpose and gain a more in-depth understanding while answering the research questions, a mixed-methods research design was adopted in this study. In this respect, quantitative data were collected through pre-course questionnaires, pre- and post-tests, self-assessment checklists and mini questionnaires, and weekly assignments while qualitative data were collected through evaluation and suggestion forms and semi-structured interviews.

The particular type of mixed-methods research design adopted for the purposes of this study was sequential explanatory mixed-methods research design. In sequential explanatory design, quantitative data are collected first and then the results are elaborated with qualitative data (Creswell, 2002) and the main purpose is to explain a phenomenon (Tashakkori & Teddlie, 2003). In line with this aim, in this study, quantitative and qualitative data collection and analysis were carried out sequentially as shown in Figure 6.

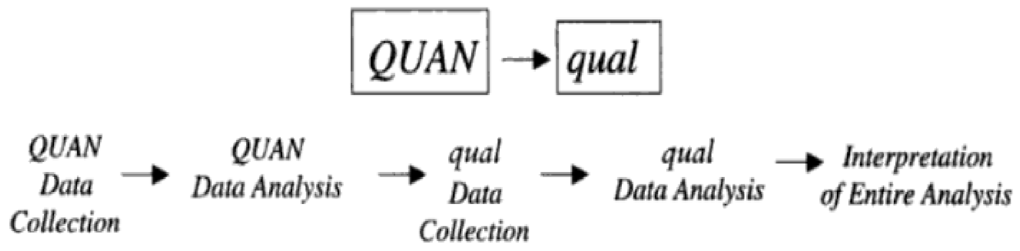

Figure 6. Sequential explanatory design (Tashakkori & Teddlie, 2003, p.225).

As seen in Figure 6, this study was conducted in two phases. While quantitative data were utilized to examine the students' success after the intervention, qualitative data were collected to elaborate the quantitative data through their perceptions of and opinions as regards technology enhanced language learning. Thereby, the study in which both types of data collection were preferred due to their strengths is expected to present deeper and more reliable results on the examined topic.

Setting

This study was conducted at the preparatory class at the English Language Teaching Department at a state university in Turkey during fall semester in 2019-2020 academic year. For all ELT students, prep class was compulsory. The ones who were not able to pass the proficiency exam conducted by the department at the beginning of the academic year had to attend the prep class for one year. In the prep class program, it was aimed to improve proficiency levels of learners in terms of basic language skills and prepare them for the graduate program at ELT Department. Therefore, learners' needs and educational goals were taken into consideration. In this sense, the prep class program had 20-hour-instruction weekly for two academic terms. The instruction included the courses on basic language skills that were grammar, listening, speaking, reading and writing. The students attended a 4-hour-course for each skill weekly.

This study was implemented as a part of listening and speaking courses of prep class students. The classroom in which the course was implemented was equipped with smart board and the Internet access so that the students were able to use the Internet through their smartphones, tablets, laptops and other technological devices as long as they were available in the school building. During the intervention, technology was used in every phase of the course while the instructors of other courses abstained from using any kind of technological tool not to affect the learning process and the results of the study.

Participants

This sub-section presents the participants who were involved in the research process: the students, the interviewees, the instructor and the raters.

The students.

In order to determine the experimental and control groups, the researcher employed purposive and convenience sampling methods that are both non-probability sampling techniques and useful when duration, resources and workforce are limited (Etikan, Musa, & Alkassim, 2016). Purposive sampling refers to the deliberate selection in considering participants' characteristics (Tongco, 2007) and is one of the most preferred sampling models (Ozdemir, 2014). Likewise, Etikan, *et al.* (2016) state that purposive sampling enables researchers to focus on the population having required properties to answer the research questions. Considering the aim of this study, purposive sampling is more effective in terms of availability as Bernard (2017) indicates. In addition, convenience sampling was utilized in this study because of the accessibility of the participants in the research setting. Convenience sampling refers to participant selection according to their proximity and willingness (Dornyei, 2007). Similarly, Creswell (2012) defines it as a way of selecting the participants who are easy to reach and represent particular characteristics researchers aim to explore.

Considering the availability of the participants, time, and setting, the researcher involved 48 prep-class students studying at the ELT Department of a state university located in the east of Turkey in the study. Students at the tertiary level were thought to be more capable of using technological tools, evaluating their progress and expressing their opinions. The study started with 59 participants at the beginning of the process. However, 10 students got the required marks in the language proficiency exam conducted at the beginning of the academic year and; therefore, were enrolled to the first grade at the Department. One participant was also excluded since she dropped out and did not attend the course. The reason for the preference of prep class students was that they had an intense program on language skills and were enthusiastic about using various ways for improving their language skills in a rich and authentic learning context. As prospective teachers of English, they were also expected to integrate technology into their teaching. Thus, the implementation in this study was thought to help and guide the students as prospective teachers to develop their understanding of effective technology integration into modern language education processes.

The participant characteristics differed based on their gender, age, the kinds of school they graduated, major, mobile device preference and purpose for technology utilization. Before the implementation, the participants were exposed to a pre-course questionnaire related to possession of technological devices, digital literacy awareness, attitudes towards technology use, and a pre-test to determine their proficiency levels on the targeted skills. Thereby, the researcher determined whether the intervention was suitable and effective for the selected participants. Table 3 presents the demographic distribution of the participants in detail.

Table 3. *Demographic Information of Participants*

Variables	Categories	Frequency	%
Gender	Male	15	31.3
	Female	33	68.7
Age	17-20	44	91.6
	21-24	2	4.2
	24+	2	4.2
Graduation of High School	Anatolian	42	87.5
	Science	1	2.1
	Vocational and Technical	2	4.2
	Religious	3	6.2
Major	Social Studies	7	14.6
	Science Studies	3	6.3
	Linguistics	38	79.1

Table 3. (*continued*)

Types of Mobile Devices	Personal Computer	7	8.2
	Laptop	10	11.8
	Smartphone	48	56.5
	Tablet	15	17.6
	Electronic Dictionary	5	5.9
Purpose for use	Communication	40	20.7
	Listening to music	40	20.7
	Watching videos	37	19.2
	Chatting with friends	39	20.2
	Learning new information	34	17.6
	Others	3	1.6

As seen in Table 3, the number of females with a percentage of 68.7 was more than twice the number of males with a percentage of 31.3. The participants' ages mostly ranged from 17 to 20 with a percentage of 91.6. The vast majority of the participants graduated from Anatolian High School with a percentage of 87.5 while there were also participants who graduated from various high schools such as Science, Religious, Vocational and Technical High Schools with the percentage of 12.5 in total. With the percentage of 79.1, the majority of the participants graduated from language sections in high schools. The mobile devices the participants possessed were mainly smartphones with the percentage of 56.5 followed by tablets with the percentage of 17.6. Laptops, personal computers, and electronic computers were the other electronic devices the participants preferred. The participants used their technological devices mainly for communication and entertainment. Using technological tools for learning with the percentage of 17.6 indicated that participants were not accustomed to such tools for educational purposes. In other words, it could be said that only a few of them had experience in learning through technological devices.

According to the results of descriptive analysis, the experimental and control groups were purposively created in the light of the students' possession of electronic devices compatible with learning tools, scores of questionnaires related to their literacy awareness and their attitudes towards technology use since the participants' awareness and proficiency levels had great significance in determining the technological tools to be used (Chun, *et al.*, 2016). The pre-questionnaire scores including Digital Literacy Awareness and Attitudes towards Mobile Learning Scales were analyzed using Independent Sample T-test to equate the control and experimental groups in terms of characteristics, level of digital literacy and attitudes so that the researcher ensured the equality of the experimental and control groups in terms of related variables.

The participants were informed about the purpose of the study, technological devices used for educational purposes, the applications and websites to be utilized and the requirements in the process in an orientation meeting. They were also requested to sign a consent form including their rights and responsibilities ensuring the confidentiality of the data (see Appendix A). At the end of the orientation, all participants downloaded the necessary applications selected for the research purposes and subscribed to related websites. The students in the experimental group were free to use some technological devices such as mobile phones, online dictionaries and tablets while the students in the control group were requested to use traditional dictionaries. Experimental group students were contacted via Google Classroom while control group students had face to face communication.

The interviewees.

Nine students in the experimental group were selected for semi-structured interviews. In the selection of interviewees, their willingness and success levels were taken into consideration. According to the results of the post-test, three low achievers, three moderate-level achievers and three high achievers were chosen for the interviews. The selection based on the post-test scores enabled the researcher to reach multiple opinions and evaluations regarding the effectiveness of the implementation.

The instructor.

The course was conducted by the researcher who was also the instructor conducting the classes with the experimental and control groups. She was involved in the process to observe the development of the participants in each phase of the implementation. The researcher has been working as a research assistant for three years at the ELT department where the study was carried out. She had previously experienced teaching English at secondary and high schools where smart boards were available and actively used. Therefore, she developed an interest to investigate the effects of technology integration on language learning and awareness-raising.

The raters.

Before the implementation, a comprehensive pre-test was administered in order to determine whether the students would become prep class students or freshmen. Therefore, a 4-person commission established by the department attended the pre-test designed to evaluate the speaking performances of the students. Three of them were male and one of them was female.

According to a speaking rubric designed by the commission (see Appendix B) the points the raters gave were summed and an average value was given.

In the post-test for speaking, two raters, the instructor of the conversational skills course and the instructor of the speaking and listening course evaluated the progress specifically in the light of the speaking rubric used for evaluation of scores in the pre-test. An average value based on the raters' points was determined.

Data Collection Instruments

Since this study was grounded on mixed-methods research design, different quantitative and qualitative data collection tools were adopted. Table 4 presents a summary of the data collection tools.

Table 4. *Data Collection Tools*

Questionnaire 1	Pre-test (Placement test)
Questionnaire 2	Pre-course Questionnaire
Questionnaire 3	Digital Literacy Awareness Scale (Ng, 2012)
Questionnaire 4	Attitude Scale towards Mobile Learning (Park, Nam, & Cha, 2012)
Questionnaire 5	Self-assessment Checklists
Questionnaire 6	Mini Questionnaires
Questionnaire 7	Post-test (Achievement test)
Questionnaire 8	Evaluation of the Course and Suggestions
Interview	Semi-structured Interviews
Assignment 1	Weekly Recording for Speaking
Assignment 2	Weekly Recording for Listening
Assignment 3	Weekly Creative Writing Assignment for Vocabulary

As seen in Table 4, eight different questionnaires were used before, during and after the intervention. At the end of the process, semi-structured interviews were conducted. Additionally, the students were requested to do three various assignments on the targeted skill per week. All data collection instruments covering the benefits and drawbacks of the course design, the perceptions of and attitudes towards technology integration, the outcomes of technology enhanced language learning model and the students' suggestions regarding the process are explained separately in the following section.

Quantitative data collection instruments.

With the preliminary questionnaires, the participants' demographic properties, proficiency levels at specific skills through pre-test, digital literacy awareness levels, attitudes towards mobile learning, and perceptions of technology use by using Likert-type questionnaires were determined. During the intervention, weekly assignments for each skill and self-assessment checklists and mini questionnaires were used as data collection tools. At the end of the process, post-test was preferred to see the students' progress and make a comparison.

Pre-test (Placement test).

A pre-test was administered to evaluate the students' proficiency levels in different skills. It included five sections. In the first section which involved the written session, there were grammar, reading, writing and listening sections. In the grammar section, there were questions on basic grammar topics. In the reading section, there were fill-in-the-blank questions. In the writing section, there were three different topics, one of which the students would choose and about which they would write a paragraph. In the listening section, there was a conversation and the students were asked to fill in the blanks and choose the correct answer while they were listening. The listening section taken from TOEFL IBT consisted of three parts and 20 questions. Each question was one point. The students listened just once and their answers were evaluated according to the answer key. In the second session which involved the speaking session, there was a bowl filled with the questions which were randomly selected and talked about by the students. The listening and speaking scores were taken as the pre-test scores for the purposes of this study.

Pre-course questionnaire.

To examine the demographic properties of the participants, a pre-course questionnaire was administered. This pre-course questionnaire consisted of three parts. Following brief information about the aim of the study, personal and educational questions constituted the first part. There were 11 questions related to age, gender, background education, major, the types of mobile devices possessed, the frequency and duration of using mobile devices a day, the purposes of use, the time of the day and the place the electronic devices were used, the websites or applications preferred to learn a language and the number of languages known. In the second part, there were 17 questions, prepared by Ng (2012), with a 5-point Likert Scale (from strongly agree to strongly disagree) related to the digital literacy levels of the participants. In the third part, there were 26 questions with a 7-point Likert Scale, prepared by Park, *et al.* (2012), (from strongly agree to strongly disagree) related to Technology Acceptance Level. These two scales were adopted to get insight into the participants' perceptions of technology use and their acceptance which were pivotal factors for effective technology integration (Abu-Al-Aish &

Love, 2013; Cheon, Lee, Crooks, & Song, 2012). The pre-course questionnaire lasted 15 minutes.

Digital literacy awareness scale (Ng, 2012).

This questionnaire (see Appendix C), which was related to "multiplicity of literacies associated with the use of digital technologies" (Ng, 2012, p.1066), was adopted from Ng (2012) in order to investigate the participants' attitudes towards the use of digital technologies for learning and to understand their perceptions of personal digital literacy level. Therefore, this questionnaire was used to find out the digital literacy levels of the participants in order to show to what extent they were digitally literate and make them aware of technology integration into language education. Figure 7 shows the statements related to the attitudes and digital literacy in the questionnaire according to the dimensions identified by Ng (2012).

Attitudes towards ICT for learning	Dimensions of digital literacy		
	Technical	Cognitive	Social-emotional
1. I like using ICT for learning 2. I learn better with ICT 3. ICT makes learning more interesting 4. I am more motivated to learn with ICT 6. ICT enables me to be a self-directed and independent learner 13. There is a lot of potential in the use of mobile technologies (e.g. mobile phones, PDAs, iPods, smartphones etc) for learning 14. Teachers/lecturers should use more ICT in their teaching of my classes	7. I know how to solve my own technical problems. 8. I can learn new technologies easily. 9. I keep up with important new technologies. 10. I know about a lot of different technologies. 11. I have the technical skills I need to use ICT for learning and to create artefacts (e.g. presentations, digital stories, wikis, blogs) that demonstrate my understanding of what I have learnt 16. I have good ICT skills	12. I am confident with my search and evaluate skills in regards to obtaining information from the Web 17. I am familiar with issues related to web-based activities e.g. cyber safety, search issues, plaigarism	15. ICT enables me to collaborate better with my peers on project work and other learning activities 5. I frequently obtain help with my university work from my friends over the Internet e.g. through Skype, Facebook, Blogs

Figure 7. Dimensions of digital literacy (Ng, 2012, p.1070).

Attitude scale towards mobile learning (Technology acceptance level) (Park, et al. 2012).

The questionnaire (see Appendix D) belonging to Park, *et al.* (2012) was applied to explore the factors affecting the students' adaptation to technology, in other words, to determine their technology acceptance level through their attitudes before the intervention as the success of the learners can also be predicted by their attitudes (Ilhan & Karatas, 2015). This questionnaire consisted of 26 questions with various categories. Figure 8 offers a visual representation of the questions and sub-categories in detail.

Construct (Exogenous latent variable)	*Measurement instrument*
Mobile learning self-efficacy	I have the necessary skills for mobile learning (S1). I am a skillful user in menu or software for mobile learning with mobile devices (S2). I have confidence in complementally using computer and mobile devices for mobile learning(S3). I understand computer and mobile devices terms well for mobile learning (S4).
Learning relevance	Learning with mobile device is necessary for my major study(R1) Learning with mobile device can help my major study (R2). Learning with mobile device can help to find a job in the future (R3).
System accessibility	I can easily get information or contents for mobile learning (A1). Mobile devices have good compatibility with other computer devices (A2). It is easy to access internet and search for mobile learning (A2).
Subjective norm	Mobile learning is significant meaning as an university student (N1). It is necessary to perform the mobile learning according to recent social needs (N2). I need to experience mobile learning for my future job (N3)

Construct (Endogenous latent variable)	*Measurement instrument*
Behavioral intention	I have intention to perform mobile learning (B1). I am going to positively utilize mobile learning (B2). I have continuing concern about mobile devices of information to perform mobile learning (B3). I will be a power user in mobile learning (B4).
Attitude	Studying through mobile learning is a good idea (A1). I like to search learning contents that download in mobile devices of learn (A2). I am positive toward mobile learning (A3).
Perceived usefulness	Mobile learning would improve my learning performance (U1). Mobile learning can improve efficiency of learning (U2). Mobile learning gives me high effects of learning (U3).
Perceived ease of use	It is easy to download and save learning contents with mobile devices (E1). It is easy to use menu of mobile devices and software (E2). It is easy to use mobile learning contents (E3).

Figure 8. Sub-categories of the questions (Park, *et al.*, 2012, p.600).

As can be seen in Figure 8, items were generally divided into two categories: internal and external variables. Each section had 13 items. External items had four sub-categories consisting of mobile learning self-efficacy, learning relevance, system accessibility, and subjective norm. Similarly, internal factors had four categories comprising of behavioral attention, attitude, perceived usefulness and perceived ease of use.

Self-assessment checklists and mini questionnaires.

Self-assessment checklists regarding skills and mini questionnaires pertinent to the objectives of each unit were given to the students at the end of each unit for individual evaluation. The checklists were formed in the light of each unit's objectives and learning outcomes stated in the coursebook. For each unit, the self-assessment checklist had four questions with three options (agree-undecided-disagree). The mini questionnaire had three questions with the same options as available in the self-assessment checklist. These instruments provided an overview and a reflection of the intervention for the students and the researcher. The students were able to see what they learned and they did not so that they could make more practice on the topics they were not good at. When their attention was attracted to the strong and weak sides of their learning, learners became more motivated to learn. In other words, the self-assessment checklists and mini questionnaires could be defined as tools improving learners' motivation and consequently their performance. A sample of the self-assessment checklists and mini questionnaires was provided in Appendix E.

Weekly assignments.

For each unit, the students were supposed to do three different assignments: vocabulary practice, listening log and speaking log. The relevant activities regarding vocabulary, listening and speaking skills were given in the light of the tasks in the selected coursebook, Oxford Q Skills for Success: Listening and Speaking, with the aim of obtaining the outcomes in each unit. As the coursebook also had digital content that was proper for the course content and the assignments, the researcher chose the assignments in accordance with the coursebook. By checking the assignments weekly, the researcher had an opportunity to observe the participants' development throughout the whole process.

Vocabulary Activities.

In the classroom, vocabulary activities started with the introduction and definition of the target vocabulary set given in the coursebook. Two different sets were presented and the students were asked to match the vocabulary with their meanings. Afterward, vocabulary exercises were done. Filling in the blanks, choosing the proper word, and finding the equivalents were among the exercise types done for vocabulary practice. In addition, while Quizlet, an online vocabulary group game, was utilized in the experimental group, worksheets including the same exercises were used in the control group.

Out of the classroom, vocabulary exercises were given to the experimental and control groups for further practice and permanent learning. The students in the experimental group were asked to study through Quizlet while the students in the control group were guided to study through text-based materials. Approximately 15 words were introduced and the students were asked to write a paragraph using all the vocabulary at the end of each unit.

Listening Logs.

During the course, various listening practices were implemented. These activities can be exemplified as listening for the main ideas, understanding cause and effect, listening and predicting, listening for specific information, listening for reasons and explanations. All practices were associated with the objectives and learning outcomes of the coursebook. Videos related to the topic were also watched.

Out of the classroom, a listening assignment was given for each unit. The students were asked to listen to the conversation taken from the coursebook and answer three questions related to the passage.

Speaking Logs.

In the classroom, only the target language was used. At the beginning of the course, warm-up activities were applied in order to grasp ideas about what the students knew. During the course, various speaking practices about the topic in each unit were implemented. These practices were beneficial in drawing the students' attention to main ideas, asking for and giving examples, giving advice and making recommendations, giving instructions, expressing opinions, and summarizing. Apart from these activities, discussion groups were also formed.

Out of the classroom, speaking logs were available as one of the weekly assignments the students were required to do. After each unit was completed, two topics were given to be discussed. The students were asked to choose a topic they were going to talk about and make a recording that would last at least two minutes. Their recordings were evaluated according to fluency, accuracy, and word selection.

Post-test (Achievement Test).

With the aim of evaluating the participants' development in the targeted skills, a post-test was administered at the end of the semester lasting 12 weeks (see Appendix F). Similar to the pre-test, it consisted of two sections: the written exam and the oral exam. The written exam had questions about listening skills and vocabulary. The listening section taken from TOEFL IBT was the same as it was in the pre-test in order to examine the development of the students. There was no vocabulary section on the targeted words in the pre-test as the main aim of the study was to examine the impact of technology integration on the students' listening and speaking. However, the researcher decided to give the relevant vocabulary at the beginning of each unit in order to make the students more familiar with the topic and help them comprehend the conversations related to the topic. As a result, a vocabulary section was included in the post-test in the light of target vocabulary given in the coursebook and was evaluated by the researcher in line with the answer key. Questions for vocabulary skill were prepared by the researcher in line with the outcomes of the coursebook regarding vocabulary skill and two other instructors checked them for validity. Vocabulary section had three sub-categories in which the students were asked to choose the proper word and fill in the blanks (15 questions), match the words with their definitions (10 questions) and choose five words and make a meaningful sentence (five questions). The oral exam which formed the second section of the post-test was implemented by two different raters. The students were asked to choose two pieces of paper and talk about the topic they chose. All the process was recorded and the performances were scored by two raters according to a detailed analytic rubric. The points given by two rates were compared and an average grade was determined.

Qualitative data collection instruments.

In this study, course evaluation and suggestion forms and semi-structured interviews were used to collect the qualitative data. Each data collection instrument is elaborated below.

Course evaluation and suggestion forms.

After the courses had finished and exams had been completed, students were given forms including open-ended questions asking them to evaluate the course and applications and make recommendations (see Appendix G). Five questions considering their perceptions of and opinions about the activities implemented in and out of the classroom, their self-reflection about individual progress, suggestions and criticisms were involved in these forms. The questions in the written forms were prepared by the researcher. Two instructors at the department also checked the questions whether they were proper to learn more detailed information related to the course and learners' suggestions. Each participant was enumerated from P1 to P48 to keep their personal information secure in accordance with ethical issues.

Semi-structured interviews.

Taking the quantitative results and qualitative results obtained from evaluation and suggestion forms into account, the researcher who was also the course instructor conducted semi-structured interviews about the participants' overall perceptions of technology enhanced language learning in order to have a better understanding (Nunan & David, 1992). In this respect, after an in-depth analysis of qualitative data obtained from evaluation and suggestion forms, the researcher determined the points requiring further information to elaborate the participants' opinions about the intervention and outlined 14 questions some of which had sub-questions. The main themes, categories and codes created from evaluation and suggestion forms were taken into consideration while forming the interview questions. Afterwards, the draft form was sent to an expert to check whether the questions were relevant and appropriate with the research aim and it was edited according to the suggestions the expert made. The first two questions were created in an attempt to reveal the interviewees' perceptions of course design before, during, and after the intervention owing to the fact that the expressions in the evaluation and suggestion forms were not much comprehensive. The third question was asked to enlighten the effect of activities on the interviewees' progress. It was followed by the questions pertaining to the drawbacks of the course content and activities. Their evaluations of assignments, self-assessment checklists and mini questionnaires and their suggestions for alternative applications were also asked. The question of whether there was a change or not in their attitudes towards using technology for educational purposes was also posed in order to determine the alteration of the interviewees' thoughts. The third and fourteenth questions had sub-questions pertinent to the improvement of the skills and opinions on anxiety level, planning, reflection and self-regulation (see Appendix H). The interviews were held with nine students in the experimental group in order to discuss their experiences on technology enhanced language learning, their opinions about the intervention, and to receive feedback about the efficiency of the course content and activities. The researcher preferred an unrestricted environment for the semi-structured interviews so that the interviewees were not affected by the researcher's perspective or previous experiences (Creswell, 2012). Thereby, the students were able to reflect their experiences during the intervention and the researcher collected more detailed information. All interviews that approximately lasted 6 minutes were recorded with the interviewees' consent and all recordings were transcribed for analysis by the researcher. Interviewees were enumerated from I1 to I9 to keep the attendants' information secure in accordance with ethical issues.

Data Collection Procedure

Since a mixed-methods research design was used in this study, the data collection procedure is explained in two sections: Quantitative data collection procedure and Qualitative data collection procedure.

Quantitative data collection procedure.

Quantitative data collection procedures followed during the study are illustrated in Figure 9.

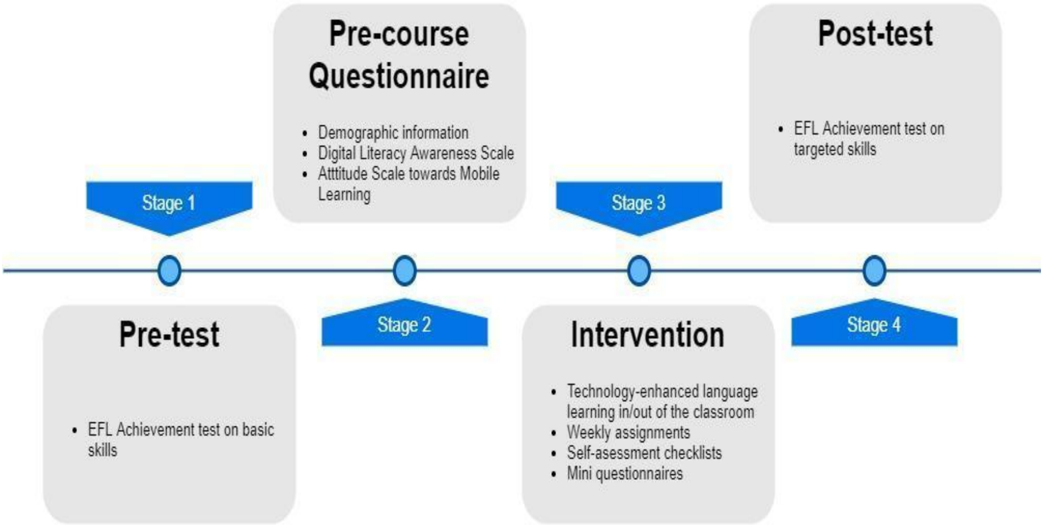

Figure 9. Flow of quantitative data collection procedures

As seen in Figure 9, the students firstly completed a pre-test including grammar, reading, writing, listening and speaking sections so that the researcher was able to find out the proficiency levels of the students in the targeted skills that were listening and speaking. The students were given three hours to complete grammar, reading, writing, and listening sections. Following a 60-minute-break, the speaking section started in the afternoon. Each participant entered the classroom alone. After a brief introduction, s/he was asked to choose two questions from the bowl and talk about them. The conversations lasted approximately 5-6 minutes per participant and each performance was recorded.

Before the results were announced, a pre-course questionnaire consisting of three parts was also administered. The first part was related to the demographic properties of the participants. The second part was related to digital literacy levels and the last part was related to the attitudes towards and perceptions of technology use. In the light of pre-test scores obtained from the listening and speaking sections and pre-course questionnaire, the control and experimental groups were formed. Considering the properties of the students in the creation of the groups serves best for the aim of the study (Chun, *et al.*, 2016). Therefore, students' digital literacy awareness levels, their attitudes towards technology integration, their familiarity with technological tools and applications used for educational purposes were taken into consideration in forming the groups.

The intervention started after the control and experimental groups were formed. The intervention lasted 12 weeks in total. The courses of the two groups were conducted by the researcher. The experimental and control groups attended face-to-face sessions for two hours per week. They were also encouraged to study for two hours outside the classroom in different ways such as audio files for listening, speaking practices and vocabulary exercises each week.

For course instruction and supportive activities, technology enhanced language learning was followed in the experimental group while more conventional instruction was adopted in the control group. In the first week, the students in the experimental group were exposed to technological tools such as smart board, PowerPoint presentations, online version of the coursebook, audio recording, web pages, mobile phones, and laptops in and out of the classroom. They were also able to reach every course document or assignment through Google classroom that enabled the course instructor and the students to communicate outside the classroom as well. In sum, the experimental group students used online versions of all materials. Conversely, the students in the control group took courses conventionally standing for paper-based materials with minimum level of technology use. Considering the changing trend in education, it was not totally possible to prevent learners from using technology in any phase of their lives. However, technology use of the students in the control groups was tried to be minimized during the intervention. In order to eliminate the problems that might result from the content, the same content and syllabus used in the experimental group were also followed in the control group.

The courses started with a warm-up activity where the instructor gave examples and asked questions to make the students think about the topic after she briefly explained her view. This activity was sometimes followed by a whole class discussion. Then, the related vocabulary set with their meanings was given. After pronunciation practices, exercises such as fill-in-the-blanks or choose-the-correct-one were done to reinforce vocabulary learning. These activities were provided through a smart board in the experimental group. Smart board was used as a supportive material in the classroom for all audio, visual and online materials. After the unit was finished, the students played games through Quizlet, an online learning platform and a mobile application offering flashcards to play games and improve different language skills such as pronunciation, listening, reading and writing, in the classroom. Mobile phones and/or other electronic devices such as tablets were also used especially for vocabulary exercises during the course in the experimental group. A PowerPoint presentation including practice and learning activities was prepared by the researcher for each course. Besides vocabulary learning and practices, listening activities such as listening for main ideas, listening for cause and effect, listening for prediction, listening for names and dates, listening for summarizing and speaking activities such as drawing attention to main ideas, asking for and giving examples, giving advice and making recommendations, giving instructions, expressing opinions, and summarizing based on the course content were also implemented.

The second phase of the course was out of class activities which provided audio files on the content, speaking logs and vocabulary practice besides weekly assignments. Kukulska-Hulme (2009) emphasizes the contribution of mobile technologies to learning especially conducted in out-of-class contexts. Similarly, Meyers, *et al.* (2013) indicate that informal contexts motivate students to study by providing flexibility on the practice type and time. In this respect, for out-of-classroom activities, the students in the experimental group used Quizlet for vocabulary practice. For each unit, vocabulary sets and exercises to be studied before and after the course were created in Quizlet by the researcher. This web-site also made it possible for the researcher to check which students attended the set, how many minutes they studied and who had the best score for each vocabulary set. The students in the control group were delivered all materials in text-based form. Additionally, audio files on the unit's topic were sent for out of classroom listening practices. The students were asked to answer three questions for each audio file in order to check whether they listened or not. For speaking practices, two options pertinent to the topic were offered to the students to talk about and the students were requested to record their speech lasting at least two minutes and send it to the instructor weekly. As Koren (1999) stresses, out of class activities are essential to make learning more permanent and effective. Therefore, the researcher placed great importance on assignments. At the end of each unit, a self-assessment checklist about the skills and a mini questionnaire about the objectives were applied in order to see the students' opinions and progress.

The course content was chosen from the book, Oxford Q Skills for Success: Listening and Speaking as it also had an electronic version. Six different topics were studied. Therefore, it can be said that each unit was completed approximately in two weeks. At this point, it is important to remind that the same content and assignments were given to the control and experimental group students. The only difference between the two groups was the way they reached the content and delivered their assignments. The goals and objectives for each unit were formed in the light of the coursebook. All course materials were delivered and received via Google Classroom in the experimental group while the researcher contacted the students in the control group face-to-face and received assignments by hand.

In the last week of the semester, a post-test was administered. The post-test consisted of three parts. The first part was the listening section that was totally the same as the pre-test listening section in order to evaluate the proficiency levels of the participants for the listening skill. The second part was related to the vocabulary taught in each unit in different ways to both groups. After the participants completed the written exam, they entered an oral exam that was similar to the pre-speaking section. There were also questions related to the units' topic. The students were asked to choose two questions randomly inside the bowl and talk about the topic they selected. The students were evaluated by the researcher and a second rater according to the speaking rubric and all speaking sessions were recorded.

Qualitative data collection procedure.

Qualitative data collection tools and the process followed during the study are presented in Figure 10.

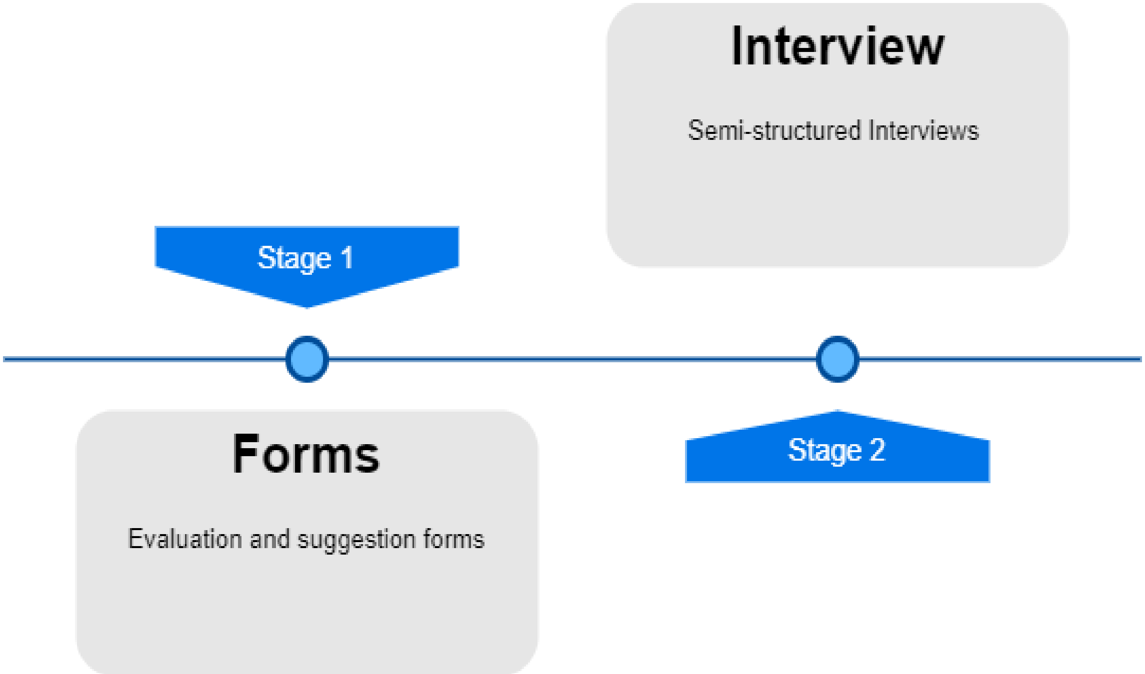

Figure 10. Flow of qualitative data collection procedures.

In the last phase of data collection, the researcher aimed to have a deeper insight into the students' experiences during the intervention and their perceptions of technology enhanced language learning. In this respect, evaluation and suggestion forms and semi-structured interviews were preferred for qualitative data collection. The 5-item evaluation and suggestion forms were applied for both the control and experimental groups while the 14-item semi-structured interviews were implemented with the participation of nine interviewees having different scores from the post-test in the experimental group. While evaluation and suggestion forms were administered at the end of the implementation, semi-structured interviews were carried out a bit later after the completion of analysis of the written forms so that the researcher was able to determine the points requiring deeper evaluations. Evaluation and suggestion forms were in English while semi-structured interviews were conducted in Turkish to make the participants feel more comfortable and give more details related to their perceptions and ideas. The semi-structured interviews were held at the researcher's office and recorded with the permission of the interviewees. The average duration for each interview was 6 minutes and learners' native language was used during the semi-structured interviews in order to enable them to express their opinions and experiences in a stress-free environment. After completing the semi-structured interviews, the current study was finalized and the researcher initiated the analysis of the relevant data. All semi-structured interviews were transcribed and translated by the researcher. To obtain the participants' approval, member-check was also followed. Another field expert also proofread the transcriptions by checking the statements and making revisions in the translation to get more accurate and reliable transcripts. The same field expert also followed the same analysis process as the researcher did to increase the reliability of the analysis.

Researcher's Role

Except for the pre-test speaking exam, all processes were administered by the researcher. At least two raters attended the speaking evaluations and gave points for more reliable grading. The researcher had no personal relations with the participants before and after the implementation.

With the aim of eliminating the risk of mistakes, quantitative data were analyzed with an expert on statistical analysis. The results were also reviewed by two other experts in the education and language field. Similarly, qualitative data were coded by the researcher and a second coder checked the themes in order to minimize the researcher's bias.

Validity and Reliability

The current study aimed to examine the cause and effect relationship between the dependent and independent variables by using a mixed-methods research design. While conducting the study, the researcher paid attention to validity and reliability issues to reach more accurate results. Validity in research is about whether the data collection tool is proper for the skill or the purpose that is intended to be measured or examined while reliability means whether a scale gives similar results when applied to two different groups at different times under almost the same conditions (Golafshani, 2003). In other words, while validity is related to how much the scale serves our purpose, reliability refers to consistency in a measurement instrument at different times (Charles, 1998).

In experimental studies, although the differences during the implementation process may affect internal validity, it is possible to minimize the elements threatening internal validity by taking necessary precautions (Fraenkel, Wallen, & Hyun, 2011). Therefore, the characteristics of the participants in terms of their proficiency level, digital literacy level, awareness and possession of technological devices were taken into consideration while forming the control and experimental groups. In this way, the groups were equated at the beginning of the intervention by using Independent Sample T-test for pre-questionnaire and pre-test results in order to create a similar learning environment and minimize the threat. With the aim of serving internal validity of the study, the researcher also conducted the courses in both groups herself by using the same syllabus. Furthermore, in order to eliminate the ambiguities threatening internal and external validity, the whole research process was clearly stated as a detailed presentation of the research process is strongly recommended for validity of the study (Yildirim & Simsek, 2005).

To ensure external validity in qualitative data that refers to the generalization of the results (Yildirim & Simsek, 2005), the interviewees who had different perspectives and represented the group they belonged to were chosen while the participants were non-randomly selected. To validate the qualitative data, experts' views were taken into consideration in developing data collection instruments, transcription, data analysis, and creation of the codes, categories, and themes. Since the researcher is considered as one of the data collection instruments in qualitative data collection (Patton, 1990), the researcher explained every phase of the qualitative study in detail and used interviewees' quotations as much as possible to convey their perceptions and opinions accurately. All semi-structured interviews with nine students were recorded, written assignments and tasks were documented, and screenshots of mobile supported applications and speech transcripts were included.

Considering the duration of the intervention that lasted 12 weeks, several researchers (Lin & Lin, 2019; Sung, *et al.*, 2015) emphasize that interventions lasting 1-6 months are more effective on learners' success than periods longer than 6 months. Therefore, a longitudinal study may affect the results on the targeted skills.

In order to accomplish the reliability of scoring for the speaking section, the researcher and another assistant professor at the same department used a rubric in which important points such as pronunciation, vocabulary use, fluency, and accuracy were shown in detail for a better assessment. After a comparison of the points given, the mean score was determined and used so that a more reliable assessment was implemented through a detailed analytic rubric. Questions in written forms and semi-structured interviews were revised in the light of the experts' opinions. As regards the reliability of the qualitative data collection, structured or semi-structured interview questions of previous similar studies were modelled and the interview questions were structured according to the opinions of external evaluators who were experts in the field of language education. Additionally, for qualitative data, an inter-coding process was followed for reliability. Two raters coded transcripts simultaneously and compared the codes, categories, and themes.

Using qualitative and quantitative data in the same study allows generalization and transferability of the study results. For this purpose, the scales to be used for the collection of quantitative data were adopted from the salient studies on the topic. The scales were chosen according to their suitability for the purpose of the current study. They were also used in different studies that were published in international field indexed journals. For example, the questionnaire for “Digital Native Assessment Scale” belonging to Teo (2013) which was planned to be applied in order to determine students' digital literacy levels and awareness, was adapted and evaluated by structural regression analysis as a predictor of online information research strategies and it was reported that the original questionnaire did not have any information about Cronbach’s alpha value for reliability (Coklar, Yaman, & Yurdakul, 2017). Therefore, in order to determine the digital literacy levels of participants, the questionnaire belonging to Ng (2012) was more suitable for the purposes of this study with Cronbach’s alpha values ($p= .898$).

Ethical Issues

During data collection, analysis and interpretation processes, ethical issues were taken into consideration. First of all, the researcher applied for permission to implement the study at the university and received approval (see Appendix I). As regards the participants, the informed consent forms (see Appendix A) ensuring privacy and voluntary participation were obtained from each participant with their names and signature. Hence, they were aware of the requirements and implementation. The researcher also took permissions for the questionnaires that belong to Ng (2012) and Park, *et al.* (2012). All information was kept confidential and used just for academic purposes.

Data Analysis

As the study was grounded on a mixed-methods research design, the analysis procedure is presented in two sections: Quantitative and Qualitative Data Analysis.

Quantitative data analysis.

When the related literature was examined, it was found that comparing the changes in the percentages and the means between the control and experimental group and exploring the differences of the scores between groups were among the suggested ways in the data analysis process (Buyukozturk, 2007; Creswell, 2012). All the quantitative data were analyzed by using Statistical Packages for Social Sciences (IBM-SPSS 25.0) for Windows version. The analyses of the quantitative data served to answer the research questions numbered 1, 2, 3, and 4. In accordance with the research questions, descriptive and inferential statistics were presented.

The data obtained from the pre-course questionnaires including demographic properties of the participants, digital literacy awareness and their attitudes towards technology integration were exposed to descriptive analysis and homogeneity tests so that mean, median and standard deviation of the scales were determined. The analyses mentioned were applied separately for each.

At first, the pre-course questionnaire was analyzed in order to learn about the demographic properties of the participants. Via descriptive analysis, the participants' digital literacy awareness levels and their attitudes towards learning with technology were evaluated, which was also effective in determining the groups. Frequencies, means, and standard deviations of the questionnaires were detected. In addition, an inferential analysis was utilized to examine the differences between the variables. After obtaining information related to the possession of technological devices, digital literacy awareness levels and attitudes, two groups consisting of 24 participants each were formed.

Before starting the analysis procedures, the researcher determined which type of analysis was proper for the data that may require different parametric and non-parametric analysis. Therefore, the data obtained from the participants were evaluated in terms of the number of the participants and normal distribution curves. Due to the fact that the number of the participants was lower than 50 (Shapiro & Wilk, 1965), which was also suggested by Akbulut (2010), Buyukozturk (2011), and Razali and Wah (2011), the Shapiro-Wilk tests were conducted to assess the normality of the distribution of the scores related to digital literacy awareness level, students' attitudes towards learning with technology, vocabulary skill, the pre- and post-tests listening scores, the pre-and post-test speaking scores, self-assessment checklists and mini questionnaires belonging to the experimental and control groups. Based on the results of normality tests, the researcher decided to employ either parametric or non-parametric tests on the data for validity of the results while answering the research questions.

To clarify the process, the analyses for each skill were carried out in two steps. The first step was to conduct the normality and homogeneity tests for the data. Following this, the researcher chose the most proper data analysis method after assessing the normality results that would clarify whether parametric or non-parametric tests would be used for different skills. The last step of the analysis served to explore the effect of technology enhanced language learning on EFL students' success on the targeted skills.

The first normality test was run for digital literacy awareness levels and students' attitudes towards learning with technology. Table 5 presents the results of normality tests.

Table 5. *Results of Normality Tests for Digital Literacy Awareness Level and Students' Attitudes*

	Group	Shapiro-Wilk Statistic	df	Sig.
Digital awareness	Experimental	.966	24	.580
	Control	.979	24	.871
Attitudes	Experimental	.957	24	.380
	Control	.959	24	.422

The results of the Shapiro-Wilk test showed that the data belonging to digital literacy awareness level had a normal distribution in both experimental and control groups (p = .580, p = .871, p > .05). Therefore, an Independent Sample T-test was applied to find out whether there was a statistically significant difference between the experimental and control groups. Likewise, due to the normal distribution of the data obtained from the experimental and control group students' attitudes towards learning with technology (p = .380, p = .422, p > .05), an Independent Sample T-test was used.

In order to determine the analysis to be applied for vocabulary skill scores, whether the scores of the experimental and control groups had a normal distribution was examined. Table 6 shows the results of the normality tests.

Table 6. *Results of Normality Tests for Vocabulary*

	Group	Shapiro-Wilk Statistic	df	Sig.
Vocabulary	Experimental	.901	24	.023
	Control	.976	24	.808

As seen in Table 6, the scores of the control group (p = .808, p > .05) were normally distributed while the results did not have a normal distribution in the experimental group (p = .023, p < .05). Hence, Mann-Whitney U Test was adopted for vocabulary skill.

As regards the listening skill, the pre- and post-tests listening and speaking scores were evaluated within groups at first. While Table 7 shows the normality results of the experimental group, Table 8 indicates the results belonging to the control group.

Table 7. *Results of Normality Tests for Listening and Speaking Skills of the Experimental Group*

	Shapiro-Wilk Statistic	df	Sig.
Pre-test listening	.947	24	.230
Pre-test speaking	.856	24	.003

Table 7. *(continued)*

Post-test listening	.931	24	.104
Post-test speaking	.972	24	.727

As shown in Table 7, despite normal distribution of pre-test listening, post-test listening and post-test speaking scores of the experimental group ($p = .230$, $p = .104$, $p = .727$, $p > .05$), pre-test speaking scores were not normally distributed ($p = .003$, $p < .05$). As a result, non-parametric tests were preferred for the analysis of speaking scores while parametric tests were used for listening scores of the experimental group.

Table 8. *Results of Normality Tests for Listening and Speaking Skills of the Control Group*

	Shapiro-Wilk		
	Statistic	df	Sig.
Pre-test listening	.932	24	.108
Pre-test speaking	.850	24	.002
Post-test listening	.935	24	.126
Post-test speaking	.961	24	.463

Similarly, Table 8 visualizes the results of normality tests of the control group for listening and speaking scores. As seen in the table, while there was a normal distribution of pre- and post-test listening scores and post-test speaking scores ($p = .108$, $p = .126$, $p = .463$, $p > .05$), the pre-test speaking scores of the control group were not normally distributed ($p = .002$, $p < .05$). Consequently, non-parametric tests were preferred for the analysis of speaking scores while parametric tests were used for listening scores.

In terms of pre-test listening scores between the groups, Independent Sample T-test was preferred due to the normal distribution. For the evaluation of the progress within groups, Dependent Sample T-test was used for both the control and experimental group as Dependent Sample T-test enables the researcher to compare two mean scores of a group to indicate the difference (Balci, 2018) while Independent Sample T-test provides the differences between groups.

Because of non-normal distribution on pre-test speaking scores, Mann-Whitney U Test was used instead of Independent Sample T-test. Likewise, for a comparison of the pre- and post-tests speaking scores within groups, Wilcoxon Signed-Rank Test was used instead of Dependent Sample T-test.

Taking the pre-test speaking scores of both groups into consideration, it was first checked whether the assumptions of ANCOVA were violated in order to find out whether there was a difference between post-test speaking scores of the control and experimental groups. In this context, the difference between the slope of the regression lines between the groups was examined and it was concluded that the difference was not statistically significant (F = 0.88, sig = 0.768, $p > .05$). Speaking achievement has a linear relationship between pre- and post-test scores that fulfills another assumption of ANCOVA ($r = .105$ for the control group, $r = .258$ for the experimental group). The use of a non-random pattern in the study eliminated the requirement of Pearson coefficient to be $r \geq .30$ between academic achievement pre-test and post-test scores. As a result, the researcher decided to use ANCOVA in order to examine whether there was a difference between the achievement scores of the control and experimental groups.

In the last phase of the quantitative data analysis, the scores belonging to self-assessment checklists and mini questionnaires were evaluated. The Shapiro-Wilk results related to the scores of self-assessment checklists are displayed in Table 9.

Table 9. *Shapiro-Wilk Results for Self-assessment Checklists*

Self-assessment Checklists	Shapiro-Wilk		
	Statistic	**df**	**Sig.**
	.897	48	.001

As seen in the table, the scores of self-assessment checklists were not normally distributed ($p = .001$, $p < .05$). Similarly, the scores of mini questionnaires did not have a normal distribution ($p = .000$, $p < .05$) shown in Table 10.

Table 10. *Shapiro-Wilk Results for Mini Questionnaires*

Mini Questionnaires	Shapiro-Wilk		
	Statistic	**df**	**Sig.**
	.878	48	.000

Therefore, Mann-Whitney U Test, one of the non-parametric tests, was used to compare the scores of self- assessment checklists and mini questionnaires.

Qualitative data analysis.

Qualitative data were obtained from evaluation and suggestion forms and semi-structured interviews. All qualitative data were collected by the researcher and analyzed manually by the researcher and a field expert to provide reliability of the data analysis.

The qualitative data were analyzed through conventional content analysis which is “the systematic examination of texts and visuals, media, and/or material culture to analyze their prominent manifest and latent meanings” (Saldana, 2011, p.10). Content analysis is accepted as a frequently preferred qualitative data analysis technique (Patton, 2002; Simsek & Yildirim, 2011). Employing conventional content analysis, the researcher read all the suggestion and evaluation forms carefully and created preliminary codes. The same codings process was also followed in the analysis of the semi-structured interviews. The researcher carefully went through the transcripts and identified the codes out of the participant comments. Then, the codes identified as a result of the analysis of the evaluation and suggestion forms and the semi-structured interviews were compared and they were combined into relevant codes and broader themes. Therefore, it can be stated that qualitative data collected from two different sources were content-analyzed using the similar code-category-theme pattern. Simultaneously, the second rater who was experienced in conventional content analysis analyzed all qualitative data in order to obtain more reliable findings. The identified codes by the researcher and second rater in each set were compared to each other and these codes were combined into related categories and themes determined by two raters.

After completing the content analysis of the qualitative data, digitization that is one of the distinguishing features of content analysis (Buyukozturk, Cakmak, Akgun, Karadeniz, & Demirel, 2008) was applied. In other words, verbal values were numerically coded and frequency and percentage tables were presented to visualize and highlight the codes.

For a better understanding of the process, Table 11 presents a summary of data sources, data collection instruments, types of data collection and data analysis used in this study.

Table 11. *Research Questions, Data Sources, Data Collection Instruments, Types of Data Collection and Types of Data Analysis*

RQs	Data Sources	Data Collection Instruments	Data Collection	Data Analysis
	Prep Class Students	Questionnaire 1	Multiple choices items + Open-ended	Inferential analysis + Content analysis
	Prep Class Students	Questionnaire 2	Multiple choices items + Open-ended	Inferential analysis + Content analysis
1	Prep Class Students	Questionnaire 3	Likert type	Descriptive + Inferential analysis
2	Prep Class Students	Questionnaire 4	Likert type	Descriptive + Inferential analysis
4	Prep Class Students	Questionnaire 5	3-point scale	Inferential analysis
4	Prep Class Students	Questionnaire 6	3-point scale	Inferential analysis
3	Prep Class Students	Questionnaire 7	Multiple choices items + Open-ended	Inferential analysis + Content analysis

Table 11. (*continued*)

5	Prep Class Students	Questionnaire 8	Open-ended	Content analysis
	Prep Class Students	Assignment 1	Open-ended	Content analysis
	Prep Class Students	Assignment 2	Open-ended	Content analysis
	Prep Class Students	Assignment 3	Open-ended	Content analysis
5	Prep Class Students	Interview	Semi-structured interviews	Content analysis

Summary of the Chapter

Chapter 3 provided detailed information about the methodology on which this study was grounded. A mixed-methods research design was conducted with 48 prep class students at the ELT Department at a state university in Turkey. While technology-enhanced language teaching and learning was adopted in the experimental group, a conventional teaching method was preferred by minimizing the effect of technological tools in the control group. The implementation lasted for 12 weeks. In order to determine the participants' levels of digital literacy and attitudes towards technology, two different questionnaires were applied. With the aim of investigating the effect of technology integration into language education on the participants' vocabulary development and conversational skills, pre and post-tests were administered. The statistical results were enriched with qualitative thematic findings through evaluation forms and semi-structured interviews. SPSS 25.0 for Windows version was used to analyze the quantitative data. Parametric tests such as Independent Sample T-test, Dependent Sample T-test, and ANCOVA were run while non-parametric tests such as Mann-Whitney U Test and Wilcoxon Signed-Rank Tests were used according to the results of normality. Conventional content analysis was adopted for the analysis of the qualitative data. Reliability and validity, researcher's role and ethical issues were also presented in this chapter. The quantitative and qualitative results of the study were presented in Chapter 4 in detail.

CHAPTER FOUR

Findings

This chapter presents the results of the analysis of the quantitative and qualitative data obtained from the participants through the questionnaires on digital literacy awareness and attitudes towards mobile learning in language education, pre- and post-tests on targeted skills, self-assessment checklists and mini questionnaires on the units' objectives, weekly assignments, written evaluation and suggestion forms, and semi-structured interviews. The analyses of quantitative and qualitative results are provided in accordance with the research questions and sub-questions. The chapter ends with a summary of the findings.

Quantitative Findings

The results obtained from quantitative data collection tools pertinent to RQ1, RQ2, RQ3 and RQ4 are presented in this section.

Findings for research question 1.

The first research question addressed whether and to what extent the participants had digital literacy. A questionnaire with a Likert-type scale on digital literacy awareness was applied in order to answer this research question. The results of the descriptive analysis are presented in Table 12.

Table 12. *Descriptive Statistics for Digital Literacy Awareness*

	Group	n	M (SD)	95% CI	Median	Skewness	Kurtosis
Digital Literacy Awareness	Experimental	24	4.01 (.51)	[3.80, 4.23]	3.97	-.05	.36
	Control	24	3.57 (.53)	[3.35, 3.79]	3.65	-.24	-.11

Note. CI = confidence interval. 1 = illiterate, 5 = very literate

As displayed in Table 12, the experimental group (M = 4.01, SD = 0.51) had a higher mean compared with the control group (M = 3.57, SD = 0.53). In other words, the students in the experimental group were more digitally literate than the students in the control group.

In order to find out whether the experimental and control groups differed in terms of digital literacy awareness, Independent Sample T-test was carried out. The results of the analysis are shown in Table 13.

Table 13. *Independent Sample T-test Results for Digital Literacy Awareness*

		Levene's Test for Equality of Variances				
		F	Sig.	t	df	p
Digital Literacy Awareness	Equal variances assumed	.016	.900	2.957	46	.005
	Equal variances not assumed			2.957	45.938	.005

The results illustrated that there was a significant difference between the experimental and control groups regarding the students' levels of digital literacy awareness ($t_{(46)}$ = 2.957, p = 0.005, $d = 0.85$). Therefore, it was concluded that the students in the experimental group were more accustomed to using technological devices than the students in the control group.

Findings for research question 2.

The second research question was asked to find out the attitudes of the participants towards technology integration into language education by using a questionnaire with a Likert-type scale. In order to determine the participants' attitudes towards technology use, descriptive analysis was utilized. Table 14 summarizes the results of descriptive statistics.

Table 14. *Descriptive Statistics for the Attitudes of Students towards Technology Use*

	Group	n	M (SD)	95% CI	Median	Skewness	Kurtosis
Attitudes towards Technology Use	Experimental	24	6.13 (.55)	[5.90, 6.37]	6.29	-.32	-.74
	Control	24	5.59 (.87)	[5.23, 5.96]	5.71	-.66	.37

Note. CI = confidence interval. 1 = negative attitude, 7 = positive attitude

Based on the results presented in Table 14, the experimental group (M = 6.13, SD = 0.55) had a higher mean compared with the control group (M = 5.59, SD = 0.87). Within this respect, it can be stated that the students in the experimental group had more positive attitudes towards technology use compared with the students in the control group.

With the aim of determining whether there was statistically a significant difference between the experimental and control groups' attitudes towards mobile learning, an Independent Sample T-test was used. The results of the analysis are shown in Table 15.

Table 15. *Independent Sample T-test Results for Attitudes of Students towards Mobile Learning*

		Levene's Test for Equality of Variances				
		F	Sig.	t	df	p
Attitudes towards Technology Use	Equal variances assumed	2.699	.107	2.549	46	.014
	Equal variances not assumed			2.549	39.061	.015

As displayed in Table 15, the Independent Sample T-test results indicated that there was a significant difference ($t_{(46)} = 2.549$, p = 0.014, $d = 0.74$) between the experimental and control groups in terms of attitudes towards technology use. In other words, the students in the experimental group were found to be more prone to using technology than the students in the control group.

Findings for research question 3.

The third research question aiming to examine the differences between the scores of the targeted skills involved sub-questions. The first sub-question aimed to examine whether there was progress in the students' success in vocabulary skill. With this aim, a post-test was applied to compare the results. The results of descriptive statistics presenting the improvement are shown in Table 16.

Table 16. *Descriptive Statistics for Vocabulary Skill*

	Group	n	M (SD)	95% CI	Median	Skewness	Kurtosis
Vocabulary	Experimental	24	51.46 (6.98)	[48.51, 54.40]	53.5	-.68	-.81
	Control	24	49.37 (6.06)	[46.81, 51.93]	49.5	-.36	-.26

Table 16 reveals that albeit the experimental group (M = 51.45, SD = 6.98) had a higher mean compared with the control group (M = 49.37, SD = 6.06), the means of vocabulary scores of the experimental and control groups were similar to each other. In this respect, in order to show the similarity between the groups statistically, Mann-Whitney U Test instead of Independent Sample T-test due to non-normality of the data was applied. The results are displayed in Table 17.

Table 17. *Mann-Whitney U Test Results for Vocabulary*

	Vocabulary
Mann-Whitney U	224.000
Wilcoxon W	524.000
Z	-1.322
Asymp. Sig. (2-tailed)	.186

As Table 17 displays, the Mann-Whitney U Test indicated that the vocabulary skill development was not significantly greater in the experimental group than that in the control group (U = 224, p = .186). As a result, the use of technology did not provide a remarkable impact on the vocabulary skills of the students.

Regarding the progressive success of the students, the second sub-question of the third research question aimed to explore the impact of TELL on conversational skills of the students. In this study, conversational skills consisted of two skills: listening and speaking. Therefore, the results were presented in two phases: listening scores and speaking scores.

Statistics for listening scores.

Before starting the analysis, it is important to see the proficiency levels of the groups in listening skill. With the aim of determining the students' success, descriptive statistics was applied and the results are displayed in Table 18.

Table 18. *Descriptive Statistics of Pre-test Listening*

	Group	n	M (SD)	95% CI	Median	Skewness	Kurtosis
Pre-test Listening	Experimental	24	6.29 (4.18)	[4.53, 8.06]	5.25	.67	-.19
	Control	24	5.04 (2.13)	[4.13, 6.04]	4.75	1.24	2.68

As presented in Table 18, there was a slight difference between the experimental (M = 6.29, SD = 4.18, out of 20) and the control (M = 5.04, SD = 2.13, out of 20) groups in terms of pre-test listening scores.

In order to find out the difference between the pre-test listening scores of the two groups, an Independent Sample T-test was employed. In addition, Levene's test was computed for the homogeneity of variances for the pre-test listening scores. Table 19 presents the results of the analysis belonging to the pre-test listening scores.

Table 19. *Independent Sample T-test for Pre-test Listening Scores*

		Levene's Test for Equality of Variances				
		F	Sig.	t	df	p
Pre-test listening	Equal variances assumed	11.005	.002	1.306	46	.198
	Equal variances not assumed			1.306	34.21	.200

According to Levene's test results, the significance value of the distribution variance was 0.002 ($p < .05$). In other words, the variances were found not to be homogenous for the pre-test listening scores. Therefore, equal variances not assumed value was taken into consideration. When Table 19 was examined, it was concluded that the students in the experimental and control groups did not differ significantly in terms of the pre-test listening scores ($t_{(34.21)} = 1.306$, $p = 0.198$, $d = .38$). Within this respect, it was explored whether two groups were similar on their pre-test listening scores and the results supported that the students in the experimental and control groups were considered similar in terms of the pre-test listening achievement.

In the second fold of the analysis, the pre- and post-test listening scores of the experimental group were analyzed. With the aim of examining whether the listening scores of the students in the experimental group differed significantly from pre- to post-test, Dependent Sample T-test was used. In this respect, descriptive statistics for listening scores were first presented in Table 20.

Table 20. *Descriptive Statistics for Pre- and Post-test Listening of Experimental Group*

	Group	n	M (SD)	95% CI	Median	Skewness	Kurtosis
Experimental	Pre-test listening	24	6.29 (4.18)	[4.53, 8.06]	5.25	.67	-.19
	Post-test listening	24	8.33 (4.00)	[6.65, 10.02]	9	.1	-1.36

It was observed that the post-test listening mean score ($M = 8.33$, $SD = 4.17$, out of 20) was higher than the pre-test listening mean score ($M = 6.29$, $SD = 4.00$, out of 20). Therefore, it can be stated that there was an improvement in the experimental group students' listening skill.

With the aim of determining whether there was a significant difference between the academic achievement in the pre- and post-test listening scores of the experimental group, Dependent Sample T-test, a parametric test, was conducted as the scores did not violate the normal distribution assumption. The results are shown in Table 21.

Table 21. *Dependent Sample T-test Results for Pre- and Post-test Listening of Experimental Group*

				95 % Confidence Interval of the Difference				
		M	SD	Lower	Upper	t	df	p
Experimental	Pre-test listening - Post-test listening	-2.04167	3.37161	-3.46537	-.61796	-2.967	23	.007

In other words, there was a significant difference between the pre- and post-test listening scores of the experimental group in favor of the post-test according to the Dependent Sample T-test results.

Table 21 presents the findings indicating the impact of TELL on the listening achievement level of the students in the experimental group. The post-test scores of the experimental group students differed significantly from their pre-test listening scores (t = -2.967, p = .007, d = .50). In other words, their listening comprehension improved after the intervention.

The question of whether technology integration improved the listening skills of the students in the control group was answered through descriptive statistics. The results are presented in Table 22.

Table 22. *Descriptive Statistics for Pre- and Post-test Listening of Control Group*

	Group	n	M (SD)	95% CI	Median	Skewness	Kurtosis
Control	Pre-test listening	24	5.04 (2.13)	[4.13, 6.04]	4.75	1.24	2.68
	Post-test listening	24	6.67 (3.06)	[5.37, 7.96]	6	.63	1.73

It was concluded that the post-test listening mean score (M = 6.66, SD = 2.13, out of 20) was higher than the pre-test listening score (M = 5.04, SD = 3.06, out of 20). Therefore, it can be said that there was progress in the students' listening skill in the control group.

A Dependent Sample T-test was conducted as the scores did not violate the normal distribution assumption. Table 23 reports the results comparing the difference in the control group students’ mean scores of the pre- and post-test listening scores.

Table 23. *Dependent Sample T-test Results for Pre- and Post-test Listening of Control Group*

				95 % Confidence Interval of the Difference				
		M	SD	Lower	Upper	t	df	p
Control	Pre-test listening - Post-test listening	-1.62500	2.83706	-2.82299	-.42701	-2.806	23	.010

As presented in Table 23, there was a significant difference between the pre- and post-test listening scores of the control group (t = -2.806; p = 0.10, d = 0.62). It can be concluded that the students became more successful albeit the learning took place in a conventional environment.

As the third fold of this analysis, the post-test listening scores were evaluated with mean scores through descriptive statistics in order to question whether the post-test listening scores of the students in the experimental and control groups differed significantly at the end of the intervention. Table 24 displays the difference in the experimental and control groups' post-test mean scores of listening.

Table 24. *Descriptive Statistics for Post-test Listening*

	Group	n	M (SD)	95% CI	Median	Skewness	Kurtosis
Post-test Listening	Experimental	24	8.33 (4.00)	[6.65, 10.02]	9	.1	-1.36
	Control	24	6.67 (3.06)	[5.37, 7.96]	6	.63	1.73

Note. CI = confidence interval.

According to Table 24, there was a difference between the experimental (M = 8.33, SD = 4.00) and the control (M = 6.66, SD = 3.06) groups in terms of the post-test listening scores.

With the aim of investigating whether the difference in the students' post-test mean scores of listening between the experimental and control groups was statistically significant, an Independent Sample T-test was conducted due to the normal distribution (p = 0.104 for the experimental group, p = 0.126 for the control group, p > .05). The results of the analysis are shown in Table 25.

Table 25. *Independent Sample T-test for Post-test Listening Scores*

		Levene's Test for Equality of Variances				
		F	Sig.	t	df	p
Post-test listening	Equal variances assumed	5.071	.029	1.622	46	.112
	Equal variances not assumed			1.622	43.07	.112

According to Levene's test results, the significance value of the distribution variance is 0.029 ($p < 0.05$). Thus, distribution variance was found not homogeneous for the post-test listening scores. As a result, equal variances not assumed value were taken into consideration. Although there was a difference in terms of means scores, when Table 25 was examined, it was seen that the students in the experimental and control groups did not differ significantly regarding the post-test listening scores ($t_{(43.069)} = 1.622$, $p = 0.112$, $d = 0.47$). Within this respect, the students in the experimental group were found to be equal to the students in the control group in terms of post-test listening achievement. In other words, TELL did not make a statistically significant difference in the students' success in listening skill.

Statistics for speaking scores.

In the light of Shapiro Wilk test results showing that the pre-test speaking scores were not normally distributed, the researcher employed Mann-Whitney U Test for pre-test speaking scores to compare the impact of TELL and conventional learning environment.

In this respect, a similar way for the analysis of speaking scores was followed: the analysis of pre-test speaking scores within the groups, the comparison of the pre- and post-test speaking scores between the groups and finally the post-test scores within the groups. As a result, Table 26 and Table 27 cover the results searching whether the students in the experimental and control groups differed significantly regarding the pre-test speaking scores. Table 28 displays the results investigating the impact of TELL on the students' pre- and post-test speaking scores in the experimental group while Table 29 presents the results investigating the impact of TELL on the students' pre- and post-test speaking scores in the control group. Finally, Table 30 shows whether there was a statistically significant difference between post-test speaking scores of the groups.

As the first fold of the analyses, Table 26 presents descriptive analysis results for pre-test speaking.

Table 26. *Descriptive Statistics for Pre-test Speaking*

	Group	N	M (SD)	95% CI	Median	Skewness	Kurtosis
Pre-test Speaking	Experimental	24	5.58 (3.61)	[4.06, 7.11]	5	.67	2.08
	Control	24	5.17 (2.84)	[3.97, 6.37]	5	-.51	.18

As seen in the table, there was a slight difference between the experimental (M = 5.58, SD = 3.16, out of 20) and the control (M = 5.17, SD = 2.84, out of 20) groups in terms of pre-test speaking scores.

In order to check the equality of the groups at the beginning of the intervention, Mann-Whitney U Test, a non-parametric test, was computed. The results are shown in Table 27.

Table 27. *Mann-Whitney U Test Results for Pre-test Speaking*

Mann-Whitney U	279.500
Wilcoxon W	579.500
Z	-.188
Asymp. Sig. (2-tailed)	.851

a. Grouping Variable: Group

As displayed in Table 27, the Mann-Whitney U Test revealed that the pre-test speaking scores of the experimental and control groups did not differ significantly (U = 279.5, p = .851).

At the second stage of the analysis, by using Wilcoxon Signed-Rank Test, the pre- and post-test speaking scores of the experimental group were compared in order to show whether there was an improvement within the group. Table 28 presents the results of pre- and post-test speaking scores of the experimental group.

Table 28. *Wilcoxon Signed-Rank Test Results for Pre- and Post-test Speaking Scores of the Experimental Group*

Z	-4.294[b]
Asymp. Sig. (2-tailed)	.000

a. Wilcoxon Signed Ranks Test
b. Based on negative ranks.

According to Table 28, the significance value was .000 ($p < .05$). In other words, there was a statistically significant difference in the experimental group students' pre- and post-test speaking scores.

Similarly, based on the results of the analyses pointing at the normal distribution of the data, Wilcoxon Signed-Rank Test was applied in order to explore the progress of the students' speaking scores in the control group. Following, the pre-and post-test speaking scores of the control group were compared in order to check whether there was a statistically difference and Wilcoxon Signed-Rank Test was applied. Table 29 presents the results of the analysis on the pre-and post-test speaking scores of the control group.

Table 29. *Wilcoxon Signed-Rank Test Results for Pre-and Post-test Speaking Scores of the Control Group*

Z	-4.289[b]
Asymp. Sig. (2-tailed)	.000

a. Wilcoxon Signed Ranks Test
b. Based on negative ranks.

As seen in Table 29, the significance value was .000 ($p < .05$). The results showed that pre- and post-test speaking scores of the control group students differed positively in favor of post-test scores ($p = .000$, $p < .05$). Therefore, it can be stated that the students in the control group developed their speaking skills although there was no specific treatment.

As the third fold of the analysis, the post-test speaking scores between groups were compared through descriptive statistics with the aim of exploring the difference in the scores of two groups. Table 30 displays the difference in the experimental and control groups' post-test mean scores of speaking.

Table 30. *Descriptive Statistics for Post-test Speaking Scores of the Experimental and Control Groups*

	Group	N	M (SD)	95% CI	Median	Skewness	Kurtosis
Post-test Speaking	Experimental	24	19.71(2.12)	[18.81, 20.60]	20	-.18	.24
	Control	24	18.96(2.54)	[17.88, 20.03]	19	.31	-.71

Note. CI = confidence interval.

It was concluded that the post-test speaking mean score of the experimental group (M = 19.71, SD = 2.12) was slightly higher than the post-test speaking score of the control group (M = 18.96, SD = 2.54). In this respect, it was found that there was no salient significance between the scores of two groups. With the aim of presenting the difference between two groups statistically, ANCOVA was applied as the researcher aimed to control the pre-test speaking scores while analyzing the post-test speaking scores. Another reason for preferring ANCOVA is that ANCOVA provides more reliable results on the data than t-test or ANOVA. In order to find out whether the post-test speaking scores of the experimental and control groups differed significantly, whether the assumptions of ANCOVA were violated was checked.

Table 31. *Tests of Between-Subjects Effects for Pre-test Speaking and Groups*

Predictor	Sum of Squares	df	Mean Square	F	P
Corrected Model	17.992	3	5.997	1.096	.361
Intercept	4161.849	1	4161.849	760.866	.000
Group	.354	1	.354	.065	.800
Pre-test_speaking	9.142	1	9.142	1.671	.203
Group * Pre-test_speaking	.482	1	.482	.088	.768
Error	240.675	44	5.470		

a. R Squared = .070 (Adjusted R Squared = .006)

Based on Table 31, whether the difference between the slopes of the regression lines between the groups was significant was examined with "group x pre-test speaking" joint effect test and it was concluded that the difference was not statistically significant ($F = 0.088$, $p = 0.768$ $p > .05$).

The number of the students ($n = 24$) in the experimental and control groups eliminated the need for normal distribution assumption of the pre-test speaking scores (Buyukozturk, 2007). In order to show the existence of a linear relationship between the pre- and post-test speaking scores, ANCOVA was computed. Table 32 presents the results of pairwise correlations for the experimental and control groups.

Table 32. *Posterior Distribution Characterization for Pairwise Correlations for the Experimental and Control Groups*

Groups	Variable	M	SD	1
Experimental	Pre-test speaking	5.1667	2.83866	-
	Post-test speaking	19.7083	2.11576	.258
				[-0.96, 0.602]
Control	Pre-test speaking	5.5833	3.61057	-
	Post-test speaking	18.9583	2.54489	.105
				[-0.268, 0.470]

a. The analyses assume reference priors ($c = 0$).

As seen in Table 32, there was a linear relationship between the pre- and post-test speaking scores of the experimental and control groups. ($r = .258$ is for the experimental group while $r = .105$ for the control group).

In order to check another assumption of ANCOVA for homogeneity of variances for post-test speaking scores Levene's test was applied. Table 33 presents Levene's test results.

Table 33. *Levene's Test for Post-test Speaking*

Variable	F	p	df
Post-test speaking	2.237	.142	46

As Table 33 presents, the assumptions of homogeneity of variances were not violated for post-test speaking scores ($F = 2.237$, $p = .142$, $p > .05$).

Based on the results of the multiple analyses, it was found out that ANCOVA could be used to check whether there was a significant difference between the post-test speaking scores of the students in the experimental and control groups. The results of ANCOVA analysis are presented in Table 34.

Table 34. *ANCOVA Results for Speaking Scores*

Predictor	Sum of Squares	df	Mean Square	F	P	Ƞ2
Corrected Model	17.992	2	8.755	1.634	.207	.068
Intercept	4272.995	1	4272.995	797.342	.000	.947
Pre-test speaking	10.759	1	10.759	2.008	.163	.043
Group	5.655	1	5.655	1.055	.310	.023
Error	241.157	45	5.359			

a. R Squared =.068 (Adjusted R Squared = .026)

According to the results of ANCOVA, it was concluded that the post-test speaking scores of the students did not differ significantly ($F_{(1)} = 1.055$, $p > .05$). The effect size value for the difference was calculated as (Ƞ2**)** 0.023. When the effect size value was examined, it can be interpreted that the independent variable had a low effect on the dependent variable (Cohen, 1992). In other words, technology use in speaking skill development had a low level of effect on the academic success of the students.

Findings for research question 4.

With the fourth research question, the researcher aimed to examine the difference between the students' scores while they evaluated their assessment on their own at the end of each unit. Self-assessment tests and mini questionnaires were created in the light of the goals and outcomes of each unit and the participants were supposed to check their progress. Table 35 shows the mean scores of the self-assessment checklists of the experimental and control groups through descriptive statistics.

Table 35. *Descriptive Statistics for Self-assessment Checklists*

	Group	N	M (SD)	95% CI	Median	Skewness	Kurtosis
Self-assessment Checklists	Experimental	24	1.27 (.26)	[1.15, 1.35]	1.17	1.42	2.16
	Control	24	1.26 (.19)	[1.19, 1.41]	1.21	.36	-1.18

Note. CI = confidence interval. 1 = more successful, 3= less successful

As Table 35 shows, there was a slight difference between the experimental (M = 1.27, SD = .26) and the control groups (M = 1.26, SD = .19) in terms of self-assessment scores.

Mann-Whitney U Test was also conducted in order to check the equality of the groups. The results of equality were presented in the following table:

Table 36. *Mann-Whitney U Test Results for Self-assessment Checklists*

Mann-Whitney U	266.500
Wilcoxon W	566.500
Z	-.445
Asymp. Sig. (2-tailed)	.656

a. Grouping Variable: Group

Table 36 depicts the results showing whether the students' self-assessment checklists scores differed significantly in the experimental and control groups. As displayed in the table, there was no statistically significant difference between the self-assessment checklists scores of the experimental and control groups (U = 266.5, p = .656). As a result, the use of self-assessment checklists to make the students aware of their progress did not provide a remarkable difference on their success.

The second sub-question of the fourth research question was devoted to examining the difference between the students' scores in the mini questionnaires in the experimental and control groups. The results of the descriptive statistics are shown in Table 37.

Table 37. *Descriptive Statistics for Mini Questionnaires*

	Group	N	M (SD)	95% CI	Median	Skewness	Kurtosis
Mini Questionnaires	Experimental	24	1.21 (.24)	[1.09, 1.28]	1.11	1.38	1.3
	Control	24	1.22 (.16)	[1.13, 1.30]	1.17	.48	-.68

Note. CI = confidence interval. 1 = qualified, 3= less qualified

As displayed in Table 37, there was a slight difference between the experimental (M = 1.21, SD = .24) and the control (M = 1.22, SD = .16) groups in terms of mini questionnaire scores.

With the aim of investigating the difference in the experimental and control group students' mini questionnaire scores, Mann-Whitney U Test was employed. Table 38 presents the results of equality.

Table 38. *Mann-Whitney U Test Results for Mini Questionnaires*

Mann-Whitney U	246.000
Wilcoxon W	546.000
Z	-.873
Asymp. Sig. (2-tailed)	.383

a. Grouping Variable: Group

In Table 38, the mini questionnaire scores of the students in the experimental and control groups were compared. The analysis revealed that there was no statistically significant difference between the scores of the experimental and control groups (U = 246, p = .383). As a result, the use of mini questionnaires did not result in the expected difference on the students' success.

In brief, the results pertinent to the students' level of digital literacy awareness and attitudes towards learning with technology showed that the students in the experimental group were more accustomed to using technological devices for educational purposes and had more positive attitudes towards technology integrated learning. Considering the quantitative data on the impact of TELL, there were no statistically significant differences between the experimental and control groups in terms of their success in vocabulary development and conversational skills although the scores taken from the post-test were higher at the end of the semester.

Qualitative Findings

The results obtained from the qualitative data collection tools pertinent to RQ5 are presented in this section.

Findings for research question 5.

The fifth research question queried the students' perceptions and suggestions pertaining to the course content and activities done in and out of the classroom. With this aim, qualitative data were collected in two phases. The first phase included evaluation and suggestion forms exploring the experimental group students' perceptions and opinions of the effects of technology integration on their achievement of the targeted skills. The second phase was semi-structured interviews that enabled the interviewer to ask adaptable questions for further information in the light of the answers given and to discuss the topic in detail instead of adhering to the script (Lune & Berg, 2017). In this sense, semi-structured interviews were conducted with nine students in the experimental group to gain a deeper insight regarding the effectiveness of the intervention and the interviewees' suggestions to be taken into consideration while planning and forming content for further course syllabus. While evaluation and suggestion forms were applied at the end of the intervention, semi-structured interviews were implemented after analyzing the data obtained from the written forms in order to clarify the points requiring more detailed information. In the following parts, the participant quotes taken from interviews and evaluation and suggestion forms are presented with "I" for interviews and "P" for evaluation and suggestion forms.

Within this perspective, the qualitative findings belonging to evaluation and suggestion forms and semi-structured interviews are presented in line with the fifth research question including sub-questions.

The findings obtained from evaluation and suggestion forms and semi-structured interviews.

In the light of the analysis of the evaluation and suggestion forms collected from the students in the experimental group and the analysis of semi-structured interviews conducted with nine experimental group students, the researcher formed four main themes: *the attitudes towards TELL, the contributions of TELL, the drawbacks of TELL, and the suggestions and expectations.* While the first theme was solely obtained from semi-structured interviews, the following themes were created through the data collected from both written forms and semi-structured interviews. The first theme, *the attitudes towards TELL*, consisted of two categories related to the participants' views before the course and after the course. The second theme, *the contributions of TELL*, included two categories pertinent to course-related and language-related contributions while the third theme, *the drawbacks of TELL*, was presented in two categories about content-related and course-related drawbacks. The fourth and last theme, *the evaluations and suggestions*, is comprised of the categories referred to as content-related and course-related evaluations and suggestions.

Theme 1: The attitudes towards TELL

The perceptions of the interviewees regarding technology-supported language learning environment before and after the intervention, their concerns, hesitations, and feelings were evaluated in this theme. The first theme was mainly based on the questions numbered 1, 2, 11, 12, 13, and 14 in semi-structured interviews. Table 39 shows the theme, subsequent categories and codes with the percentages.

Table 39. *The Attitudes towards TELL*

Theme 1: The Attitudes towards TELL			
		N	F
Category 1: Before the course	Expectations	8	16.3
	Anxiety	7	14.3
	Uncertainty	4	8.2
	Curiosity	3	6.1
	Excitement	1	2
Category 2: After the course	Satisfaction	14	28.6
	Consciousness	7	14.3
	Self-confidence	5	10.2

As seen in the table, the statements of the interviewees were identified within the framework of two main categories: "before the course" and "after the course". The data on the interviewees' opinions of technology enhanced learning revealed that they had both positive and negative feelings about attending a technology-supported course. The most frequently repeated code in the first category, expectations, shows that most of the interviewees hoped for an entertaining teaching environment when they heard technology was involved into the learning process. One of the interviewees (I4) expressed her anticipation towards the course as:

> *"I think the place of technology in this course was important as each student needed to learn in an entertaining environment."*

Regardless of the proficiency level of the students, technology is expected to attract students' attention when it is utilized as a supportive tool in the learning process. One of the interviewees (I5) expressed her expectations upon hearing that some kind of technological tools would be integrated into the course:

> *"When technology-supported language teaching was mentioned, smart boards came to my mind. Similarly, I imagined a lesson in which students would use their own smartphones or tablets to be involved in the lesson."*

By the same token, another interviewee (I6) defined his expectations with the following sentences:

> *"I guess some kind of activities would be applied in order to improve the target skills. However, I did not know whether technology would be utilized interactively."*

Likewise, one of the interviewees (I7) who was familiar with technology use for educational purposes remarked as follows:

> *"I was very glad to hear that we would use technology because the course was no longer boring for me thanks to the content and activities that would be administered during the semester."*

As seen in the excerpts, a great majority of the interviewees had various expectations related to the course whilst they were not sure about what kind of activities they would encounter. Therefore, some of them had some doubts about the course.

As regards the second code, *anxiety*, in the first category, it was seen that most of the interviewees were anxious about the course since they were accustomed to using technological tools for various reasons but not for educational purposes. The interviewees having some concerns about the course stated that they had not had an experience or information in learning with technology before. Referring to this case, one of the interviewees (I3) expressed her feelings with the following statements:

> "*I was afraid when I entered the class as we just studied English for written exams with paper-based materials at high school. Therefore, I thought I was not able to use*

technological tools for learning, especially speaking skills in English. I was worried about the course. Therefore, I was really afraid of making mistakes."

The third code in the first category, uncertainty, possibly emerged from the inadequate knowledge of the students who were not familiar with using technology for educational purposes. After the semi-structured interviews, the researcher found out that the differences in the interviewees' attitudes especially for the ones who were not sure what they were supposed to do mostly resulted from their inadequate knowledge of using technological devices for language learning, limited utilization or not having any experience in educational technologies. Referring to the third code, one of the interviewees (I3) put her thoughts into the following words:

"I assumed that this course was similar to a distance learning system. Therefore, I did not think we were involved too much into the learning process because of technology integration."

Considering the fourth and fifth codes in the "before the course" category, a few of the interviews explained that they were curious and excited about having a technology integrated course whilst some of them had hesitations regarding how it would be implemented. One interviewee (I8) described learning with technology as a new way of learning accompanied by curiosity and excitement:

"In general, as our lives were surrounded with technology, it aroused my curiosity. That was why I felt excited to attend the course. I was interested in the course with great enthusiasm."

Similarly, some of the interviewees were familiar with utilizing technology for educational purposes and this acquaintance made them excited as I9 stated:

"I was in a technology-supported learning environment while I was studying for the university exam. I was accustomed to using YouTube and other websites to study. I mean, I was prone to technology. Therefore, I thought the course would be effective and this idea attracted my attention."

As displayed in Table 39, the second category referred to the opinions of the interviewees after the implementation. Considering the first code, *satisfaction,* in the second category, it was seen that a great majority of the interviewees shared similar ideas about the gratification they had after the implementation. This code could be explained by the experience the interviewees had and the guidance given on how to utilize technology effectively for educational purposes. Even though there were various expectations at the beginning of the course, the interviewees had an opportunity to see that technology provided a rich context so that it made the learning and teaching process more enjoyable. As a result, the interviewees had a common thought on the positive effect of technology use. As regards the expectations of technology-supported courses, one interviewee (I2) stated that she had not practiced speaking skill, recorded her voice, and listened to her own speech before by using a smartphone. After the intervention, she expressed her awareness and gladness as the following:

> *"The course met my expectations. I thought it was fruitful for me as plenty of activities were done. For instance, I had never recorded my speech before and sent it to anyone. After taking this course, I realized it was actually an advantage to see my progress and it was a great experience. That is why I think it is effective."*

Sharing this perspective, one of the interviewees (I7) expressed his feelings in the following sentences:

> *"I was curious about technology integration. I thought technology-supported language teaching could be beneficial for my progress and I found what I hoped in this course. I even had more fun. In particular, Quizlet was very good."*

Another interviewee (I8) commented on his contentment by indicating:

> *"We are in the age of technology nowadays. For instance, while the student is even at home, he can be intertwined with his computer or smartphone. This kind of education provides sending and delivering the assignments online. Students learn by having fun. That is why I think it was useful."*

As a student who was familiar with using technological devices for learning, one interviewee (I9) exemplified his pleasure by stating:

> *"As I said before, I was supported by technology while I was studying for the university exam. I have a belief about the positive effect of technology. It was so nice to have such an education at tertiary level. This was one of the requirements of our time. I was sure about technology's positive effect thanks to this course."*

Similarly, some interviewees commented on the intervention sharing similar perspectives:

> *"I expected that the course could be implemented in an amusing way and provide more permanent learning and I was convinced after I attended this course. In my opinion, visual elements were very important things for learning and this course provided a rich visual context by using technology."* (I1)

"Thanks to technology, we had more efficient courses. If we had not been supported by technology, we would not have listened to the recordings and watched the videos. I thought technology integration provided a permanent and amusing learning environment." (I3)

"I had already been in favor of using technology in the course. Therefore, my opinions have not changed. I still support learning with technology." (I5)

"I like using technology in the learning and teaching process as I am keen on technology. At the end of the course, I thought it was quite fun. The lessons were enjoyable and entertaining." (I6)

As the second code in the second category, consciousness is not a surprising result as the students were accustomed to using technology for various personal and social purposes such as communication, entertainment, purchasing, reading, research, and fun rather than using it for learning and teaching. Therefore, having an experience of a learning process in which technology was integrated helped the students become more aware of utilizing technology for educational purposes. In line with this notion, the analysis of the data obtained from semi-structured interviews showed that the students became more conscious of the educational use of technology. One of the interviewees (I3) stated the significance of being aware of the advantages provided by technology as follows:

"I am absolutely against technology in the form of distance education because I do not think it will be useful. However, using it in a classroom environment and learning with the help of technology made more sense. In this course, I realized we could use technology both in the classroom and out of the classroom in a practical way. It was a great experience for me."

Another interviewee (I5) underlined her awareness in this topic with these expressions:

"We utilized technology by using smart boards at high school. However, when we used Google Classroom and Quizlet, I had a chance to see how useful such technology was during the courses in terms of communication and effective learning."

The data showed that besides an orientation meeting about using technology in the learning process, having experience in learning with technology made the participants more conscious of using technological devices. As a result, it was possible to see the reflection of this kind of learning. In line with this experience, two interviewees expressed their opinions with the following sentences:

"I have already been keen on technology and language teaching because traditional education can be very restrictive and rigid. However, with these kinds of applications for different skills through technology, I have realized that we are able to have a flexible and rich learning process." (I6)

"I want to be in an entertaining environment while learning and studying. We actualized it in this course. After this course, I thought the learning process could be more enjoyable by using technological materials." (I9)

As shown in Table 39, the third code in the second category was self-confidence. The students who were worried about technology integration indicated that as they got accustomed to using technological tools, they had fun and believed in themselves about being successful in a technology-supported learning environment. Sharing this perspective, two interviewees uttered the following sentences to explain the change in their attitudes after the course:

"Thanks to the activities implemented in this course and the assignments given, my concerns decreased and I am no longer afraid to attend the course. This course made me more confident." (I1)

"… after the course, I developed myself. It was not the way I was afraid." (I3)

Likewise, one of the interviewees (I9) pointed at his thoughts in this way:

"Learning with technology was good. I felt self-confident in using technology for educational purposes after the course. Apart from that, I was able to speak with other students in the classroom. I was able to speak English fluently at the end of the course."

In sum, the data on the attitudes of the interviewees' before and after the course revealed that although there were some hesitations as regards how technology would be integrated into the learning process, the feelings such as awareness, pleasure and confidence were more dominant after the intervention. The more they learned about educational technologies, the more positive attitudes and opinions they had.

Theme II: The Contributions of TELL

The third, fourth, fifth and sixth questions including sub-questions in the semi-structured interviews and the first and second questions in the evaluation and suggestion forms sought the advantages of technology integration into language education as a course material in the classroom and a supportive tool out of the classroom from the perspectives of the students. In this respect, the students were asked to elaborate on how using technological tools in the learning process contributed to their learning and success. As a result, "the contributions of TELL" theme was created. Table 40 presents the main categories related with the contributions and underlying codes.

Table 40. *The Contributions of TELL*

Theme 2: The Contributions of TELL			
		N	F
Category 1: Course-related contributions	Having enjoyable classes and activities	40	14.8
	Opportunity to see progress	20	7.4
	Proper activities and topics to skills	15	5.5
	Providing helpful feedback	9	3.3
	Providing rich context	8	3
	Interaction and collaboration	5	1.8
	Motivating about learning	5	1.8
	Having a relaxing environment	3	1.1
	Making students more active	2	0.8
Category 2: Language-related contributions	Developing vocabulary	55	20.3
	Developing speaking	55	20.3
	Developing listening	42	15.5
	Indirectly developing writing	4	1.4
	Opportunity to recognize mistakes	4	1.4
	Developing pronunciation	2	0.8
	More permanent learning	2	0.8

The data with regard to the students' perceptions of the advantages of technology integration in and out of the classroom revealed two main categories that were defined as "course-related contributions" and "language-related contributions". Considering the number of codes, it is clear that the students were pleased to take part in a course supported by technology. The first category, *course-related contributions*, is pertinent to the interviewees' opinions of the course content. As presented in Table 40, the most frequent code in the first category is having enjoyable classes and activities with the percentage of 14.8. The majority of the interviewees had an agreement that the courses supported with technology were more entertaining and activities implemented through technological devices made the learning process more enjoyable. Referring to the first code, having enjoyable classes and activities, some interviewees expressed their thoughts as follows:

> *"The course was not boring. It was fun."* (I2)
>
> *"I usually choose to learn by having fun. That was why the activities we practiced in this course were quite fun and instructive to me."* (I4)
>
> *"Both the applications and websites we used on smart boards and the activities preferred made the course more entertaining. I liked it so much. The lessons were enjoyable for me."* (I7)

One of the interviewees (I8) pointed at the use of smart boards that were defined as complementary tools in learning process and expressed his idea with the following sentence:

> *"It was better to utilize the smart board during the course compared to paper-based materials as they were more difficult to follow and study"*

Referring to enjoyable classes, three of participants expressed the contribution of the enjoyable environment and activities to minimize their excitement with the following sentences:

> *"Having a relaxing learning environment was helpful to deal with the problems resulting from excitement. The exercises that were done in the course were enjoyable and useful."* (P41)
>
> *"I liked the activities done in the course. The discussion part was especially enjoyable."* (P36)
>
> "*I thought that the course was so entertaining. Listening and speaking logs were also very enjoyable."* (P14)

From a different perspective, four other participants underlined the contribution of the vocabulary application preferred for learning out of the classroom and practice in the classroom to an entertaining learning environment by referring to the joy they had with Quizlet:

> *"I learned in an entertaining way via Quizlet."* (P20)
>
> "*I thought the course was entertaining. Quizlet was the part that I enjoyed most."* (P21)
>
> "*Thanks to Quizlet, I learned vocabulary in an enjoyable way."* (P37)
>
> "*I had fun while I was playing on Quizlet."* (P44)

To sum up, it was found out that most of the participants had an enjoyable learning experience thanks to the activities done and Quizlet that enabled them to play group games in a competitive environment.

As displayed in Table 40, the opportunity to see progress was stated as the second salient contribution of the course with the percentage of 7.4. Besides self-assessment checklists and mini questionnaires, the assignments such as self-recording and games through Quizlet for vocabulary practice were also indicated as important tools in terms of assessing what they learned and what they did not learn well. One of the interviewees (I1) commented on these codes as follows:

"In some conditions, we may not be aware of what we have learned and what we have not learned. Thanks to recordings, games, self-assessment checklists and mini questionnaires, I had an opportunity to see my progress. I thought they were really helpful in this sense."

Sharing the same perspective, another interviewee clearly stated the contribution of the course in terms of having a chance to see their improvement:

"When we had a chance to question and evaluate ourselves, we became aware of what we learned or we did not learn. Therefore, I thought the course was useful in terms of showing our progress through speaking logs and Quizlet." (I2)

As regards the third code in this category, most of the interviewees agreed that the activities were appropriate for the targeted skills although there were some controversies regarding the topics studied**.** One of the interviewees (I4) simply stated her response in the following way:

"I thought the online activities chosen and implemented via our smartphones or smart board in the classroom corresponded to the course content and the skills we aimed to develop."

As the fourth code in the course-related contributions category, providing immediate feedback is seen with the percentage of 3.3. At this point, it should be remembered that apart from the feedback provided during the course in the classroom, the researcher gave feedback for the assignments as well. The feedback mentioned by the interviewees were generally related to the feedback provided through the assignments. A few of the interviewees expressed their opinions about the feedback they got as the following:

"I mostly delivered my assignments on time and using technological tools to deliver the assignments enabled me to receive immediate feedback. Therefore, I thought it was useful in terms of feedback." (I1)

"When I submitted an assignment, you answered me by mail in which the points I needed to consider were stated. I thought the immediate feedback presented by technology was good." (I6)

"I delivered my assignments on time and had feedback for all. I read them all. You also pointed at my mistakes. According to the feedback you gave, I was able to prevent myself from making similar mistakes. Due to the instant feedback I received, I was pleased." (I7)

As presented in the table, the fifth code in the first category is providing rich context in and out of the classroom. In this code, most of the interviewees underlined the use of smart boards through which abundant materials could be reached. By pointing at the significance of visual materials through the use of smart boards, three of the interviewees stated their contentment with the following sentences:

"In my opinion, visual elements were very important things in the learning process and this course provided a rich visual context by using technology." (I1)

"The smart board was easier to use because the instructor could change the content constantly, zoom in, make changes, and add more different details, but when the worksheets were used, we had to study the activities on the paper. Therefore, I chose the smart board." (I6)

"I have a tendency towards technology. We have already had visual-educational things in previous courses. Thus, it is definitely more attracting and more useful to follow from the smart board." (I9)

In terms of course-related contributions, the data revealed the sixth code: interaction and collaboration. In this respect, one of the interviewees (I1) underlined the importance of activities and games played together in improving vocabulary skill through interaction with these sentences:

"We were doing exercises especially as a group through smartphones in the classroom so that I could learn the words I did not know with the help of my friends in the group."

Referring to the collaboration and interaction during learning process, one interviewee (I4) expressed her thoughts as follows:

"When we discussed a word with our friends through Quizlet, it was very instructive for us. In addition, looking at the smart board was always faster and we were able to generate more ideas with my classmates together. It was, therefore, more useful." (I4)

As it is known, using various materials such as visual and aural elements enriches the learning environment by addressing different senses. One of the interviewees (I6) pinpointed the positive effect of interactive learning on the learning process.

> *"As it is known, it could be boring if we had a traditional learning environment presenting limited visual and aural elements. However, when the activities were conducted interactively through technological tools by using rich various materials, learning became easier and participation was provided."*

Considering the seventh code related to motivation for learning, the majority of interviewees found games played in and out of the classroom as strong motivators to learn more. Three of them emphasized that playing games as a group encouraged them to study and learn more by describing their feelings as follows:

> *"In Quizlet, you had to know more for the activities that were played as a group; so, there was an awareness that caused a bit of ambition and competition among us. It was useful for learning."* (I3)

> *"While we were playing vocabulary games via Quizlet, I felt I had to learn in order to get a higher score in the group game as the members in the group could see my answers. Therefore, especially games played online influenced me to be more motivated and to study for further learning."* (I7)

> *"There was a competition while playing games on Quizlet, so it was enjoyable as a classroom activity. I was motivated to learn more."* (I8)

The eighth code with regard to having a less stressful environment, the participants stated that playing games for learning through educational technologies provided a more relaxing environment compared to conventional classrooms so that they were able to focus on the practical use of language instead of rule-based instruction. Pointing at the relaxing environment supported through technology integration, one of the participants (P15) commented as follows:

> "*The activities implemented in and out of the classroom were very beneficial for me. The way we carried out the course with technology made learning more entertaining and easier without having anxiety."*

Likewise, most of the participants expressed their feelings almost with the same statement as P34 did:

> "*It was a relaxing lesson for me."*

Based on Table 40, the ninth code in the first category was about the contribution of course and activities to active participation of the students in the learning process. One of the interviewees (I3) commented on the changing role of the students in a technology enhanced learning environment as the following:

> *"At first, I did not think we would be involved in the activities actively. However, when I attended the course, my thoughts changed in a positive way. Due to the use of smart board and activities implemented by using our smartphones during the course, we had more active roles."*

Though most of the participants stated that they had difficulties in using technological tools effectively at first, they adapted themselves to the new process and they started to use the targeted items conveniently and creatively in their productions.

As Table 40 displays, the second category in the contributions of TELL theme is related to the participants' opinions about the language-related contributions of TELL. A great majority of the students mentioned that they improved the target skills after attending this course. The first code in language-related contributions is developing vocabulary with the help of technology use. Although the main focus in this study was to develop the conversational skills of the students through technology, vocabulary was also included to familiarize the students with the topic. In this respect, the researcher used an application to give the related words before the course and to check the students' progress at the end of the unit. Most of the participants agreed on the contribution of using technological devices to their vocabulary development. At this point, it should be noted that there are numerous applications for vocabulary learning compared to other skills. Therefore, learners had a great advantage to improve this skill. Using Quizlet that was the preferred application in this course during in and out of classroom activities enabled the learners to study as a group or individually according to their own learning pace. The comments of the participants were as the following:

> *"I did not know much vocabulary. However, with the support of technology, especially Quizlet, I improved my vocabulary knowledge considerably."* (I1)

> *"I was not very good at vocabulary. I thought vocabulary activities were useful to learn the words I did not know. Particularly at the end of the course, we were reinforced with the game we played on Quizlet."* (I2)

> *"Although the vocabulary sets belonging to some units were difficult to combine in a paragraph, the vocabulary exercises done by using smartphones and a specific application were useful and improved my skills."* (P14)

"Vocabulary exercises done through Quizlet helped to expand my knowledge in and out of the classroom." (P20)

"I think my vocabulary knowledge improved a lot thanks to games played and exercises done online. This improvement contributed to my success in other courses." (P21)

"The activities done on Quizlet and smart board were very useful both in and out of the classroom and increased my vocabulary knowledge." (P37)

Two other interviewees highlighted that there was no need to memorize the words as long as these kinds of activities were preferred as they provided both visual, verbal and aural elements through technology. The interviewees explained their feelings about enjoyable vocabulary learning by referring to the experience they had:

"Well, in general, my vocabulary improved because I was not the kind of person who could sit and memorize words, but I used this application constantly thanks to your activities and this improved my vocabulary skills." (I3)

"Technology helped a lot while memorizing words. I had difficulties while learning vocabulary. However, the application we used improved my vocabulary knowledge by practicing a lot." (I5)

Based on a general review of the contribution of the application to vocabulary knowledge, most of the interviewees highlighted the practical use and impact of Quizlet with the following phrases:

"Quizlet was a very easy tool to use. It was pretty easy. Therefore, for vocabulary learning, it was perfect for me." (I6)

"Especially my vocabulary knowledge has improved a lot. We learned many words via Quizlet. I thought playing games through Quizlet was much more effective in learning words. It was very good to support learning with visuals. Thanks to the application we used, I learned the targeted words very quickly. In my opinion, I am good at learning with visual elements. Thanks to technology, it was better for me to be supported with visuals." (I7)

"I thought Quizlet's games were very useful in terms of improving our vocabulary. We also had fun while learning." (I8)

"We learned the words visually while using Quizlet. This was very useful for the improvement of vocabulary knowledge." (I9)

As Table 40 presents, another significant contribution of TELL is to develop speaking skill. One interviewee (I2) mentioned her uneasiness during conversations and explained how she overcame this problem with the help of technological tools as follows:

"I was not very comfortable to speak in the classroom, but after taking this course I felt more confident owing to many practices implemented in and out of the classroom activities such as speaking logs."

One interviewee (I6) reported that he might have some difficulties in face-to-face conversations because of not having chances to correct mistakes that may cause ambiguities. Hence, he pointed at the significance of recording in terms of listening his own speech to improve it:

"We may be under stress while we have face to face interaction. However, even if we have errors while recording, we can correct them after listening. Therefore, recording is easier and more productive for me."

Sharing this perspective, another interviewee (I8) who had attended a technology integrated course for the first time indicated that the important point technology provided was the chance for repetition and excessive practice:

"This course helped me to develop my speaking skills. For instance, summarizing what I listened to or watched was not easy for me. Hence, I did a lot of repetitions while preparing my speaking log assignments and I realized that I started to speak more fluently with the help of my repetition over and over. Before I entered the university, I had never done anything like this while studying English. I think the biggest contribution to my speech is being more fluent while speaking because we recorded a lot."

Another interviewee (I9) stressed the similar point about the progress he made with these sentences:

"Voice recording was also effective for my personal development. It was effective in gaining self-confidence because before I became a prep-class student, I did not speak English at all. I have never heard my own voice in English. It was a little uncomfortable at first. However, I figured it out later. This course improved me in terms of speaking fluently."

As shown in Table 40, in the second category that included language-related contributions, the third code was developing listening skills with the percentage of 15.5. In a conventional learning environment, the students are only exposed to the teachers' and their classmates' speech. However, technological tools provide a great variety of materials for language learners. During the intervention conducted in this study, apart from the audio files used in the classroom, an extra audio file was sent to the students each week. Via their computers, laptops or mobile phones, they were able to listen to the audio file. Referring to the benefit of practicing a lot, one of the interviewees (I2) mentioned her experience as follows:

> *"My listening skills were not particularly good when I attended this course at first. However, I think I developed my listening skills through the technology-integrated activities applied in this course owing to the exercises done over and over."*

Two interviewees (I3) expressed their thoughts on the progress they made while one of them (I4) underlined learning in an entertaining way in the following sentences:

> *"I think I have improved my listening skill a lot as I listened to audio files by using my smartphone several times out of the classroom and recordings of my speech on what I listened to were very helpful" (I3)*

> *"Listening logs were very useful. It was the focus of our course and we had fun. I thought it was fun and instructive" (I4)*

The participants also elaborated on how technology-supported courses affected their success in terms of main language skills. Referring to the improvement, similar ideas belonging to the participants are presented in the quotes below:

> "*Especially listening activities in which we were able to listen to a native speaker's speech were very beneficial for me. My listening skill developed via listening logs and activities."* (P4)

> *"I thought the conversational skills course was a practical one. Activities implemented thanks to technology were helpful to improve our language skills. My listening skill was improved by these activities and logs."* (P20)

> *"I believe that the listening activities such as listening and summarizing improved my listening skill as I had a chance to listen to the files again and again."* (P48)

In terms of language-related contributions, the fourth code in the second category was about the indirect contribution of the technology enhanced course to the students' writing skill. Some of the participants stated that activities implemented for the targeted skills also developed their writing skill. Taking notes in different ways such as using diagrams in listening practices and creating meaningful paragraphs by using the unit's targeted vocabulary supported their writing skills. Some of the participants commented on their progress as follows:

"I believe that after listening activities, especially listening and summarizing, taking notes on my notebook with an automatic correction program improved my writing skill." (I8)

"The assignments were so beneficial in terms of making progress on the target skills. I had a thought that I especially developed my writing skill thanks to the activities done out of the classroom as I had a chance to see my mistakes thanks to the program I used." (P21)

The fifth code emerging from the content analysis in the second category was recognizing mistakes. Nearly all the participants pointed at the opportunity to see their mistakes both in listening and speaking logs, and vocabulary assignments. For instance, taking notes and listening to the audio files over and over provided more practice in which the mistakes were easily recognized. Similarly, using a mobile device to record their voices and listening to their speech enabled them to feel themselves more confident and comfortable. While pinpointing the contribution of the activities to see mistakes, some of the participants stated their opinions as the following:

"For instance, I could not be aware of the mistakes in grammar and pronunciation while I was communicating with other people. However, I was able to recognize them after I recorded my speech and listened and I had the opportunity to correct them. I mean, it is a good alternative to improve myself and become aware of my mistakes with the help of technology." (I1)

"I had never recorded my speech before and sent it to anyone. After taking this course, I realized it was actually an advantage to see my progress and it was a great experience." (I2)

"When I listened to my speech several times after recording my own voice, I recognized my own mistakes. This was useful for me. It developed my speaking skill." (I5)

"While listening to my own speech, I was able to realize my mistakes and correct them." (I8)

"Recordings were good practices for me. As a result, I had a chance to listen to my speech and recognize my mistakes." (P25)

Although the individuals' speech is evaluated according to particular factors such as the range of vocabulary used, accuracy and fluency, pronunciation is also a significant factor for a more understandable communication. Therefore, it is impossible to improve speaking skill without referring to pronunciation. Touching upon the significance of pronunciation, one interviewee (I2) reported her experience referring to the support of technological tools to improve pronunciation in and out of classroom activities:

> *"While I was preparing my speaking log assignments, I was not sure about how a word was pronounced. I listened to my recording again and again and searched for the correct pronunciation so that I had a chance to correct my mistakes. Listening to my own recordings is like a kind of reinforcement."*

Similarly, another interviewee (I3) made a comparison of face-to-face communication and recording to develop pronunciation and emphasized the importance of using technological devices and the contribution of recording to her progress with the following statement:

> *"Well, normally when you speak, you cannot pay much attention to the pronunciation of the words, but when you record your voice, you have to notice and pay attention as you have a chance to listen to your own voice and this provides awareness."*

In line with I3, another interviewee, I4, offers a perspective that underlines the role of recording in the improvement of pronunciation:

> *"I think my pronunciation has improved. For example, when you record your voice, you can realize your own mistakes while listening and you can correct them later. This was very useful for your pronunciation."*

As seen in Table 40, TELL exerted a positive impact by providing more permanent learning as the last code in this category. Two interviewees expressed their feelings as follows:

"Particularly at the end of the course, you were reinforced with the game you played. This provided more permanent learning." (I2)

"I think technology integration provided a permanent and amusing learning." (I3)

In sum, with the help of technological tools used in the learning process, the students had progress in different skills due to the advantages such as rich context, visual elements, interaction, collaboration, motivation, getting feedback and an opportunity for recording and listening to their own speech. In other words, technological tools provided the participants with chances to improve their targeted skill in different learning environments.

Theme III: The Drawbacks of TELL

The seventh and tenth questions in the semi-structured interview form were asked to find answers in relation to the drawbacks of the intervention while the third and fourth questions in the evaluation and suggestion forms were used to find out the demerits of TELL in the learning process. Despite certain advantages of using technology for educational purposes, the participant comments also touched upon some negative aspects coming along with the integration of technology in language learning. The data reflecting the participants' perceptions of TELL revealed the demerits of the course content and activities implemented in and out of the classroom. Table 41 represents the main categories and codes under each category.

Table 41. *The Drawbacks of TELL*

Theme 3: The Drawbacks of TELL			
		N	F
Category 1: Content-related drawbacks	Homework load	14	39
	Difficulty of vocabulary writing assignment	11	30.5
Category 2: Course-related drawbacks	Maintaining interest in activities	5	14
	Technological problems	4	11
	Distraction	2	5.5

In line with the data analysis, two main categories were formed under the second theme: content-related and course-related drawbacks. As seen in the table, homework load is the first code with the highest percentage in content-related drawbacks category. Considering the targeted skills, a 2-hour course a week was not enough to improve listening, speaking and vocabulary skills in the classroom environment. Therefore, the participants were supported with various materials out of the classroom besides weekly assignments. More specifically, during the intervention, the students were supposed to do three different assignments for the targeted skills each week. In this respect, the data revealed that a great majority of the participants underlined the burden of assignments given for each skill at the end of each unit while some of them mentioned the overall load pertinent to other courses as prep-class students. The following sentences belonging to the participants confirmed the burden of assignments that were difficult to complete weekly due to some technological problems such as access to the Internet or other technical problems:

> *"A lot of assignments were given in this course. I had some difficulties due to the technological tools I used."* (P18)

"Doing so many assignments online caused some problems pertinent to delivery or recording." (P44)

In addition to the written forms, the semi-structured interviews also revealed that the students did not like doing homework. Two of them expressed their dissatisfaction as in the following:

"If I had a chance to change something, I would lessen the load of homework. Although they were helpful, there were many to do and this sometimes caused problems." (I5)

"I think the number of assignments can be reduced. When the amount of homework is reduced, we can focus on one skill each week" (I8)

In a similar vein, the second code was about the difficulty of vocabulary assignment. The difficulties faced during the intervention were mentioned by one of the participants in the following responses:

"Due to the access problems to the Internet, the vocabulary assignments were sometimes challenging to complete especially out of the classroom.

Evaluation and suggestion forms also revealed that a great majority of the participants had difficulty in the completion of vocabulary writing assignments due to the reasons such as unfamiliarity to this kind of writing, coherence problems and time spent for it. One of the responses given by the participants was as follows:

"Creative writing was a different experience for me. Using a smartphone for completing the writing assignment took more time and caused some problems." (P1)

The data with regard to the participants' perceptions of drawbacks showed that maintaining interest in activities was the most prevalent drawback of the course-related category. A few participants posited the possibility of distraction by the notifications on their mobile phones or other technological devices, the topic or course materials selected and activities implemented. One of them elaborated on this problem as the following:

"The course was nice and entertaining although I may be distracted by the notifications, calls and messages during the activities especially in listening logs ans recordings." (P10)

Table 41 shows that the second drawback encountered in the second category is technological problems. Some of the interviewees justified the absence of the Internet connection and continued with the following sentences to show the limitation of TELL:

"Sometimes, the Internet connection could be a problem." (I1)

"There were sometimes application-related errors and problems, but since they were manageable problems- you have already helped us- we did not have much trouble in general." (I6)

"I can state the Internet connection as a drawback. You know, our class was far away from the central building and it was a little difficult to connect. Thus, I can say the Internet is the only problem." (I7)

"Using technology did not force me, but sometimes I had trouble writing and sending the assignments through the Internet, and recording audio files because I had problems with the Internet or technical problems resulting from my own computer." (I8)

Although most of the interviewees shared similar ideas about the course-related drawbacks in a technology integrated language learning environment, two of the interviewees asserted that technology use may be distracting in some situations. Therefore, distraction was created as the third code in course-related drawbacks. While one of the interviewees emphasized the possibility of being distracted in learning process, another interviewee explained it by giving an example:

"When we utilize mobile phones for learning, some of us may use their phones for different purposes. It mostly happens." (I7)

"As I love technology, I like using it for educational purposes in the classroom. However, when I get a message or a phone call, it distracts my attention. It is difficult to abstain from getting a message or a notification while using a smartphone for learning." (I8)

To sum up, taking the drawbacks indicated by the participants into consideration, it is clear that the content-related demerits can be eliminated by reorganizing the program. Similarly, choosing various applications for different skills helps the instructor maintain the interest of the students. However, abstaining from technological and distraction problems seems difficult to overcome.

Theme IV: Evaluations and Suggestions

In the creation of the last theme, evaluations and suggestions, the eighth and ninth questions in semi-structured interviews and the fifth question in evaluation and suggestion forms shed light to the researcher. In this respect, the participants were requested to evaluate the course and activities done by using technology during the course and to provide suggestions for further courses. However, when the data were examined, it was found out that most of the suggestions were not for betterment of technology use but overall wishes for the issues pertaining to the selected skills and topics. Therefore, the participant quotes in the content-related category are mostly related to integrated skills and activities. Table 42 provides a visual representation of the main categories and detailed codes for each category.

Table 42. *The Evaluation of the Course and Suggestions*

Theme 4: Evaluations and Suggestions			
		N	F
Category 1: Content-related evaluations and suggestions	Alternative speaking and listening activities	7	28
	Alternative vocabulary activities	7	28
	Covering interesting topics	4	16
	Integrating other skills	3	12
Category 2: Course-related evaluations and suggestions	Utilizing various applications	2	8
	Need text-based documents	2	8

As Table 42 shows, the researcher identified "content-related suggestions and expectations" and "course-related suggestions and expectations" out of the analysis of the interviews and evaluation and suggestion forms. Considering the first and second code in the content-related category, the data on the assessment of the course and suggestions revealed that there was a demand for additional activities for the targeted skills. Some of the participants expressed their opinions on this need in the following sentences:

> *"I think creative vocabulary assignments can be improved. For instance, instead of using all of those words, we can decide which ones we will use on our own so that we can write something like a story or we can use each word in a single sentence. I think it would be better instead of using all the target words in the unit."* (I1)

> *"Maybe we could think of something like drama and role-plays or there could be contests in which speech was at the forefront. For instance, the instructor could give us five words to use and we could choose five more words. It would have been more encouraging."* (I2)

> *"We need more listening activities because in order to speak in real life, we need to understand what it is said first."* (P20)

As shown in Table 42, the third code in the content-related evaluations and suggestions category is covering interesting topics. Although most of the interviewees believed that topics were convenient and attractive to study, two of the interviewees stated that more interesting topics could be included into the course content. One of them pointing at this issue expressed her thoughts in this way:

> *"Instead of adhering to the topic presented in the unit, we could choose more attractive topics that were easier to understand while listening and speaking. We were sometimes restricted with the selected topic."* (I3)

Sharing this perspective, one participant offered the inclusion of different topics:

> *"The activities were good. However, I think more interesting topics could be studied."* (P3)

At this point, it should be noted that preferring a great variety of topics to study requires more vocabulary knowledge to understand conversations and talk about them. It also necessitates extra effort for better pronunciation.

As the last code in the first category, some of the students underlined the need for a more comprehensible content including other skills that were reading, grammar and pronunciation. One of the participants expressed her views on this point within the following sentences:

> *"Grammar courses can be sometimes boring because it was a book-based lesson. However, if we add technology to this lesson, then the lessons become more fun and memorable."* (I1)

To exemplify the suggestions on the need for activities on pronunciation and grammar, the following sentences were uttered by two participants:

> *"I think I and my classmates are not qualified enough in grammar. Therefore, if we had done practice on grammar, it would have been better."* (P21)

> *"I think we could study pronunciation as it has an important role in understanding conversations in the target language."* (P34)

As regards the second category, the data also pointed at some of the participants' need for text-based documents albeit they were exposed to a rich context provided by technology and two interviewees expressed their reasons for the requirement for text-based materials by stating:

> *"Due to the Internet connection problems, it would be better if I had a paper-based course material so that I could look at printed documents when necessary."* (I1)

"When we had a copy about what we would do in the lesson, or when I was studying on the parts on the paper, it would be useful both in terms of speech and vocabulary, but if I attended the course without a worksheet, I would have trouble. At least, having a blank paper in front of us enables us to take notes of what we see on the board and we can study our notes when we need it. Hence, I think having a text-based material would be useful for further studies." (I7)

The second code in the second category, utilizing various applications, was offered by one of the interviewees in the following statement:

"We could use a different application for some practices. We used Quizlet for each unit's vocabulary practice. We could have reinforced it with another similar application." (I6)

To sum up, it was intended to deepen the understanding of the impact of TELL on ELT students' achievement with the qualitative data. The analysis of the results of evaluation and suggestion forms and semi-structured interviews exploring the students' experiences during the intervention and their suggestions revealed that the contributions of technology use in the learning process were remarkably more than the problems faced. Additionally, the results showed that most of the difficulties stated by the participants can be minimized with better planning by taking some factors such as the physical environment and students' level into consideration.

Summary of the Chapter

This chapter presented the detailed results of quantitative and qualitative data analysis. The researcher aimed to examine the impact of TELL on ELT students' conversational skills and indirect vocabulary development through the examination of both quantitative and qualitative data. As a result of the analysis of quantitative data, it was concluded that the students improved their targeted skills at the end of the intervention although there was no statistically difference between the control and experimental groups. However, the scores of the experimental group were better than the scores of the control group in total. The qualitative results obtained through the analysis of the evaluation and suggestion forms and semi-structured interviews helped the researcher to understand the drawbacks preventing the learners from getting higher scores and to gain a deeper insight about the advantages of the intervention.

To conclude, while quantitative results revealed the success levels of the participants in vocabulary and conversational skills, the qualitative results showed that TELL was an attractive way of learning whilst there were some technical and pedagogical problems hindering the efficacy of the intervention.

CHAPTER FIVE

Discussion and Conclusion

This chapter begins with the discussion of the quantitative and qualitative results in line with the RQ1, RQ2, RQ3, RQ4, and RQ5. In this respect, the discussion of the quantitative results is followed by the qualitative results and the results of the current study are compared with the findings of related studies reviewed in the literature. After the conclusion section, the chapter continues with practical and pedagogical implications. Finally, recommendations for future research are provided.

Discussion

The main aim of the current study was to examine the impact of TELL on ELT students' conversational skills and indirect vocabulary development. In addition to this purpose, it was intended to explore the students' perceptions of technology integrated course content and activities for language learning in and out of the classroom environment at tertiary level. In this respect, the quantitative data of the study were obtained from the questionnaires regarding the level of digital literacy awareness and the students' attitudes towards technology integrated learning and from the scores obtained through the pre-and post-tests, weekly assignments, self-assessment checklists and mini questionnaires while the qualitative data were gathered through evaluation and suggestion forms and semi-structured interviews. The following section discusses the findings in relevance with each research question.

Discussion of Quantitative Findings

The quantitative findings pertinent to the RQ1, RQ2, RQ3, and RQ4 are discussed in this part.

Discussion of the findings for research question 1.

Before investigating how the intervention differed ELT students' achievement in the targeted skills, the researcher wanted to seek the level of digital literacy awareness among the students in order to create the experimental and control groups. Examining the students' level of digital literacy awareness and their habits in using technological tools would guide the researcher in designing the course content and activities by giving clues about the participants, which had great importance for having an effective learning process and getting positive results.

Therefore, the first research question aimed to explore the students' level of digital literacy awareness. The results revealed that the students in the experimental group were more familiar with technology use than the students in the control group, which served for the aim of the study in terms of having more reliable results.

In her study on the relationship between the perceived digital literacy level of learners and their beliefs about the effectiveness of technology integration into education, Tyger (2011) obtains results similar to those of the present study. This similarity may more likely be due to the characteristics of learners who are more conscious of and interested in technology in education as pre-service teachers. Additionally, as adult learners, they are more aware of their ability of using their digital literacy skills to evaluate their literacy levels. Likewise, in the light of the views of graduate students attending online courses, Prior, Mazanov, Meacheam, Heaslip, and Hanson (2016) shared similar results by indicating that digital literacy and positive attitudes are interwoven and contribute to the self-efficacy of learners in terms of active participation, better performance and interaction in the online learning process. Regarding the findings, learning online through technology at tertiary level has possibly paved the way to reach similar results. Aligning with the results of this study, Son, *et al.* (2017) underline that learners' background knowledge and experiences in digital literacy are influential on the way they utilize technology for educational purposes. Correspondingly, as Godwin-Jones (2015) suggests, being digitally literate is significant to become more autonomous in and out of classroom language learning settings, which entails active participation and success. In this sense, the results of the current study and those in the related literature are in accordance as EFL learners develop familiarity with technology use with the aim of reaching abundant materials, having opportunities to interact and gaining more autonomy in the process of language learning.

Taking the significance of digital literacy into consideration, Yukselir and Yuvayapan (2019) maintain that developing digital literacy skills and raising digital literacy awareness should be essential for EFL learners. Sharing a similar perspective, Akayoglu, Satar, Dikilitas, Cirit, and Korkmazgil (2020) suggest that guidance and training on how to use technological tools for educational purposes should be provided to increase EFL learners' digital awareness. When the participant profile in this study is evaluated, it can be stated that they had some previous experience of using digital tools and reported themselves to be familiar with technology use. However, as they were not used to benefiting from technology for educational purposes, the researcher conducted an orientation program to familiarize the participants with technology integration into language education. Thus, this orientation program can be said to have increased the participants' digital literacy awareness and helped them to develop their digital skills to use technology for educational purposes. In this sense, this result supports the findings of Daulay, Siregar, and Matondang (2020) who express that using technological tools for learning also develops learners' digital literacy skills.

In sum, although digital literacy perceived by the students may differ, there is no doubt that conducting a technology-supported language course with the students who possess different technological devices and who know how to utilize them for educational purposes in a practical way increases the possibility of success. The findings of Tang and Chaw's (2016) study support this claim by pointing at the positive relationship between effective learning and learners' level of digital literacy. Moreover, Tang and Chaw (2016) define digital literacy as a prerequisite of effective learning. Therefore, it can be inferred that the participants' having the desired level of digital skills and the orientation program increasing their digital literacy awareness were the two steps to increase the effectiveness of the implementation.

Discussion of the findings for research question 2.

The second research question of the study investigating the students' attitudes towards technology integration into the language learning process before attending the course revealed that the participants' attitudes were as effective as their level of digital literacy awareness on their achievement. The results indicated the experimental group students had more positive attitudes towards learning with technology, which underlined the significant role of learners' attitudes in their achievement. In this sense, the findings are in parallel with the results of Almaqrn and Alshabeb's (2017) study which show that learners' readiness and their attitudes affected their language development.

After implementing a pilot study in which technology was integrated into the language learning process, Aherrahrou and Makhoukh (2016) report similar results on the relationship between 207 freshmen EFL students' achievement and their attitudes towards technology-supported language learning. Considering the sample size and the academic year of the students, it can be commented that prep and first-year students may be more enthusiastic about learning in a rich context and being exposed to the target language through digital devices as they needed more resources to improve their skills. Consequently, their willingness can be considered to affect the results positively. The findings of the current study also confirmed those in Saidouni and Bahloul's (2016) study in which 80 master students' positive attitudes towards the use of mobile devices especially for the improvement of listening and speaking skills enabled them to be more willing and motivated to learn. Therefore, it can be concluded that the participants in this study and those in the related literature may have held positive attitudes towards technology integration because of the possibility of reaching rich content and opportunities for practice in the target language. Likewise, Alzaidiyeen (2017) who investigates 109 EFL learners' attitudes and their effect on their success pinpoints that being familiar with the tools used in daily life and having positive attitudes towards using them for educational purposes make learners more motivated to learn regardless of the participants' gender, age or academic level. Considering the requirements of the modern age, it can be stated that the students as digital natives are more familiar with technological tools, which may affect their attitudes in a positive way and pave the way for success.

In a similar vein, Grigoryan (2018) points at the importance of students' attitudes in her study in which iPads were employed as a learning tool to promote motivation, satisfaction, perceived self-efficacy and achievement in an-80-hour learning period. The results show that the immediate feedback provided by technological tools motivated 80 freshmen students who may be more willing to learn and need feedback to improve their language skills. Compared to the participants and duration of the current study, it can be stated that beginner learners' positive attitudes contribute to the learning process even in an implementation having longer duration. Studying with younger learner profile, Inal and Korkmaz (2019) find out similar results supporting the positive impact of learners' attitudes on their achievement. This result can be explained with the entertaining learning environment provided by technological tools, which may result in learners' achievement. In an online collaborative learning environment, the findings of Yeh and Chen's (2019) study present the improved language skill with the effect of interaction provided by technology and learners' positive attitudes. Regarding some of the activities implemented collaboratively in the classroom environment and learners' positive attitudes in the current study, it can be stated that the results of the previous study are in accordance with those in this study. Evidence supporting the findings of this study is also presented in Webb and Doman's (2020) study in which it was found out that learners from three different countries using self-reports before a technology integrated course became more capable of digital skills and less anxious about the course. At this point, it can be inferred that making the students more conscious about how to utilize technological tools for learning before the intervention and informing them about what they were supposed to do during the intervention may have minimized their hesitations about technology-supported learning and affected the results.

Similar findings related to the participants' attitudes towards technology integration have been also reported in the research in national context. In their study implemented with 510 students for two semesters, Cakir and Solak (2015) indicate that positive attitudes affect learners' success in a positive way. Comparing the sample size and the duration of intervention in Cakir and Solak's (2015) study to those in the present study, it can be stated that even if the groups were more crowded and exposed to longer interventions, the attitudes of learners towards learning with technology were mainly at the same levels. Studying 98 EFL students' attitudes towards technology use, Baz (2016) also expresses that the participants had highly positive attitudes towards technology integrated language learning, which motivated them in terms of preferring technological tools in the learning process. The positive opinions of the students as pre-service teachers about technology integrated activities saving time and presenting more active participation may have led to the positive results. Evidence presenting the positive impact of learners' attitudes on achievement in language skills has also been reported in Asiksoy's (2018) study regarding 207 ELT students' awareness of educational technologies and their attitudes towards language learning with technology for an academic year. In this respect, considering the similar results reported in both national and international studies, it can be stated that learners' attitudes are highly related to their success in technology integrated learning environments regardless of the sample size, the duration of the implementation, level of the students or context.

In brief, research shows that learners' positive attitudes are one of the main factors affecting the outcomes of the interventions in the language learning process. In this sense, according to the findings of the present study the participants in the experimental group had more positive attitudes towards learning with technology. It can be concluded from the results of present study and those of the related studies that the students' positive attitudes contribute to the effectiveness of the implementation in a positive way. It can be inferred that since they held positive attitudes towards technology integration into education, the participants in the experimental group were more ready and inclined to utilize and benefit from technology while developing their language knowledge and skills. Additionally, their positive attitudes are thought to increase their motivation to study further. Realizing that they can utilize technology not only for entertainment or communication but also for learning, the students may have felt the inner motivation to follow individual studies out of the classroom setting. The more they developed their language skills with the help of technology, the more they were motivated.

Discussion of the findings for research question 3.

The third research question with its sub-questions was devoted to shed light on the comparative impact of TELL and conventional learning environment on ELT students' success in vocabulary development and conversational skills through quantitative data. Dwelling on the common interest of a large number of studies focusing on reading, writing and vocabulary skills

(Elaish, *et al.*, 2019; Shadiev & Yang, 2020; Zengin & Aksu, 2017), the current study is thought to present valuable results for the relevant literature in terms of the improvement of conversational skills as comparatively less studied language skills in research on technology integration into language education.

Discussion of the findings for sub-research question 3.1.

In the scope of the first sub-question of RQ3, the researcher hypothesized that technology integrated language learning would make a significant difference between the experimental and control groups in the development of vocabulary learning. This hypothesis was based on the findings of the previous studies in the relevant literature supporting that use of various kinds of technological tools and applications for vocabulary skill have increased learners' success (Ghobadi & Taki, 2018; Guaqueta & Castro-Garces, 2018; Hassan Taj, Ali, Sipra, & Ahmad, 2017; Kabooha & Elyas, 2018; Liu, 2016; Mahdi, 2018; Rezaei, Mai, & Pesaranghader, 2014; Wang, Teng, & Chen, 2015; Zou, Huang, & Xie, 2019). However, the findings of this study revealed that there was no statistically significant difference between the scores of the post-test belonging to the experimental and control groups despite higher scores of the experimental group students. At this point, as the expected level of vocabulary development was not observed at the desired level in the present study, it can be inferred that technology integrated language learning did not create any difference between the groups regarding vocabulary achievement after the intervention.

Taking higher digital literacy awareness and positive attitudes of the students in the experimental group and the results related to the level of vocabulary development into consideration, the researcher discusses possible reasons affecting the results of the study. Within this consideration, self-directed learning as a student-related factor and the duration of the intervention, instruction, limited resources, exam factor, assessment criteria and national education system as external factors are discussed.

The first consideration is related with self-directed learning as a student-related factor. The insignificance in the results pertinent to vocabulary development may be issued from lack or limited self-directed learning ability of the learners as an internal factor. During the intervention, both formal and informal learning settings were preferred to extend the borders of learning. In this sense, the participants attended a 2-hour-course in a face-to-face classroom environment and were supported through 2-hour-online activities and assignments for 14 weeks. According to the findings of their study in which a significant relationship is found between the self-directed technology use and learners' success, Lai, *et al.* (2016) point at lack or limited self-directed learning ability as a barrier decreasing the potential contribution of technological tools and hindering effective learning. Similarly, the findings of Wu and Huang's (2017) study on a game-based vocabulary learning system point at the learners' self-regulated learning skills as a prominent factor in success. Although multimedia use, word selection in line with the topic and duration of the intervention were similar to those in the present study, learners' capabilities to study on their own can be concluded as an important factor causing the differences in the results of the mentioned studies and that of the present study. In the current study, games were used just as a part of learning activity and played as a group in the classroom and individually out of the classroom. However, the main focus of Wu and Huang's (2017) study was playing games in the classroom environment, which possibly made the participants more motivated to learn. Likewise, the findings of Fathi, Alipour, and Saeedian's (2018) study on vocabulary development and self-regulation supported by Memrise application are not compatible with the findings of the present study despite the similarities in duration of the intervention, sample size and use of application. Comparing the results of two studies, self-regulated learning capacity is found as an effective factor on learners' achievement level as Lei (2018) suggests.

In their study on self-directed learning in out-of-class practices, García Botero, Questier, and Zhu (2019) also report that the results are inconsistent due to the controversy between the students' positive attitudes and actions and they point at the lack of limited self-directed learning skill for this inconsistency. Considering the informal learning environment with mere out-of-class activities, it can be inferred that the students may have had difficulties to take responsibility for their learning and motivate themselves to study when they were not supported through formal learning in the classroom environment. In the light of the results of their study on a game-based vocabulary learning, Deris and Shukor (2019) point at the effectiveness of learners' readiness on obtaining significant results. Regarding the variety of applications used to improve vocabulary skills and the characteristics of learners as postgraduate students in previous studies, it can be stated that learners' familiarity with using technology for educational purposes and exposure to different types of application addressing various learning styles may have enabled the researchers to obtain significant results.

The second consideration has to do with the external factors possibly affecting the results of the study. One of the main factors with an influence on the vocabulary scores can be the duration of the intervention. A 12-week-study may have affected the results of the study in a negative way. In their 4-week-study on vocabulary learning through mobile applications, Basal, Yilmaz, Tanriverdi, and Sari (2016) found contradictory results with this study. At this point, it can be inferred that as long as learners are familiar with using technological tools for language learning, an intervention with shorter duration may enable researchers to have positive results. The findings are aligned with Derakhshan and Kaivanpanah's (2011) study which compares the impact of text messages on 43 EFL freshmen students' vocabulary development for seven weeks and the results show that there was not a statistically significant difference between the scores of two groups in terms of vocabulary learning and retention. Similarly, Zhang, *et al.* (2011) found parallel results in their study in which the students in the control group were as successful as those in the experimental group whilst the experimental group students outperformed the students using traditional ways to learn vocabulary in the short term. Considering the results of two studies reporting similar results to those in the current study, it can be inferred that the students may have been distracted in the interventions having longer durations and the effectiveness of technological devices may have diminished. In other words, the effectiveness of mobile devices may change over time and affect the results in a negative way.

Another possible factor affecting the results may be the scope of the instruction. Underlining the need for more instruction as a possible necessity, Tono (2011) points out that using technological tools may cause learning problems without having proper guidance and instruction in accordance with the results of his study in which learners' success was affected by their misuse of dictionaries. Regarding the current study, the participants were informed about the applications and websites to be used before the intervention in an orientation program. However, some of the students may have needed more clear instruction and modelling on how to use applications and websites in an effective way in and out of the classroom. In other words, despite the participants' familiarity with technological tools reflected in the results of the questionnaires applied at the beginning of the intervention, they may not have been familiar with the applications and websites that would be used for the improvement of targeted language skills. Consequently, the results may have been affected negatively with the possible lack of instruction in practical terms.

Among the possible barriers hindering effective vocabulary learning, limited resources such as access to the Internet, type of technological device, battery life, software and hardware problems can also be mentioned. Although the Internet access is available in the school building, most students especially the ones living at dormitories may have had access problems to the Internet and low battery problems especially out of the classroom. Likewise, small screens of mobile phones and some technical and software problems regarding applications may have resulted in ineffective practices during the intervention. In their study on gaps in technology integration, Hew and Brush (2007) refer to this possibility by considering limited resources as main barriers with the highest percentage in effective technology integration into education. These resource-related factors may have decreased the motivation and concentration of the participants and, consequently, affected the results negatively.

The insignificance may also be due to the exam format as an external factor. Since the participants were required to pass the proficiency exam at the end of the semester to be enrolled in the first grade, they possibly centered their concentration on the final exam. As a result, the students in both experimental and control groups studied hard regardless of the way the materials were delivered in the learning process. In other words, it can be said that the control group students may have compensated the limitations in traditional teaching-learning context through their personal efforts with extra work. A similar conclusion was also reported by Alemi, *et al.* (2012) examining the impact of text messages on EFL students' vocabulary learning compared to dictionary use. The researchers explained the insignificance in the results by referring to the extra efforts the learners in both groups spent to achieve success in the final exam. In line with the results of this study and previous studies in the literature, it can be inferred the students who are expected to pass an exam are more motivated to have additional studies to achieve success, which can negatively affect the results.

Evaluation process can be another possible factor leading to the insignificance in the results. In the current study, the post-test results were the only evaluation criteria to show whether there was a statistically significant difference between the groups. In this sense, the findings of Sherine and MJ's (2020) study on vocabulary learning through MALL contradict with those in the current study. This controversy can be explained by several applications used for vocabulary learning and evaluation processes including tests, exercises, using the target vocabulary in a writing assignment and debate. It can be inferred that the reliance on the post-test as an evaluation tool may have hindered a comprehensive and process-based evaluation and this reliance may have had a negative impact on the results.

Within the consideration of the evaluation process which is commonly based on written exams, the traditional teaching-learning system can also be stated as a possible barrier. Most out-of-class learning takes place with the guidance of the teacher through paper-based homework. Having a written exam tradition required by the national teaching and learning system may cause the problems in practical use of technological tools for language learning as students are not accustomed to conducting out-of-class learning while benefiting from the advantages of technology. Therefore, conventional teaching-learning systems can be said to have affected the results of the study as teachers and students have not fully adapted themselves to follow the required procedures in technology integration into language education yet.

In brief, unlike many studies focusing on the contribution of technological devices to vocabulary development in the relevant literature, the vocabulary scores of the experimental and control groups did not differ in the post-tests. The findings reached in this study can be explained with Lin and Lin's (2019) statements about the factors impeding effective vocabulary learning in four headings: learning setting, duration of the intervention, task-afforded autonomy, and assessment procedures. Considering the learning setting, although the researcher implemented the study in formal and informal learning settings, the students may have needed extra guidance or more clear instruction in formal settings to be more self-directed learners in informal learning settings. A longer duration may have changed the results and the final exam for evaluation may have motivated the students in both groups to study hard. Consequently, different internal and external dynamics stated above may have affected the results.

Discussion of the findings for sub-research question 3.2

Second sub-research question of the RQ3 aimed at exploring whether technology integrated language learning differed the scores of the experimental and control groups regarding listening and speaking skills. The researcher expected to find out statistically significant differences between the scores of the groups in terms of conversational skills. However, unlike the expected results, research findings revealed that there were no statistically significant differences between the pre- and post-test scores of the experimental and control groups.

This insignificance in the results can be explained by Chamot's (2005) statements in which conversational skills are stated as the most challenging skills to improve regardless of the language level of the students. The possible factors impeding learning outcomes may be due to inadequate knowledge as a student-related factor and other external factors such as distraction, course duration, limited instruction, access problems to the Internet, assessment criteria and insufficient integration of technology into course syllabus and curriculum.

Considering the insignificant results in listening skill, the inadequate knowledge of the learners on how to use technology for the improvement of listening skill can be stated as the first possible barrier pertinent to the students. Even if learners were familiar with using any kind of technological devices for various reasons and even using them with the aim of language learning in line with the results of the questionnaires, these activities were not implemented for developing conversational skills. To illustrate, although the students were able to reach and listen to the audio files without having temporal and spatial constraints, they did not use them to improve their listening skill according to their own learning pace. Likewise, in speaking skill, the participants were able to record their own speech by using technological tools, which provided them with an opportunity to listen to their speech and see their mistakes pertinent to grammar or pronunciation. Moreover, they were able to interact with native speakers and other EFL learners all over the world in order to improve their speaking skill in terms of fluency, accuracy, accent and pronunciation. However, they predominantly used their electronic devices to communicate in their native language. In the current study, albeit the participants' abilities and positive attitudes were taken into consideration in creating the experimental group, the students' unfamiliarity with using technology for educational purposes and their limited knowledge may have led to the insignificance in the post-test scores. In his literature review and meta-analysis on technology and language learning, Zhao (2003) points at the significance of the way technology is used in learners' success. The study of Kilickaya and Seferoglu (2013) also provides evidence that learners' knowledge on how to select proper tools and infuse them into their learning practices in an effective way has great importance for success. This idea is also supported with Shadiev and Yang's (2020) view which highlights learners' unawareness of effective use of technological devices for language learning in their review. Although an orientation meeting was held to inform the participants about the tools and applications selected for the intervention, the insignificance of the results may point at the further need to familiarize the students with the process and procedures during the intervention to overcome students' inadequate knowledge of technology use as a barrier to improve their conversational skills.

Learners' distraction while using technological devices especially with the Internet connection can be stated as another possible barrier affecting the results. In the classroom environment, for instance, the students were distracted by notifications, text messages and calls during the activities. Likewise, learners' practices may have been interrupted by similar conditions out of the classroom, which affects language learning in a negative way. In their study on learning with mobile devices, Mendoza, Pody, Lee, Kim, and McDonough (2018) indicate parallel results with this study by pointing at the constant interruptions by notifications through their phones as an effective factor on the students' low scores on the targeted skill. Therefore, the distractions coming along with technology use can be said to have negatively affected the participants' motivation and concentration during the intervention, which may have resulted in the insignificance of the results in this study.

The result of the current study may also be explained by course duration, the Internet access and lack or limited instruction. Cote and Milliner (2018) state course duration and lack of clear instruction as the most common reasons impeding technology integration in an effective way. With the aim of minimizing the possible negative effects of shorter duration, the researcher included out-of-class activities and practices to support the students' learning besides in-class practices. Additionally, a classroom with a smart board and the Internet connection was preferred to minimize access problems in the classroom. The results of the current study are not in accordance with Amiryousefi's (2019) study in which the learners were able to reach abundant materials out of the classroom without having any access problems to the Internet, which offered them extensive practice. Considering the conditions of the students in the current study, it can be inferred that limited access to the Internet out of the classroom may have affected the chance for more practice and their achievement level. Additionally, due to the participants' unfamiliarity with educational technologies, they may have needed more clear instruction in a longer course. In this sense, the findings of the present study support the results of Ozdemir and Aydin's (2015) study in which the insignificant results are explained with the lack of clear instruction. Despite similar context and learners' characteristics, the picture depicted in the results of Ataeifar, Sadighi, Bagheri, Behjat, and Wang's (2019) study shows that instruction is possibly the most effective factor enabling the researcher to obtain positive results in speaking skill. In his study on the effect of digital storytelling on 49 undergraduate EFL students' listening skill for twelve weeks, Tanrikulu (2020) obtains significant differences between the groups. Despite similarities of the duration and sample size compared to the present study, the significant results may be explained with the contribution of multimedia elements rather than using mere audio files and voice recording, which may make the learners more motivated and pave the way for achievement.

In the scope of possible factors hindering success, assessment procedures can be stated as one of the reasons explaining why the intervention did not create a significant difference in the learners' achievement. Regarding the learning context of the current study, the researcher had difficulties in measuring the learning outcomes of the learners because of the factors such as noise in the recordings, other sound-related problems or the format of the recordings. Assessment as a possible barrier has also been reported in Hew and Brush's (2007) study. The use of technology in language education is not a panacea itself but a complementary tool to improve language skills and various factors may affect the results about the effectiveness of technology integrated learning. Therefore, several researchers (Chun, *et al.*, 2016; Felix, 2005) suggest instructors focus on the learning process instead of focusing solely on outcomes and numeric data obtained from a post-test. In this sense, although the students were given listening logs for each unit, the post-test results were taken into consideration on whether the intervention differed learners' success. Therefore, the mere evaluation of post-test may have led to insignificant results.

Limited integration of technology into course syllabuses and curriculum may have also prevented the researcher from getting satisfying results. In his literature review and meta-analysis on technological developments and language learning, Zhao (2003) confirms this deficiency by stating that it is hard to improve learners' success without a revision of course content and curriculum for full integration. The findings are partially similar to the findings of Kilickaya's (2007) study in which a significant difference between the overall scores of the experimental and control groups was not found and the author points at limited integration of technology into curriculum as a possible barrier hindering learners' success. Wang and Smith (2013) express that students are reluctant to be engaged in such tasks requiring technology integration when they are not compulsory or graded as a course work. Considering the context of the current study, the participants were required to do assignments to improve their targeted skills in the content of this course. A fully-integrated course content in line with the curriculum may have affected the findings. This idea is supported by Yang (2013) who indicates that the partial integration of digital tools into the learning process may cause insignificant results. Therefore, the integration of technological tools into the course syllabus can be said to be a core requirement to assess the effectiveness of technology integration into language education.

Based on the results of the current study and previous studies in the related literature, it can be inferred that technology provides several advantages such as flexibility, active participation, interaction, immediate feedback, individualized and group learning in the development of conversational skill when learners are conscious about using technological tools for educational purposes. Otherwise, mere use of technological devices does not guarantee teachers' effective teaching and learners' effective learning. In other words, it can be stated that a perfect research design to explore the effectiveness of technological tools on language learning remains elusive as there are many internal factors such as motivation, beliefs and attitudes and external factors such as learning settings, teaching methods, and evaluation procedure that can influence the intervention process. Consequently, it is not fully possible to confirm the effectiveness of TELL on learners' success under the effects of different internal and external factors.

In sum, despite the insignificance in the results, the current study is thought to contribute to the international and national literature about the effect of technology on the students' achievement in conversational skills when the need for such studies is considered. In addition, this study offers a different perspective as regards integrated learning through technology in formal and informal learning contexts to develop student-centered learning, which has been a rare case studied in existing research. Therefore, the results of this study are expected to guide research on technology integration into the development of conversational skills in language education.

Discussion of the findings for research question 4.

The fourth research question aimed to compare whether there was a statistically significant difference between self-evaluation scores obtained from self-assessment checklists and mini questionnaires of the experimental and control groups. The researcher aimed to enable the students to see their progress regarding the outcomes at the end of each unit. Within this perspective, the present study was expected to contribute to the relevant literature in terms of learners' evaluation of their achievement in EFL. However, the quantitative findings revealed that technology integrated language learning did not significantly differ learners' self-evaluation scores during the intervention albeit the qualitative findings suggested that the students in the experimental group were in favour of the self-evaluation process due to the opportunity to see their progress.

Besides the self-assessment checklists and mini questionnaires, the researcher evaluated the progress of learners through the assignments and observed their performances during the class activities. Most of the students in the experimental group had an active role in the classroom and they were also successful in their assignments. At this point, considering the differences between the quantitative and qualitative results, it can be indicated that the insignificance may be due to the unfamiliarity of the students with the self-evaluation process as a consequence of a teacher-based-evaluation process in our national education system. In the completion of the self-assessment checklists and mini questionnaires, the students may have considered themselves as successful learners regarding the outcomes compared to their classmates who were more passive in learning with technology. Therefore, the students' evaluation scores may be misleading about their progress.

The findings of the present study confirm those of Naderian, Chalak, Foroughi, and Heidari Tabrizi's (2018) study in which a relationship between the instructors' and students' evaluation scores was not found, which can be explained by the students' unfamiliarity with evaluating their own learning. Learners' unconsciousness of the self-evaluation process can be stated as the main barrier resulting in insignificant results in both studies. On the contrary, a study conducted by Suwanarak (2018) to compare the teachers' and students' evaluation practices revealed that EFL learners were able to evaluate their learning process similar to the evaluation of the course instructor, which meant learners were aware of their progress. Taking the difference in the results into consideration, it can be inferred that the use of three different evaluation tools, evaluation forms, tasks and individual interviews, in Suwanarak's (2018) study affected the findings in a positive way. If the researcher in the present study had utilized various tools for self-evaluation, the results may have been different. Likewise, Tsang's (2018) study which uses learner-centered evaluation to improve their success in oral skills suggests a statistically significant difference between the participants' evaluation scores and their achievement level. Considering the differences in the results, the students in the current study reflected personal ideas about their progress through the self-assessment checklists and mini questionnaires different from Tsang's (2018) study in which the students had a chance to evaluate themselves through their classmates' feedback, which may have affected the results in a positive way. Learners' self-evaluation in the written forms without having any feedback or comment on their progress may have affected the results in the present study. In her study on self-evaluation in EFL classrooms, Yazigy (2020) supports this idea on learners' unconsciousness by stating that the students were able to evaluate their progress more accurately in time albeit they were not ready at the beginning of the intervention. Considering 540 students' self-evaluation scores and duration, it can be inferred that most of the learners may have had difficulties as they were not accustomed to evaluating themselves in terms of their achievement. However, utilizing various evaluation tools in a longer period may provide researchers more reliable results.

Unlike the results of many studies focusing on the effectiveness of technological tools on different variables in language education, the quantitative findings of the current study did not provide a statistically significant difference between the self-evaluation scores of the experimental and control groups. In other words, technology use did not affect learners' self-evaluation process in a positive way. In order to have a better understanding of the reasons behind this situation, the findings of qualitative data are discussed in the following paragraphs.

Discussion of Qualitative Findings

The qualitative results pertinent to the RQ5 are discussed in this part.

Discussion of the findings for research question 5.

In the scope of RQ5, the researcher aimed to examine the participants' perceptions of and suggestions pertinent to the course content and supportive activities implemented in and out of the classroom. The qualitative data obtained through evaluation and suggestion forms and semi-structured interviews in this study indicated that language learning in a technology integrated environment offered the learners many advantages such as exposure to the target language, collaboration, motivation, communication and interaction, more practice in limited time, and flexibility independent from time and place, which was also underlined in related studies (Ahmad, 2012; Gurgenidze, 2018; Howard & Scott, 2017; Kessler, 2018; Le Thi, 2020; Rao, 2018). Although there was no statistically significant difference between the scores of the experimental and control groups regarding the targeted skills and the participants pointed at some drawbacks of using technology for language learning, they dominantly reported that technology use for educational purposes contributed to their success in the targeted skills during the intervention. In the light of qualitative findings, there are four themes to be discussed.

The first consideration is related to the attitudes towards TELL which was the first theme of the content analysis. In the light of the results, it was concluded that the participants' positive expectations before the intervention were converted into satisfaction after the intervention. The analysis also revealed that some of the participants felt anxious about learning with technology or they were not sure what they were supposed to do during the intervention. However, the codes created under the after-the-course category showed that learners became more conscious of using technology with the aim of developing language skills and they felt more self-confident in using different kinds of technologies, websites or applications for language learning. At this point, it can be inferred that experiencing a technology-supported language learning helps learners become aware of these kinds of technologies and their contributions to the learning process. Additionally, students become more capable of using digital tools for educational purposes.

In this respect, a study on the effectiveness of mobile language learning conducted by Jabbour (2014) presents similar results supporting the positive impact of technology use on learners' attitudes, success and overall learning process. Likewise, the results of the present study coincide with the results of Izadpanah and Alavi's (2016) study focusing on 340 learners' attitudes towards using technological tools in language education and reporting the positive results regarding the benefits of technology use. Likewise, the results of the present study are in accordance with Wang's (2017) study which explores the impact of mobile learning on learners' success and satisfaction level. The results indicated that the students in the experimental group outperformed the control group and had higher scores in terms of satisfaction. Taking the variety of departments included in the study into consideration, it can be stated that even if learners have different backgrounds and majors, they are satisfied with their ability and success due to a technology integrated learning environment. Having more learner-centered instruction and an active role in the learning process may have resulted in the satisfaction of the students. Similar results on the relationship between technology use and satisfaction were also obtained by Zhonggen, Ying, Zhichun, and Wentao's (2019) study in which achievement and satisfaction level besides cognitive load of 340 university students were examined. Regarding the characteristics of the students as adult learners, it can be indicated that adult learners may be more capable of using technology, which increases satisfaction and success. The findings of the current study are also in parallel with those of Qi's (2020) in terms of presenting learners' more positive attitudes towards and perceptions of technology use after the implementation. This progress may indicate that learners are accustomed to using technological devices for various personal and social purposes such as communication, entertainment, purchasing, reading, research, and fun (Park, 2011; Wang, Wu, & Wang, 2009) rather than using it for learning and teaching (Stockwell, 2010). As they become familiar with the use of digital tools for education, they have a chance to improve their abilities and feel satisfied regarding their competency.

The second consideration in the discussion of qualitative findings is about the contributions of TELL as the second theme. Regarding the number of the codes in this theme, it can be stated that the students favoured the use of technology as a complementary tool in and out-of-classroom activities in the language learning process. In the scope of course-related contributions, learning in an enjoyable setting was encountered as the most salient contribution of technology use stated by the participants. Similar results were presented in Herrera Díaz, Cruz Ramos, and Sandoval Sánchez's (2014) study which underlines the entertaining and comforting language learning environment provided by technological tools. Using various kinds of activities through different websites such as Edmodo and Quizzes to improve the target skills may have affected the learners' perceptions positively. The findings are also in line with Aydin's (2018) study in which it is indicated that the use of technological tools for language learning can minimize the negative effects of affective variables hindering successful learning and provide a more entertaining learning environment. A study conducted by Celikbas (2018) to examine the effectiveness of online courses on learners' success and opinions revealed that the participants preferred technology use due to its advantages such as an enjoyable learning environment, an opportunity for interaction and saving time in a material-rich and more flexible learning setting. These results are not surprising especially for EFL students who need abundant and authentic materials to be competent at the target language, which is provided by digital tools. Setiawan and Wiedarti (2020) also present similar results in their study in which the positive effect of Quizlet as a vocabulary learning tool to increase learners' motivation and provide an entertaining learning environment was found out. Obtaining similar results may be highly due to the characteristics of learners who are capable of using various websites and applications in a conscious way to learn by taking responsibility for their learning.

In the scope of course-related contributions category, the participants also stated that they had an opportunity to see their progress especially through listening and speaking logs. They were able to compare their previous and current recordings to see whether their pronunciation, fluency and accuracy developed or not. Similarly, the use of technological devices with the Internet access provided them with rich materials and numerous activities that are appropriate in line with their learning styles and pace. In addition, receiving immediate feedback after completing the activities or assignments helped them realize their deficiencies and motivated them to study more. Another code emerging from the content analysis was the opportunity for interaction and collaboration provided by technological devices. In the current study, Quizlet and Google Classroom enabled learners to interact with each other both in and out of the classroom through games and other activities. The qualitative results of the study conducted by Gurkan (2018) to examine whether a mobile-assisted vocabulary learning application developed by the researcher improved learners' vocabulary skill according to their learning styles revealed that using technology for language learning enabled the instructors to address the students having different learning styles while motivating them in the learning process and increasing their success. Considering the process of the current study, the researcher used both visual and aural elements as much as possible, which possibly encouraged the participants to highlight the contribution of TELL in their learning process. Sumardi and Muamaroh (2020) support this idea by pointing at the role of technology in interaction with native speakers or other EFL learners all around the world besides making them more active learners. Considering the sample size and age of the learners, it can be stated that adult learners were more willing to take part in the activities implemented through technology compared to conventional classroom environments. In addition, with the help of interaction, the participants were able to pronounce the words in a correct way and learn about daily use of the target language, which confirmed the findings of Zahra, Hussain, and Shahwar's (2020) study highlighting the positive impact of technology on learners' speaking skill especially in terms of fluency.

In the light of the participants' statements in this study, it can be indicated that technology provided learners with the chance to recognize their mistakes during the intervention. Nearly all the participants pointed at the opportunity to see their mistakes both in listening and speaking logs as using a mobile device to record their voices and listening to their speech enabled them to feel themselves more confident and comfortable compared to face-to-face communication. Miangah and Nezarat (2012) explain this idea by stating that during face-to-face communication, speakers may have some concerns such as mispronouncing a word or forgetting the word they want to say while practicing through technology minimizes these concerns.

The third consideration of RQ5 discussion is related to the problems the students had during the intervention under the theme, the drawbacks of TELL. In the scope of the third theme, the participants mostly complained about homework load and difficulty of writing assignment while the main barriers were indicated as maintaining interest, technological problems and distraction. The students pointed at the topics studied as a barrier for maintaining interest in the content-related drawbacks while they mentioned the difficulty of vocabulary assignment as another drawback in this category. Although the content-related drawbacks could be minimized with better course planning, technological and distracting problems caused by notifications through technological devices were the ones the researcher had difficulty to overcome. The findings of the present are in parallel with those of Murray, Giralt, and Benini's (2020) study which evaluated 215 students' perceptions of technology use in terms of distraction over three years and concluded that due to the time spent online, the students were liable to distracting elements in their learning process, which may affect their concentration and success. Several researchers (Kalugina & Tarasevich, 2018; Kay, Benzimra, & Li, 2017) also highlight the similar problem about distraction elements and technical problems decreasing the quality of the learning process. In their comparative study on the effect of mobile phones on learning and learners' attention, Mendoza, *et al.* (2018) point at the distracting elements impeding effective learning. Regarding formal and informal learning contexts in the current study, it can be inferred that although technological tools are effective in the learning process, they may distract learners' attention and result in insignificant results.

The fourth and last consideration is about the participants' evaluations and suggestions about TELL. Considering the codes in this theme, the participants stated that using alternative activities for the targeted skills would help them improve their proficiency levels. At this point, it can be stated that use of technology may enable learners to make more practice in a limited time and the researcher to integrate various language skills into the learning process (Azmi, 2017; Kessler, 2018). In the scope of course-related evaluations and suggestions, the participants also pinpointed the need for various applications and offered the use of text-based materials. Taking technological drawbacks and access problems into consideration, learners' need for text-based materials is not a surprising demand.

Regarding four themes obtained through content analysis, it can be inferred that although the participants had some hesitations and problems caused by lack of limited knowledge and unfamiliarity with technological tools, technology integrated language learning provided the researcher and learners with many advantages in terms of developing language skills. At the end of the intervention, they became more capable of using technological tools for educational purposes in terms of improving their language skills despite the statistical insignificance of the quantitative results in this study.

To sum up, with the help of various technological devices, the ways languages learned have changed (Hwang, Tsai, & Yang, 2008). Correspondingly, technology-supported language learning can be regarded as an effective way of language learning as it offers many advantages for teachers, instructors and learners. Therefore, teachers and instructors should leverage the advantages of growing technologies in their classrooms while there should be more in-depth research on the development of language skills.

Conclusion

The current study contributed to the literature by exploring the impact of TELL on vocabulary development and listening and speaking achievement of ELT prep-class students. As a further aim, it was intended to examine the perceptions of the students and find out their suggestions about technology integrated language learning through evaluation and suggestion forms and semi-structured interviews. The findings revealed that TELL did not make a statistically significant difference in vocabulary development and conversational skills of the experimental group students compared to the scores of the students in the control group instructed in a conventional setting. However, the qualitative data demonstrated that the students had positive perceptions regarding technology-supported learning in and out of the classroom as they were able to reach abundant materials in the target language, have flexibility in terms of time and setting, be more active learners in the learning process, collaborate and interact with other learners besides individual learning, and receive immediate feedback in a more student-centered learning setting. Furthermore, the students indicated in semi-structured interviews that TELL provided a more enjoyable learning environment, improved positive attitudes and made them more confident about technology use and more active in the learning process. Therefore, it was concluded that mobile technologies had a positive impact on learner achievement by providing many advantages in and out of classroom environments during the language learning process. In the light of the results of this study, several practical and pedagogical implications can be made.

Practical and Pedagogical Implications

The current study is likely to suggest practical implications that will be helpful for teachers/instructors and course designers who are interested in language education with technology. Initially, in accordance with the findings of the previous studies, the study showed that technology-supported language learning could provide many advantages such as promoting learners' ability to use technological devices for educational purposes, boosting interaction, collaboration, providing exposure to the target language, promoting individuality and flexibility in a material-rich learning context and offering more effective learning. Additionally, the qualitative results elucidated the participants' perceptions regarding language learning with technology and their suggestions about the course content and activities for further courses in the light of their experiences. They also pointed at the motivating impact of games during learning and an opportunity to see their progress and mistakes through recordings, which led to positive experience and progress. Therefore, it can be stated that integrating technological tools into education process via course syllabus and curriculum helps teachers and students have a more effective learning process.

In line with the discussion section of the present study, it should be kept in mind that teachers and instructors should have required technical and pedagogical skills by receiving theoretical and technical training or being guided about how to integrate digital tools in an effective way into the learning process. In this sense, the objectives of the course, targeted skills, the websites or applications to be used should be clarified by taking the infrastructure of the school and ability and possession of the students into the consideration with the aim of obtaining expected outcomes. All learners should be able to have the Internet connection in and out of the classroom for seamless learning. They should also be aware of the problems they face and capable of minimizing or eliminating the possible barriers. At this point, it should be noted that the way and the extent technology is used may affect the success level of the learners in terms of the skills. Otherwise, the effectiveness of the learning process may be hindered.

The findings of the present study is thought to shed light for teachers/instructors and students in terms of effective integration of digital devices into education process by stating possible barriers impeding the achievement. In addititon, teachers/instructors are guided in terms of having a better planning, assessment criteria, and targeted skills to provide an efficient learning process by minimizing possible negative effects of extrinsic factors.

Regarding the findings of the present study, some pedagogical implications are also offered as to the integration of technological tools into EFL vocabulary development and conversational skills with the aim of providing guidance for instructors, teachers and students. Despite the insignificance of the results in the targeted skills, the qualitative findings elucidated that the use of technological devices with the Internet connection in language education helped the participants reach the authentic and abundant materials in a more interactive and collaborative learning setting independent from time and space. The motivating role of digital tools on learners' achievement was also confirmed by the students' comments on the intervention. Almost all students favoured the use of technology in language learning. In this respect, a technology-supported language learning as a practical way is suggested for learners and teachers in order to enrich the quality of learning process, motivate learners, and minimize the negative feelings and barriers especially faced in the improvement of listening and speaking skills in a conventional learning setting at tertiary level. Additionally, it was concluded that there was an improvement of the target skills despite statistically insignificant results between the groups. Especially playing games online enhanced vocabulary knowledge of the participants. At this point, it can be inferred that using various applications for different skills assisted the learners to improve their knowledge in vocabulary and provided them chances for practice besides enabling teachers to do more exercises during class time and keep learners active out of the classroom. Therefore, it is suggested to use different applications to promote learners' knowledge in and out of the classroom, which has great significance in the improvement of conversational skills. Different from the positive comments, some of the participants stated that more interesting topics should have been selected to attract attention. Therefore, teachers should choose the content according to the interest of the learners and their proficiency levels.

Taking the mostly stated benefits and drawbacks of technology integrated language learning in the relevant literature into consideration, the current study clears the points needed to be taken into consideration such as the selection of digital tools, websites, or applications to be used, the skills aimed to be improved, the proficiency levels of the students, the digital tools the students have, the infrastructure of the school and the availability of the Internet connection out of the school, the readiness of the students and their capabilities to use technological tools before creating a technology-supported course syllabus by teachers for effective language teaching. In order to obtain more reliable results, teachers should also decide on the course content, intervention process and evaluation criteria.

Innovations in technology field including useful websites and applications for language learning have necessitated all stakeholders of education system to make regulations for more effective teaching and learning process. In this sense, teachers and instructors should be supported with technological and pedagogical knowledge to promote their teaching practices through digital devices so that they can be good role models for their students and encourage them to use technology for educational purposes. Having an effective learning process provided by good role models who are qualified about teaching with technology and improving positive attitudes towards learning with technology motivates pre-service teachers to use technology in their courses in the near future. In a similar vein, students should be informed about how to use digital tools for educational purposes and they should be supported in terms of individual learning for out-of-classroom activities to be more capable of using digital tools to improve their language skills.

In brief, technological tools have a great potential to develop vocabulary knowledge and conversational skills in a more entertaining environment. Likewise, the use of technology enables learners to study individually and as a group, provides authentic materials and minimizes the temporal and spatial problems. Therefore, it is suggested different kinds of technological tools and applications should be integrated into language learning to help learners boost their language skills, which decreases the barriers encountered in the conventional learning environment. However, the effectiveness of technology use in language education depends on several factors such as learners' and teachers' familiarity, requirement of technical and pedagogical skills, and attitudes. In the current study, despite the familiarity of the students with technology, they were guided on how to use the digital devices for educational purposes by the researcher. The setting with the access to the Internet and smart board was preferred to have an effective learning process. These factors should be taken into consideration while implementing a technology-supported language learning in the development of vocabulary and conversational skills. Apart from teachers and students, administrators and curriculum designers should also be aware of this need and prepare programs according to the needs of the learners as digital natives. After all, teachers are required to have technical and pedagogical knowledge besides content knowledge with the aim of knowing what to teach and how to teach by integrating technology into language education process.

At this point, Stockwell and Hubbard (2013) present 10 principles in the light of previous studies to be taken into consideration for an effective integration in the scope of methodological and pedagogical implications. Principle one indicates the significance of considering the affordances and limitations pertinent to technological tools and learning and teaching environment to be selected. Principle two points at the selection of one task at one course and inhibition of environmental distractions in order to avoid stress level, error rate, and low productivity. One task should be chosen by inhibiting the factors that distract the students' attention. Principle three specifies that learners should get reminders at intervals to get their attention to the learning tasks. Principle four refers to the equality of possession of mobile devices to have similar opportunities to study. Principle five is related to addressing learner differences in terms of learning styles and possession of various devices and locations where learning or teaching takes place. Principle six refers to making them aware of using technology for educational purposes in line with the ways they have already used and cultures of use.

Principle seven means preferring short tasks or dividing long ones into chunks in order to keep students awake. Principle eight underlines the consistency of learning tasks, technological tools, and the environment. Principle nine is related to the necessity of guidance and training of learners who have a prominent role in this process. Lastly, in principle ten, it is suggested to know about the stakeholders affected by and affecting the process. In the light of the practical and pedagogical implications given in the scope of the current study and the principles offered for an effective technology integration, some suggestions are given for further studies in the following section.

Further Research

The related literature and trends in language education indicate that the use of technology for educational purposes is a necessity in order to meet the needs of digitally native students in the modern world. The present study examined the impact of technology-supported language learning on 48 prep class students' achievement in terms of EFL vocabulary development and conversational skills for one semester at ELT department at a state university. In this respect, the main aim was to contribute to the relevant literature regarding the effectiveness of technology for the improvement of listening and speaking skills that were comparatively rarely-studied in international and national contexts. Additionally, the participants' perceptions of technology use were taken into consideration after the intervention. Based on the quantitative and qualitative findings of this study, the researcher offers some insights for further research.

Initially, it should be noted that the results of this study are specific to the academic setting it was conducted. Hence, the results are not generalizable to broader contexts. Bearing this in mind, it is suggested for researchers to focus on conversational skills by using various web pages and applications on targeted skills in order to fill the gap in the related literature and highlight the significant contribution of technology use to the learning process compared to conventional learning settings as the impact of conversational skills in a technology-supported language environment deserves to be explored in relation to EFL learners' success by taking the possible factors hindering success into consideration.

Pointing at the gap in the literature, the researcher suggests implementing studies with a similar research design with a larger population and in a longer period in a well-designed course to clarify the role of TELL at tertiary level in different contexts. Consequently, two limitations of the current study regarding sample size and duration of the intervention can be minimized. In addition, gaining a more comprehensive insight may help researchers in the field for better empirical research and shed light for curriculum designers to create a more technology integrated syllabus.

By minimizing the limitations in the present study and filling the gap in the literature, more valid and generalizable results on the impact of TELL in further studies can be obtained. With the aim of reinforcing the understanding of the impact of technology in language learning, further research should also focus on the impact of intrinsic and extrinsic variables such as motivation, autonomy, technical problems and physical environments affecting the learning process.

Another recommendation for further studies is to inform learners and teachers on how to use technology in the education process in an effective way before the implementation. Therefore, it is highly recommended that learners should be conscious about learning with technology to be familiar with technological tools and instructors and teachers should be trained about technology use and encouraged to enrich their course content with technological tools according to the level of the students and the skills aimed to be improved. In this way, the students are able to use technology more consciously during the learning process and as pre-service teachers, they will be qualified in terms of required technological and pedagogical knowledge. As other stakeholders, teachers and instructors should be informed about trained technical and pedagogical skills.

To conclude, the present study has valuable findings that should be taken into consideration while planning language courses and selecting activities supported by technology in EFL context. While the study contributes to the gap in terms of studied skills in the literature, it also draws attention to the reasons causing insignificance in the results. For this reason, it is believed this study will be a guide for researchers who are interested in integrating technology in language learning to improve communicative skills with a better-planned course with more effective activities.

Summary of the Chapter

This chapter presented the discussion of the research questions of the current study in the framework of the previous studies in the relevant literature. In this sense, the results of quantitative data were discussed in the scope of RQ1, RQ2, RQ3 and RQ4 by presenting possible factors preventing the researcher from obtaining significant results. Similarly, the results of qualitative data were discussed within RQ5 by exemplifying the findings of similar studies that supported the positive impact of learning through technological tools on learners' achievement and the contribution of technology use to learning environment. The discussion of quantitative and qualitative results was followed by the methodological and pedagogical implications. The chapter ended with the suggestions for further studies.

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APPENDICES

Appendix-A. Pre-Questionnaire and Consent Form

The Questionnaire

Dear Friends,

The questionnaire below is prepared to determine your attitudes and perceptions towards the use of mobile devices for language learning and your information and communication literacy level. The questionnaire consists of three parts. In the first part, there are personal and educational questions in order to collect demographic information. In the second part, there are questions about your attitudes and perceptions towards mobile learning. In the third part, there are questions about your opinions about mobile learning.

Please be honest while answering the questions and choose the one that describes you best.

Thank you.

PART I

1. Gender : ☐ Female ☐ Male
2. Age :
3. What kind of high school did you graduate?

   General high school ☐ Anatolian high school ☐

   Science high school ☐ Vocational and technical high school ☐

   Social studies high school ☐ Religious vocational high school ☐

   Others (Please specify): …………………

4. Your high school major : Social Studies ☐ Science Studies ☐

   Linguistics ☐

5. What kind of mobile devices do you have? (You can choose more than one)

   Personal Computer ☐ Laptop ☐

   Smart Phone ☐ Tablet ☐

   Electronic dictionary ☐ iPod ☐

   Others (Please Specify) ………………………..

6. How many hours do you use your mobile device a day?
   ……………………….
7. For what purposes do you usually use your mobile devices?

Informed Consent Form

Dear student/ participant,

This questionnaire will be implemented to determine your attitudes and perceptions towards the use of mobile devices for language learning and your information and communication literacy level in order to improve your listening and speaking skills through mobile devices. I invite you to join in this study. It is on voluntary basis to participate and the data will be used only for scientific studies. The participant's profile will not be shared. If you accept to be a participant for this study, please sign this form.

I participate in this study voluntarily. I accept that the information I give will be used for scientific studies.

Participant's name and surname:

School Number:

E-mail:

Date: .../.../201 Signature:

Appendix-B. Speaking Rubric

	Fluency	**Pronunciation & Accent**	**Vocabulary**	**Grammar**
5	Smooth and fluid speech; few to no hesitations; no attempts to search for words; volume is excellent.	Pronunciation is excellent; good effort at accent.	Excellent control of language features; a wide range of well-chosen vocabulary.	Accuracy &variety of grammatical structures.
4	Smooth and fluid speech; few hesitations; a slight search for words; inaudible word or two.	Pronunciation is good; good effort at accent.	Good language control; good range of relatively well-chosen vocabulary.	Some errors in grammatical structures possibly caused by attempt to include a variety.
3	Speech is relatively smooth; some hesitation and unevenness caused by rephrasing and searching for words; volume wavers.	Pronunciation is good; Some effort at accent, but is definitely non-native.	Adequate language control; vocabulary range is lacking.	Frequent grammatical errors that do not obscure meaning; little variety in structures.
2	Speech is frequently hesitant with some sentences left uncompleted; volume very soft.	Pronunciation is okay; No effort towards a native accent.	Weak language control; basic vocabulary choice with some words clearly lacking.	Frequent grammatical errors even in simple structures that at times obscure meaning.
1	Speech is slow, hesitant & strained except for short memorized phrases; difficult to perceive continuity in speech; inaudible.	Pronunciation is lacking and hard to understand; No effort towards a native accent.	Weak language control; vocabulary that is used does not match the task.	Frequent grammatical errors even in simple structures; meaning is obscured.

Score:
_________/20

Appendix-C. Digital Literacy Scale

PART II

Please read the statements below carefully and put (X) to the grid that best describes you.

5	**4**	**3**	**2**	**1**
Strongly Agree	Agree	Neither	Disagree	Strongly Disagree

Information and Communication technologies (**ICT**): The integration of technology into education to improve learning and teaching process.

PDA: Personal digital assistant

	Strongly agree	Agree	Neither	Disagree	Strongly disagree
	5	4	3	2	1
1. I like using ICT for learning.					
2. I learn better with ICT.					
3. ICT makes learning more interesting.					
4. I am more motivated to learn with ICT.					
5. I frequently obtain help with my university for from my friends over the internet e. g. through Skype, Facebook, Blogs.					
6. ICT enables me to be a self-directed and independent learning.					
7. I know how to solve my own technical problems.					
8. I can learn new technologies easily.					
9. I keep up with important new technologies.					
10. I know about a lot of different technologies.					
11. I have the technical skills I need to use ICT for learning and to create artefacts) e. g. presentations, digital stories, wikis, blogs) that demonstrate my understanding of what I have learnt.					
12. I am confident with my search and evaluate skills in regards to obtaining information from the Web.					
13. There is a lot of potential in the use of mobile technologies (e. g. mobile phones, PDAs, iPods, smartphones, etc) for learning.					
14. Teachers/Lecturers should use more ICT in their teaching of my classes.					
15. ICT enables me to collaborate better with my peers on project work and other learning activities.					
16. I have good ICT skills.					
17. I am familiar with issues related to web-based activities e.g. cyber safety, search issues, plagiarism.					

Appendix-D. Attitude Scale

PART III

Please read the statements below carefully and put (X) to the grid that best describes you.

7	6	5	4	3
Strongly Agree	Agree	More or less agree	Undecided	More or less disagree

2	1
Disagree	Strongly disagree

Mobile Learning: An educational system supporting the learning process via smartphones, laptops, tablets and other electronic devices. It provides learning whenever and wherever you want.

	Strongly agree	Agree	More or less agree	Undecided	More or less disagree	Disagree	Strongly disagree
	7	6	5	4	3	2	1
1. I have the necessary skills for mobile learning.							
2. I am a skillful user in menu or software for mobile learning with mobile devices.							
3. I have confidence in complementally using computer and mobile devices for mobile learning.							
4. I understand computer and mobile devices terms well for mobile learning.							
5. Learning with mobile device is necessary for my major study.							
6. Learning with mobile device can help my major study.							
7. Learning with mobile device can help to find a job in the future.							
8. I can easily get information or contents for mobile learning.							
9. Mobile devices have good compatibility with other computer devices.							
10. It is easy to access the Internet and search mobile learning.							
11. Mobile learning is significant meaning as a university student.							
12. It is necessary to perform the mobile learning according to recent social needs.							
13. I need to experience mobile learning for my future job.							

14. I have intention to perform mobile learning.							
15. I am positively going to utilize mobile learning.							
16. I have continuing concern about mobile devices of information to perform mobile learning.							
17. I will be a power user in mobile learning.							
18. Studying through mobile learning is a good idea.							
19. I like to search learning contents that download in mobile devices of learn.							
20. I am positive towards mobile learning.							
21. Mobile learning would improve my learning performance.							
22. Mobile learning can improve efficiency of learning.							
23. Mobile learning gives me more effects of learning.							
24. It is easy to download and save learning contents with mobile devices.							
25. It is easy to use menu of mobile devices and software.							
26. It is easy to use mobile learning contents.							

Appendix-E. Samples of Self-assessment Checklists and Mini Questionnaires

What happens to our trash?

Self- Assessment

	Agree	Undecided	Disagree
1.I was able to speak easily about the topic.			
2.My partner, group, class understood me.			
3.I used vocabulary from the unit.			
4.I summarized what I heard.			

Mini Questionnaire

	Agree	Undecided	Disagree
1.I can recognize a speaker's attitude.			
2.I can take notes on what I have heard.			
3.I can summarize.			

Why are good manners important?

Self- Assessment

	Agree	Undecided	Disagree
1.I was able to speak easily about the topic.			
2.My partner, group, class understood me.			
3.I used vocabulary from the unit.			
4.I gave advice and I made recommendations.			

Mini Questionnaire

	Agree	Undecided	Disagree
1.I can predict (for listening)			
2.I can organize notes.			
3.I can give advice and make recommendations.			

Appendix-F. Post-test (Achievement Test)

Erzincan Binali Yıldırım University
Faculty of Education
Department of English Language Teaching
Listening Section

Name & Surname:
Student Number:

Directions: The listening section consists of 3 parts and 20 questions. Each question is 1 point. You will listen to the conversations or the lectures only once.

PART-1:

Questions 1-5

Listen to the conversation and then fill in the blanks from 1 to 5.

Do not write more than two words and/or a number for each answer.

Example question	**Answer**
Destination:	Harbour City

1. Express train leaves at **(1)** …………………….
2. Nearest station is **(2)** …………………….
3. Number 706 bus goes to **(3)** …………………….
4. Number **(4)** ……………………. bus goes to station
5. Earlier bus leaves at **(5)** …………………….

Questions 6-10
Listen to the rest of the conversation and then fill in the blanks from 6 to 10.

Do not write more than one word and/or a number for each answer.

Transport	**Cash fare**	**Card fare**
Bus	**(6)** $ …………	$1.50
Train (peak)	$10	$10
Train (off-peak) – before 5pm or after **(7)** ……… pm)	$10	**(8)** $ …………
(9) ………… ferry	$4.50	$3.55
Tourist ferry (**(10)** …………)	$35	–
Tourist ferry (whole day)	$65	–

PART-2:

Listen to the conversation between a student and the registrar and then answer the questions from 11 to 14.

11. Why does the man go to see the registrar?

(A) To find out why he is not on the list of graduating students
(B) To explain why he has not fulfilled his graduation requirements
(C) To find out the exact requirements for graduation
(D) To submit a document required for graduation

12. According to the registrar, what step is currently taken to ensure that students fulfill their graduation requirements?

(A) Academic records are regularly checked by the registrar's office.
(B) Students meet with a department chairperson to plan their course work.
(C) Students receive letters listing the courses that they still need to take.
(D) Warning letters are sent to students who have fallen behind in their course work.

13. Why does the man mention his classmates?

(A) To explain how he obtained information about field research
(B) To point out that many students like to do field research
(C) To show that it is difficult to get intermediate-level credits
(D) To emphasize his motivation to do field research in two of his courses

14. Why does the registrar tell the man to contact his chairperson immediately?

(A) A deadline has already passed.
(B) The man has a limited time to resolve his problem.
(C) The man first needs to find out if the chairperson will help him.
(D) Issuing a new grade may take longer than expected.

PART-3:

Listen to the lecture about population growth and then answer the questions from 15 to 20.

15. Which of the following is defined as the number of children born per 1000 people per year?

(A) Replacement Level
(B) Fertility Rate
(C) Birth Rate
(D) Fertility Level

16. Which of the following countries in the UK has the highest fertility rate?

(A) England
(B) Scotland
(C) Wales
(D) Northern Ireland

17. Why is fertility rate in the UK higher than it was twenty years ago?

(A) Couples are choosing to have larger families.
(B) A higher proportion of women are having children.
(C) Women who delayed childbirth are having children now.
(D) Fewer women are interested in their careers.

18. What proportion of women in their mid-forties do not have children nowadays?

(A) 4%
(B) 10%
(C) 25%
(D) 40%

19. What do French couples who have eight children receive?

(A) a car
(B) a gold medal
(C) £200,000
(D) a house

20. Which of the reasons for low fertility rates is NOT mentioned?

(A) Women are increasingly focused on their jobs.
(B) People want to enjoy their lives before taking on responsibility.
(C) Parents do not have time to have many children.
(D) Children are considered to cost a lot of money.

Erzincan Binali Yıldırım University
Faculty of Education
Department of English Language Teaching
Conversational Skills Exam (Listening Section)

Name & Surname:
Student Number:

Answer Sheet for Listening Section

Listening Part 1:

Questions 1-5:

1.
2.
3.
4.
5.

Questions 6-10:

6.
7.

8.
9.
10.

Listening Part 2:

11.
12.
13.
14.

Listening Part 3:

15.
16.
17.
18.
19.
20.

PART-4:

In questions 21 to 35, choose the correct word that completes the sentence. There are extra words.

Record	**Database**	**Poison**
Biological	**Marine**	**Realize**
Developer	**Coincidence**	**Database**
Inherit	**Tendency**	**Survive**
Current	**Landfill**	**Camouflage**
Rude	**Concrete**	**Deal with**
Courteous	**Sustainable**	**Supplies**

21. Don't let the children touch that. It is rat ………………… It can hurt them.

22. Most pets can't ………………… in the wild. They need people to take care of them.

23. I want to use natural materials in my home, like wood and stone, not blocks of …………….

24. We can ……………………. this birdhouse. We can paint it the same color as the tree.

25. When teachers have to spend time ……………………… bad behavior, they have less time to teach other things.

26. If salespeople are ……………………., they will probably make more sales.

27. A(n) …………………… needs special skills to make computer games. He or she has to know a lot about computer programming.

28. I always thought video games are silly, but now I …………………….. they can be a lot fun.

29. John has a(n) ……………………. to move his hands when he speaks.

30. We …………………. physical things, like eye and hair color, from our biological parents.

31. Our school library has an electronic …………………………. with the titles of authors of all the books in the library.

32. The city keeps …………………… of all the people who were born or died here. They file and keep track of them all.

33. I was on the bus the other day, and I ran into an old friend I haven't seen in years. What a (n) ………………….! I didn't know he lived near me.

34. The ocean ……………………. can move plastic, wood and other things for very long distances. It constantly pushes things around in the water.

35. The city build this park on an old ……………………….. We are having a picnic where they used to put garbage.

PART-5:

Match the words stated below from 36 to 45.

__ 36. Compost	A. to find the amount of
__ 37. Fit in	B. to look different from the things around
__ 38. Predator	C. to look like the things around
__ 39. Blend in	D. To get along easily with a family or group
__ 40. Etiquette	E. Using natural materials and energy in a way that can continue without harming the environment
__ 41. Manners	F. A mix of dead plants and old food that helps plants grow
__ 42. Stand out	G. Related to the city, not the country
__ 43. Figure out	I. an animal that kills and eats other animals
__ 44. Sustainable	J. pleasant behavior that shows respect for other people
__45. Urban	K. acceptable behavior in a culture

PART-6:

Choose 5 words above to use and make a sentence for each.

46.

47.

48.

49.

50.

Speaking Questions

1. Describe a place (e.g., a city, a historical building or an ancient site) you have recently visited. Provide some general facts about this place and tell us whether you like it or not
2. Talk about a festival or celebration that you attended (e.g., What was it? Where was it? How did you celebrate it? Did you have fun? etc.)
3. “Face to face learning is superior to online learning” Agree or disagree? Provide some sound examples.
4. “*Smartphones can be a useful educational tool.”* Agree or disagree? Provide some sound examples.
5. “*Teachers should friend students on social networking platforms (e.g., Facebook, Instagram).”* What do you think about this statement?
6. “*Computers and Internet access at home reduce students’ test scores.”* Agree or disagree? Provide some sound examples.
7. In your opinion, what is the greatest technological invention? Why do you think so?
8. Do you think modern technology reduces or increases stress? Why?
9. Is using the Internet a social or solitary activity? Why do you think so?
10. How would your life be different without the Internet?
11. What would your life be like without a phone? What solutions are there for people to keep their phone usage under control?
12. How might growing up with social media affect the next generation’s ability to communicate?
13. What do you think are the advantages and disadvantages of social media?
14. If you could uninvent any piece of technology, what would it be and why?
15. What do you think will be the next biggest technological advance?

16. What differences are there between the attitudes of older and younger people to technology for communication?

17. Do you think that the rate of technological expansion will slow down in the years to come? Why or why not?

18. Do you agree with the following statement? Why or why not?
    - It is better to start learning a foreign language at an early age.
19. If you were to start learning another foreign language (e.g., German, Spanish, Russian), which one would you prefer: learning from a non-native speaker of that language or learning from a native speaker of that language?
20. Based on your experiences, what are the effective ways of learning a foreign language?
21. Which language is the most difficult to learn for you? Why?
22. Why do some people have more difficulty than others when learning a foreign/second language?
23. How important is grammar in the process of language learning? Can someone learn a language without any proper grammar instruction?
24. Is it possible to teach yourself a foreign language? In what areas may you need an external help?
25. Some people say "I'm no good at learning languages". Is this just a question of attitude or were some people born lacking the ability to learn a new language?

26. Can you think of some disadvantages of being monolingual (i.e., someone who doesn’t speak any other languages apart from his/her mother tongue)?
27. Do you think that learning a second language affects the learner’s personality as well?
28. In your opinion, what is the threshold of being advanced speaker of the target language? At what stage of language learning process would you consider someone as an advanced learner?
29. Do you think that learning the first language and learning a second language follow the same patterns?
30. Are you concerned about the environment? If so, what do you think is the biggest environmental issue? And why do you think so?
31. What do you know about the global warming? What solutions can you think of to decrease it?
32. In what ways does the weather influence our daily lives?
33. Which one do you think is worst: being out in uncomfortably hot weather or uncomfortably cold weather? And why do you think so?
34. What are 3 things individuals can do to help the environment?
35. What are some local environmental problems you have noticed?
36. Do you think houses will be more environmentally friendly in the future?
37. Where do you think we will get our energy when we run out of oil?
38. Which sport would you not let your child play? Why?
39. What are some of the benefits of doing sports?
40. Do you think the types of sport that are now popular will change in the future? Why or why not?
41. What are the advantages of hosting different international sporting events in a country?
42. How can we encourage children to participate in different types of sporting activities?
43. Why do you think sport is important?
44. Do you think famous sportspeople are good role models for children?
45. Do you agree that sports stars earn too much money?
46. Do you prefer playing or watching sports? Why?
47. Who is your favorite all-time sport star? Why do you think so?
48. George Orwell said: "Serious sport has nothing to do with fair play. It is bound up with hatred, jealousy, boastfulness, disregard of all rules and sadistic pleasure in witnessing violence. In other words, it is war minus the shooting." Do you agree?
49. Would you like to play sport for a living? Why or why not?
50. Is football (soccer) THE world sport? Provide some solid examples.
51. John Wooden said: "Sports do not build character. They reveal it." Do you agree?
52. Is sport an important part of education? What does it teach people?
53. People compete in sport, games, the economy and many other areas of life. What is good and bad about competition?

54. Some suggest that people who are good at sport, are not intelligent. What do you think about this stereotype?

55. If you could choose to do a sport you've never tried, which one would you choose?

56. Do you think fishing is a sport? What about chess, darts or pool?

57. Why do you think people like risky sports?

58. How important is it for a city to have beautiful architecture?

59. Do you think that architects should follow the latest trends? Why or why not?

60. A famous architect said: "Buildings should serve people, not the other way around." What do you think this means? Do you agree? Why or why not?

61. Imagine you want to paint your house. What color do you choose? Why?

62. Do you think some animals use color for camouflage or as a warning? Explain and give example.

63. What are some ways people use color as camouflage or as sign of danger? Explain and give example.

64. What companies do you identify with a particular color? Give examples and mention about the reason you guess in terms of colors' meanings.

65. How did you learn about manners or etiquette? Give examples.

66. Do you think parents or schools and friends are more effective on individual's good manner?

67. "Life is a game." Do you agree with this statement? Why or why not?

68. Do you think family members have to be blood-related? Why or why not?

69. Which do you think has more influence on your personality: biology, people and events in your life? Why?

70. Is it important to learn about your family history? Why or why not?

71. "A gram of blood is worth more than a kilogram of friendship" is a Spanish proverb. What does this mean to you?

72. What is your personal solution to make the world better in terms of your trash and recycling?

Appendix-G. Evaluation and Suggestion Forms

Prep:

2019-2020 ACADEMIC YEAR

ELT

EVALUATION OF THE COURSE AND SUGGESTIONS

Please evaluate the lesson and if you have, make suggestions especially related to the activities used in the classroom and outside of the classroom.

Please write your answers sincerely because your opinions and suggestions are really important for further activities and course content.

You do not have to write your name but STATE your SECTION (A or B)

1. What are (were) your perceptions about the lesson during (before) the semester?
2. What do you think about the activities implemented in and outside of the classroom? Are they useful to learn? If yes, please explain. If not, please state your opinion. (Please state the kind of the activity, For example: For listening, listen and fill, listen and summarize, listen and guess or discussion, watching videos)
3. What were the activities you enjoyed, you got bored in, you were affected by most in terms of skills? Please explain. (Please state the kind of the activity similar stated above)
4. Do you think you have a progress about the skills implemented (vocabulary, listening and speaking)? Please explain.
5. Do you have any suggestions or critics related to course content and activities? Please give examples or explain. (Please state the kind of activity)

Thanks for your sincere answers.

Ayşe Merzifonluoğlu

Appendix-H. Semi-structured Interview Questions

1. What are the perceptions regarding the activities/ course design before the application process?
2. Did your perceptions change at the end of the process? How? Please explain.
3. Did you think the activities helped you develop your language skills (Vocabulary, listening, and speaking)?
    1. How they affected your development in terms of vocabulary, listening, and speaking? Please specify the activity type.
4. What were the overall contributions of the activities in the process?
5. Do you think using smart board or text-material is more effective in the learning process? Which one do you prefer? Please explain.
6. What do you think about the feedback?
7. What were the overall drawbacks of the activities in the process?
8. How else could the process be conducted? What sorts of activities could be integrated?
9. If you have an alternative about creative writing assignment, what would you offer to improve your vocabulary skill?
10. Is the burden of homework just related to this course or you mean generally all courses' assignments?
11. Were self-assessment tests and mini questionnaires useful to see your progress?
12. Did the process affect your attitudes towards vocabulary learning/ development?
13. Did the process affect your attitudes towards listening learning/ development?
14. Did the process affect your attitudes towards speaking learning/ development? (Recording (Speaking on your own) is useful or not?)

    Anxiety, self-efficacy, consciousness, planning, reflection and self-regulation

    1. Did the activities contribute to the way you develop your vocabulary?
    2. Did the activities contribute to the way you develop your listening?
    3. Did the activities contribute to the way you develop your speaking?

Appendix-I. Official Permission Form Obtained from EBYU Faculty of Education

T.C.
ERZİNCAN BİNALİ YILDIRIM ÜNİVERSİTESİ REKTÖRLÜĞÜ
Öğrenci İşleri Dairesi Başkanlığı

Sayı : 93368059-302.08.01-E.32875 12/07/2019
Konu : Uygulama İzni (Ayşe MERZİFONLUOĞLU)

ATATÜRK ÜNİVERSİTESİ REKTÖRLÜĞÜNE
(Öğrenci İşleri Daire Başkanlığı)

İlgi : 01.07.2019 tarih ve E.1900193565 sayılı yazınız.

Üniversiteniz Eğitim Bilimleri Enstitüsü Yabancı Diller Eğitimi Anabilim Dalı İngiliz Dili Eğitimi bilim dalı doktora öğrencisi Ayşe MERZİFONLUOĞLU'nun **"Geleneksel Bilgisayar ve Mobil destekli Öğrenme Ortamlarında İngilizce Öğrencilerinin Okuma ve Yazma Becerilerinin Geliştirilmesi: Karşılaştırma Çalışması"** konulu tez çalışması kapsamında Üniversitemiz Eğitim Fakültesinde uygulama yapma isteği tez çalışmasını kendisi yapması koşuluyla uygun görülmüştür.

Bilgilerinize arz ederim.

e-imzalıdır
Prof. Dr. Adnan ÖZEL
Rektör a.
Rektör Yardımcısı

Adres : Erzincan Binali Yıldırım Ünv. Rektörlüğü 24100/Erzincan
Telefon : 0 (446) 226 66 66 **Dâhili:** 12012
E-mail : ogrenciisleri@erzincan.edu.tr **Bilgi İçin:** G. BAKIR CİNGÖZ/M. KAVLAK
Web : www.ebyu.edu.tr
Faks : 0 (446) 226 26 60
KEP : erzincanunv@hs02.kep

K-Q TSE-ISO-EN 9000

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T.C.
ATATÜRK ÜNİVERSİTESİ REKTÖRLÜĞÜ
Öğrenci İşleri Daire Başkanlığı

Sayı : 88179374-300-E.1900209633 17.07.2019
Konu : Uygulama İzni (Ayşe MERZİFONLUOĞLU)

EĞİTİM BİLİMLERİ ENSTİTÜSÜ MÜDÜRLÜĞÜNE

İlgi : 1.7.2019 tarihli 56785782-302.08.01-E.1900192508 sayılı belge

Enstitünüz öğrencilerinden AYŞE MERZİFONLUOĞLU tarafından yapılan tez çalışmasının uygulaması ile ilgili olarak Erzincan Binali Yıldırım Üniversitesinden alınan 12.07.2019 tarih ve 93368059-302.08.01-E.32875 sayılı cevabi yazı ekte gönderilmiştir.

Bilgilerinizi ve gereğini rica ederim.

Prof.Dr. Medine GÜLLÜCE
Rektör Yardımcısı

Ek : 12.7.2019 tarihli 93368059-302.08.01-E.32875 sayılı belge

Atatürk Üniversitesi Merkez Yerleşkesi 25240 Erzurum
Tel: +90 442 2311601
Elektronik Ağ: http://www.atauni.edu.tr/#!birim=ogrenci-isleri-daire-baskanligi
Kep Adresi: atauni@hs01.kep.tr

Bilgi: Cevahir KARTA
Faks: +90 442 2361026
E-Posta: odaire@atauni.edu.tr

CURRICULUM VITAE

Personal Information

Name & Surname: Ayşe MERZİFONLUOĞLU

Place of Birth: Merkez/Erzincan

Date of Birth: 20.11.1988

Educational Background

Bachelor's Degree: Department of English Language Teaching, Education Faculty, Ataturk University

Master's Degree: Department of English Language Teaching, Graduate School of Educational Sciences, Ataturk University

Doctorate Degree: Department of English Language Teaching, Graduate School of Educational Sciences, Ataturk University

Publications

Koc, H. K., Dincer, A., & **Merzifonluoglu, A**. (2018). An Investigation of English language teachers' viewpoints on the intensive English language teaching program for young learners. In *International Learning Teaching and Educational Research Congress* (pp.415-416). Amasya: KIBATEK

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Work Experience

2013-2017: Teacher of English Language – MoNE

2017-Present: Research Assistant- EBYU, Department of English Language Teaching

Contact

E-mail Address: ayse.merzifonluoglu@erzincan.edu.tr