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THE EFFECTS OF A MOBILE PHONE APPLICATION ON TURKISH EFL STUDENTS' GRAMMAR LEARNING

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	Tezin Adı	Bir cep telefonu uygulamasının yabancı dil olarak İngilizce öğrenen Türk öğrencilerin gramer öğrenimi üzerindeki etkileri

ÖZET

Bu çalışmada bir cep telefonu uygulaması ve sanal öğrenci yanıt sistemi olarak adlandırılan *Socrative* uygulamasının öğrencilerin gramer öğrenimi üzerine olan etkileri bulunmaya çalışılmıştır. Çalışma bir vakıf üniversitesinin mühendislik fakültesi 1. sınıfında okuyan öğrencilerle gerçekleştirilmiş. Çalışmada veriler karma desenle nicel ve nitel yöntemlerle toplanmıştır. Nicel veri çalışma öncesinde kontrol ve deney gruplarına uygulanan ön-test ve son-test ile toplanmıştır. Çalışma boyunca deney grubunda cep telefonlarından çözdükleri sorularla ilgili anında geri bildirim alabildikleri sanal sınavlar, kontrol grubunda ise klasik kâğıt sınavlar uygulanmıştır. Nitel veri çalışma sonunda deney grubuna uygulanan açık uçlu anket aracılığıyla toplanmıştır. Nitel veriler tematik kodlama yöntemiyle elde edilmiştir.

Çalışmada elde edilen nicel verilerin sonuçlarına göre uygulamanın kullanımı öğrencilerin İngilizce öğrenimi üzerinde olumlu etkiler gözlemlenmiştir. Tematik kodlama yöntemiyle ulaşılan nicel verilere göre ise öğrencilerin *Socrative* programıyla motivasyonlarının arttığını, anında geribildirim sayesinde daha iyi öğrendikleri saptanmıştır.

Sonuç olarak bir cep telefonu uygulamasının sınıf içi kullanımı daha iyi öğrenme sonuçları ortaya çıkartmıştır. Aynı zamanda öğrencilerin teknolojinin öğrenme deneyimlerine entegre olmasına yönelik olarak olumlu bakış açıları geliştirdiği gözlemlenmiştir. Mobil teknoloji İngilizceyi daha iyi öğretmek için sınıflarda kullanılması önerilir.

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	Tezin İngilizce Adı	The effects of a mobile phone application on Turkish EFL students' grammar learning

SUMMARY

In this study, it was aimed to find out the effects of *Socrative*, a mobile phone application called online student response system, over the students' grammar learning. The study was carried out at a private university with freshman students studying in the different departments of the engineering faculty. A mixed-methods design was applied and the data were collected quantitatively and qualitatively. Qualitative data were collected through a pre-test and post-test which were taken by the control group and experiment group. Throughout the study, the experiment group did online quizzes in which they were able to receive immediate feedback while the control group did paper quizzes. The qualitative data were gathered through an open-ended survey. The quantitative data were analysed through thematic analysis.

According to the quantitative results of the study, it was revealed that the use of an online student response system application had a positive effect on the students' learning English grammar. The results were also supported by the qualitative data revealing a higher motivation and better learning thanks to the use of the mobile application.

The pedagogical implications are that the use of a mobile phone application in the classroom yielded better learning results; furthermore, the learners were observed to develop positive views towards the implementation of technology into their learning experience. It is recommended that mobile technology should be used to teach in the classroom better.

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LIST OF ABBREVIATIONS

SRS: Student Response System

MALL: Mobile Assisted language learning

CALL: Computer Assisted Language Learning

IF: Immediate Feedback

EFL: English as a Foreign Language

MA: Master of Arts

CHAPTER 1

This chapter covers a general view of the English language teaching and technology and it focuses on the close relationship between teaching English and the use of technology. In the first place, a statement of the problem will be given. Following the statement of the problem, the aim of the study and the research questions will be explained. Finally, information regarding the limitations of the study will be presented.

1. Introduction

The world has been changing in an unprecedented way and technology, undoubtedly, is the driving power behind this progress with its amounting effects observed in almost every aspect of our lives. Sasvari (2013) sets forth that the society that humankind lives in has transformed into a hub of information by means of which technology can be observed in all aspects of the social life along with its amounting effects on many issues ranging from economy, politics, art, sports to daily life.

Technology has dramatically changed the way we work, study, shop and communicate. There are a number of tools that are used to make our daily lives much easier. Communication barriers are lifted and distances are shortened thanks to technology. Education is one of the fields in which technological developments can be effectively utilized so better results can be achieved out of learning efforts put by students.

According to Stošić (2015), with the use of technology in the classroom students are given the opportunity to decide on their learning pace, to select their own learning materials freely in addition to following their progress, which constitutes a major advantage compared to the conventional way of learning. The numbers published by different institutions approve the huge scope of technological aptitude people enjoy. According to the report published in 2015 by Organisation for Economic Co-operation and Development (OECD), Turkey is the second country in regards of using the

Internet via mobile phones with 50 percent. According to the Information and Communication Technology (ICT) survey carried out by Turkish Statistical Institute in 2016, the proportion of households with mobile phones in Turkey was 96.9 percent. The report also indicates that 82.4 percent of the individuals used the Internet to participate in social networks. Another report released by the Information Technologies Authority (BTK) shows that the number of the Internet subscribers in Turkey has increased by 126 percent over the past four years, which also pointed a sharp rise in mobile internet use (Yılmaz, 2017).

It is palpable from the numbers given above that people possess high tendencies towards making use of technological advancements. The most prominent tools resultant of this ever-developing technology are mobile phones and the Internet. Technology is a significant determinant in the decision of giving shape to how the English lesson is conducted and students learn (Baker, 2015). Parvin and Salam (2015) argue that today's foreign language classroom makes use of some kind of technology, adding that it is almost unusual to come across a classroom in which technology is not resorted to. McGrail (2007) puts forward that technology-oriented approach is a must that cannot be ignored as it is needed for creating a better learning environment as well as higher motivation and engagement.

Drawing attention to the fact that possessing the capability of being a competent user of technology in the 21st century, Lewis (2017) emphasizes the importance of the necessity of making technology a part of learning and teaching processes. It is nearly impossible to assert that an English language teaching classroom that is isolated from the up-to-date technological devices and opportunities can be conducted in an effective way.

It can be stated that many educational institutions ranging from nurseries to universities have been integrating technology into their teaching atmospheres through implementing projectors and smart boards. In this sense, Bradwell (2010) delineates technology as the main factor that steers the structural evolution at educational institutions, underlining that being able to reach various resources of information via

multiple channels such as the Internet, social media and other online tools through which effortless and speedy access to content is made possible is the reason behind this dynamic progress. Mobile phone applications, emerging platforms where we witness an increasing number of mobile programs have been continuously developing for educational purposes, can be utilized beneficially so as to strengthen learning outcomes expected from students. Giving room to the use of mobile phones in foreign language teaching is associated with better results in learning, albeit the limited number of studies that express the same stance on the issue (Başoğlu & Akdemir, 2010).

According to Poushter (2016), Turkey is one of the developing countries where the highest rise in the number of people who are able to use the Internet or own a smartphone is observed, pointing out that the smartphone ownership in the country is high with 59% compared to the advanced countries. Hoştut (2010) asserts that mobile phones, which once used to have a very restricted use apart from calling or sending a text message, started to be used for a number of different objectives as they were equipped with novel capabilities allowing people to listen to music, play games or surf on the Internet. Smart-phone ownership in Turkey has skyrocketed among almost all age groups, and this has led to people to become more engaged in mobile phone applications for different purposes.

1.1. Background to the Study

Being able to use the foreign language renders it a compulsory situation to make use of the available learning strategies (Magno, 2010). Recently, many of the learning strategies have gathered around technological improvements and some of these strategies technology come into prominence. Today, education is an inseparable part of the constant technological breakthrough (Moeller, Corl, Ricaurte &Abrate, 1998).

There is a widespread belief that technology-based instructions can contribute greatly to the quality of teaching and learning experience (Altun, 2015). It is obvious that learners have a much better potential for developing their language skills on the

grounds that their learning environment and strategies are scaffolded by technology; therefore, technology-oriented learning and teaching approaches play a key factor in helping learners achieve what they aim in terms of learning English as a foreign language.

English language teaching or -in a wider scope- second language teaching/learning has moved away from its former phase where finding the perfect teaching method was the main objective to focusing on how to help learners as well as teachers to achieve their goal in better comprehension (Rezaei, Mai & Pesaranghader, 2014). In this search of 'how', technology emerges as an ultimate facilitator through which teachers are able to design more effective syllabuses ornamented with and supported by means of technological gadgets.

Since the early 1990s, technology has revolutionized teaching and learning milieus and aids across disciplines via scaffolding, assisting and supplementing traditional classroom learning materials and activities (Fageeh, 2013). Today mobile language learning is considered as one of the fastest growing area in education field according to Horizon report in 2011 (Johnson, Smith, Willis, Levine & Haywood, 2011, p.18).

Mobile applications are the teaching aids which are based on computer technologies making use of sight or sound. Nowadays, it is possible to come across mobile technologies almost everywhere, which is in a way that is connected to each other (Alqahtani & Mohammad, 2015, p.102).

Hashim, Ahmad and Ahmad (2011) state that mobile technology use could benefit learners by making them a part of interactive learning. Mobile learning is accepted as an assistive tool that allows learners of English to be engaged in learning with a more satisfactory and motivating way. Mobile devices, which can be in the form of tablets, smart phones and personal computers, have been an integral part of English learning (Zou & Li, 2015).

In recent years, developments in communications technology have enabled mobile phones to be equipped with high accessibility features like Wi-Fi and 3G/4G, thus making it possible to pursuit a more technology-forwarded teaching and learning strategy in English as a foreign language. It can be observed that classroom practices imbued with the potential of advanced technology create a basis upon which learners with different backgrounds and from different nations across the globe can learn English effectively (Kim, Rueckert, Kim & Seo, 2013, p.54).

Agbatogun (2012) posits that language learning occurs in the most effective way especially on condition that students are given the chance to get into interaction with each other and find themselves in situations where they are exposed to the target structures in authentic contexts. This above-mentioned interaction can be created through technology in the classroom upon which both teachers' and students' needs as well as expectations converge.

It is considerable to emphasize that there has been a wide range of technological advancements in the field of digital media affecting people's lives either directly or indirectly, and language education, teacher training policies, examinations, curriculum documents and materials have yet to keep up with and ponder over this transformation that has become so much part of many of our learners' lives during this stage (Walsh, 2010). To be able to make use of technology applicable in the classroom, it is greatly remarkable to have teachers trained and ready to use it in an effective way.

As a consequence of this situation, the shift that we have been going through, in which the conventional teaching philosophy has been superseded by the modern technology-supported teaching philosophy, makes a prerequisite for today's teachers to become skilled users of the ever-developing technologies, software and mobile phone applications that are launched to the market almost every single day (Ahmad & Farrukh, 2015, pp.94-95).

Being a lingua franca, English language teaching makes it a prerequisite for educational institutions and teachers to keep up with technology as closely as possible and embed it into their teaching methods and techniques. By the same token, teachers should know in what ways learners are benefitting from their mobile devices, ponder over activities that are appropriate for mutual interaction for a definite group of leaners and they need to set the level of the tasks in accordance with this assessment (Chapelle & Sauro, 2017). Out of the dynamics that have given shape to the curriculum of EFL in the last quarter of this century is technology probably the most influential factor that has been most adopted by course-books in the sphere of English language teaching (Dickinson & Neuman, 2007).

The method in which users take advantage of mobile platforms is called mobile learning (m-learning). Mobile Assisted Language Learning (MALL) is becoming famous everywhere especially in Europe, the United States and parts of East Asia that are of English medium (Mastura, Nor & Polish, 2011). There are a number of reasons why there is a growing propensity for use of technology in English language teaching classrooms. A number of people resort to technology because it provides ease of connection and ease of portability in addition to the fact that it is almost impossible to meet someone not having a mobile phone (Samsiah & Azidah, 2013).

One of the most apparent advantages of integrating mobile phones into English teaching is that it has the ability to act as a bridge between the learner and the target language where the language and learner come across frequently on a more personal basis with a higher opportunity of reflection and preferences. These are the devices which are able to pinpoint any problems during interaction as they happen, to encourage ongoing consideration, and to make it possible to choose from reasonably-priced education sources to match individual's selections and particular needs (Chapelle & Sauro, 2017).

Emerging from the mobile-assisted language learning technology, student response system requires both hardware and software in order to direct questions, collect answers and present feedback. Question types may range from multiple

questions, rank ordering to open-ended questions and true/false questions. The overall objective of the system is to develop interaction and foster learning. There are also many other reasons for using such a system including taking the class register, collecting student opinion or feedback, providing them with surveys or questionnaires as well as tracking students' progress.

There are a lot of different combinations of terms that are used to refer to the same technology; student response system could be called in the literature as classroom response system, electronic student response system, clickers, personal response system and audience response system. During the first stages of this technology, the devices that were used to aggregate answers from students were clickers. Clickers first entered the higher education sphere in the 1990s and they were favoured a lot by faculty as they were able to get into contact with everyone in large classrooms (Roll, 2017).

Clickers are hand-held devices used by students to answer questions that are displayed on the board. These devices are connected to the computer in the classroom through infrared technology. The computer collects the answers and processes them. Mork (2014) establishes an analogy between B. F. Skinner's behaviourist approach according to which a stimulus and reinforcement are the required elements so that learning takes place. In the case of clickers, questions are evaluated as stimulus that trigger learners to give answers. Additionally, he underlines that this technology opens space for team work and active learning.

Traditional student response system evolved into online student response system with the advent and expansion of wireless internet connection, thus eliminating the necessity of possessing the clickers. Online student response system, which stems from the potential of mobile assisted language learning driven by the advancements lying behind the growing technological improvements in the 21st century, is an emerging area upon which online integration between the teacher and the learner can be established in different ways and for disparate purposes. Online student response

system is regarded as a remarkable educational tool among others in this developing technology (Moeller & Reitzes, 2011).

To put a general framework, the systems through which students are able to respond to surveys, multiple choice questions, open-ended questions prepared by teachers using their smart phones, tablet computers, laptops and etc. are called online student response systems.

Online student response systems allow in-class practices to be integrated into technology with ease. Online student response systems can more easily be put into practice in the classroom due to the fact that they run on web-based platforms, and these systems enable students to use any browser and any device to carry out the 'clicking' that is essential for him to partake; students approaching their subject study from more sophisticated approaches along with online student response systems (OSRSs) have higher levels of motivation and engagement. They are associated with their high capacity for motivating learners and get them engaged, thereby enriching traditional teaching approaches (Mork, 2014).

Online student response system has been used for over fifty years. Thanks to the developing opportunities that make technology and education gather together easier the popularity of its use is on the increase. As mentioned above, previously-used classical student response system was based on clickers, devices through which students were able to respond the questions addressed to them. The system was transformed into wireless technology, thus making it redundant to supply these devices with students and this improvement enabled it to be used on popular mobile operating systems like IOS and Android.

Upon the introduction of wireless technology and the Internet prevailing much more, the system started to be called online student response system. Online student response system is defined as a collection of web-based student response tools that will keep students engaged and allow teachers to gain real-time insight into student comprehension (Tangischools.org, 2018). There are a number of mobile applications

that are available on the market with different features but the underlying tenet behind all these programs converges on the principle that they allow students to respond interactively through their electronic devices, which could be either their mobile phones, tablets or laptops.

Students are able to utilize these applications without having to download them as well. The only thing they need to do is to get into the website of the application and put in the code that is provided by the teacher for students to be able to enter the online classroom in which they will be asked questions which have been prepared by the teacher ahead of the class.

Socrative is one of the most commonly-used applications among the other mobile applications that work on the basis of online student response system. A web-based program, *Socrative* requires minimum material preparation for the teacher except with quizzes that need preparing before, and it can be directly used with no charge in a classroom in which internet connection is available. For the teacher to be able to prepare online quizzes, s/he needs to sign up and create an account through which different types of quizzes can be created. Students can see the questions on their personal devices. Anytime the teacher wants, s/he logs into the website or launches the program directly so as to start a quiz of her or his own. The screen can also be projected to the board via a projector so that everybody in the classroom can follow their own progress and pace.

Unlike the teacher, students do not have to create an account to participate in a questionnaire as it is enough for them to be provided with a 'room number'. The program allows the teacher to prepare questions in different formats ranging from multiple choice questions, true/false and through open questions to which students are expected to write their own answers. Students are able to set their own pace as answering the questions, however, the teacher also can set a specific time limitation for them to complete the quiz. Students can answer the questions anonymously or with their names visible and the order of questions in addition to answers can be selected in a random way. The teacher can monitor the progress of students with the data showing

how many students are actively participating in the questionnaire and how many questions they have answered. Upon getting a question wrong, students can immediately receive the feedback involving the explanation of the point that needs further clarification in a pop-up window so they can realize their strengths and weaknesses regarding the subject point, however, feedback to each question should be prepared by the teacher in advance.

When the quiz has been completed, the final results of the quiz can be downloaded and recorded both as a graph and in the Excel format, which helps the teacher to keep a track of the progress of the classroom observed. The questions can be used for future classes and they can be shared with other colleagues, too. The teacher can revise the questions by modifying, adding or deleting them. Owing to the advantages of the application enumerated above, *Socrative* will be selected and put into more in-depth research of this thesis study.

1.2 Purpose of the Study

It is an undoubted reality that we are living at the age information and in this sense having access to information is extremely important. Furthermore, information is estimated to double every 10 to 20 hours in a few years to come (Rosenberg, 2017). As is the case, learning English can be asserted to provide a precious key to reaching the world of knowledge.

The Internet, which is one of the main sources and means of reaching information rapidly and effortlessly, is almost totally based on English as it is pointed out by Reddy, Mahavidyalaya and Hyderabad (2016) accentuating that the rate of the websites whose language is English is around 80 per cent. Given these numbers, it would be a critical mistake to envisage an education program that turns a blind eye to English.

According to the report published by Hootsuite and We Are Social (2018), the number of the Internet users in Turkey is about 55 million and there are around 44 million active social media users. It is also noteworthy that Turkish users check their mobile phones every 13 minutes a day (In Turkey, smartphone users, 2018). The numbers shared here help us understand the huge scope of mobile phone technology in our country and are enough to signify the importance of the study. The purpose of this study is to investigate the effectiveness of the use of mobile applications on students' learning of grammar of English.

For this purpose, the mobile application *Socrative* will be chosen among a dozen of other applications working as an online student response system tool. The research aims to evaluate the effects of online quizzes that students will take via their personal mobile devices with a comparison to the effects of traditional paper-based quizzes. The study tries to find out whether *Socrative*, an online student response system, to be introduced to the study group, will produce a significant effect on students' learning English grammar.

1.3. Significance of the Study

Foreign language teaching preserves a vital place in the education policies designated by the state while the success of foreign language teaching in our country has been questioned and it has been harshly criticized as a result of low scores students receive from the exams that are organized both on the national and the international level. According to the Education First English Proficiency Index which was published in 2014, a standardized test whose target is to measure the English proficiency level of countries, Turkey was ranked forty seventh out of sixty-three countries. There can be listed a number of reasons why Turkey is that low on the basis of English language teaching/learning.

It would not be incorrect to assert that the education system in Turkey possesses many elements that need revising so that high standards in English language teaching

can be achieved across the country. It is evident that English language teaching in Turkey is quite below the expectations, which is a truth also accentuated by Bodur and Arıkan (2017) expressing that learners are far away from being competent users of English although many years are spent over learning the language. Some of the primary problems undermining the English language teaching are listed by Aktaş (2005) as the insufficiency of English language teachers, students' unwillingness to learn the language, poorly-conducted foreign language teaching methods and inappropriate teaching materials as well as unsuitable learning environments. Inefficient use technology is one of the reasons that bring out the failure as well.

According to Vale, Özen and Alpaslan (2013), Turkey cannot draw upon technology in a way that brings about success in spite of the fact that the state has recently put great efforts in equipping schools with such technological devices as tablet computers and smart boards. They also stress that technology-related problems mostly include matters regarding the low quality of hardware and software, maintenance of the devices in addition to insufficient training given to teachers. Lack of teachers who can make use of technology effectively is one of the points underlined by Meriç (2015) who draws the attention to a disharmony between teacher training programs and real-world classrooms, adding that there is a high tendency among pre-service teachers towards using the technology in the classroom though their eagerness is curbed by such reasons as the lack of necessary facilities.

In this context, it is an undeniable fact that questions regarding the implementation and the integration of technology into the classroom plays a key role in overcoming the problems encountered on the way to achieving successful foreign language teaching objectives.

Smart phones, portable computers and wide accessibility to the Internet provide both teachers and students with great opportunities in regard to making use of technology. The number of schools that are adopting cutting-edge technology as a significant part of their educational mindset is on the rise, which is why what constitutes the basis of technology and primary principles on which the system works

need to be apprehended comprehensively so as to better see the effects of technology on leaners' learning outcomes.

It is obvious that learners possess inadequate number of chances of putting English learning experience into practice and analysing their language skills, hence implementing the advantages of technology into the foreign language classroom brings about a great number of advantages (Alsied & Pathan, 2013). Getting students engaged in the process of learning is facilitated through the use of technology in instructional activities (Günüç & Kuzu, 2014).

Online student response systems can be considered as the easiest and cheapest way of implementing technology into the foreign language classroom by means of mobile phones that almost every student owns and Wi-Fi that is available in many education institutions and increasingly accessible from everywhere day by day.

The significance of this study lies in its effort to indicate the potential beneficiaries of mobile phone applications that run on smart phones, which constitute one of the most concrete and the most prevalent segments of today's advanced technology, in accordance with the purpose of achieving the high standards in English language teaching.

1.4 Research Questions of the Study

This research is based on the following research questions:

1) Does the online student response system have an effect on students' learning English grammar?

2) What are the students' views towards the implementation of the mobile phone application into their classroom activities?

1.5. Limitations of the Study

Although the findings of the study cast a light on the effectiveness of mobile phone applications that work on the principle of online student response system, there are some limitations encompassing the study. First, the study was conducted with a relatively small number of students. Second, it was a research study whose findings were based on a six-week study. In order to make generalizations, a bigger sample and a longer duration are needed. Another limitation that the study owned was the setting; this study was carried out with the students studying English as a foreign language at a private university. Therefore, it is possible to reach different conclusions if it were applied to different participants studying at different educational levels. Such factors as gender, age and socio economic and cultural variables were not taken into consideration.

CHAPTER 2

2. REVIEW OF LITERATURE

2.1 Introduction

This chapter provides the recent literature regarding the use of the technology in ELT classroom with references to its significance, advantages and some of the terms that have an important weigh in this field such as Computer Assisted Language Learning (CALL) and Mobile Assisted Language Learning (MALL), feedback and immediate feedback (IF). Additionally, information about online student response systems will be presented in a way covering the other popular applications that run on the same principle.

2.2 Implementation of Technology in English Language Teaching

It is noticeable that the effects of the globalization have brought about a number of radical and unexpected changes and consequences in almost all areas of the life, and the foreign language education is one of these fields in which these changes can be clearly observed. A part of the growing globalization process, Turkey is considered an emerging market in the world, thus making English language learning a prerequisite for almost everybody in the education sphere or labour market irrespective of their job positions or titles.

The use of English has expanded greatly regardless of the geographical borders of the states. English is the language of science, policy, tourism, medicine, culture, business, communication and education. Since there is a concrete consensus that having a high level of English is a must qualification of the 21st century, there has been a constant search for the most effective and efficient methods of teaching English, and

technology, at this point, is regarded as the ultimate medium of the English language teaching.

According to Graddol (1997), technology is the element that forms core of the globalization process and it has a growing impact on education work and culture (p.15). This is because technology along with its unprecedented improvements shaping all aspects of our lives can be utilized effectively in order to achieve the desired results better and faster. Shyamlee (2012) states that technology has radically changed the way of teaching English after its use for the educational purposes (pp.150-152). The improvements emanating from technology provides so many alternatives with English language teachers and make language teaching a lot more productive.

Technology-oriented teaching instruction benefits teachers by providing them with a number opportunities and flexibilities. Not all students have the same style of learning English as some of them are studial learners while some students can be categorized as auditory learners, thus creating the need to implement different methods addressing as many different learning styles as possible. Shyamlee (2012) believes that technology addresses both visual and auditory senses, thereby creating a positive change on modern teaching styles (pp150-152).

According to Garry Motteram (2013), digital technologies help learners work with their learners easier and it makes their language development possible. It is also quite east for learners to reach these developments and use them. Learners can study English whenever and wherever they are and want to. That's why, teachers are in favour of bringing technology into the classroom.

Riasati, Allahyar and Tan (2012) contend that technology is being used more than ever in English instruction. Students are engaged and motivated easily when they get exposed to teaching supported with technology. According to Dunkel (1990), technology use in language classroom facilitates language learning and has a positive effect on student motivation.

Technology is also used by teachers to break the monotonous flow of a typical foreign language class. Playing a song or a video helps the teacher to bring back students' diminishing concentration and motivation during the lesson. Playing games used to require the teacher to bring the classroom some extra materials in the past and technology renders it unnecessary to find and take any materials to play a game with students, which is a point of view that is advocated by Lee (2015) stating that technology enables teachers to bring fun and games into the classroom.

In today's language teaching classroom, it is not enough to have students read a text and answer the comprehension questions in the text, as both the teachers and students are well-aware of the fact that having a satisfactory level of English is measured according to the fluency and competency a student possesses in such productive skills as writing and speaking. According to Eaton (2010), the focus changed from grammar, rote-learning to using the language for communicative purposes in social contexts in the world, and this progress has changed the style that teachers used to teach English over the years (Warschauer, 2000).

Consequently, English language classes are encouraged to be designed in a way that shall reflect real-life situations and authentic contexts as much as possible in order that students are able to make progress in their course of learning English and this is desired not only by the teacher and but also by learners. As such, technology is given a wider place in English language teaching and as uttered by Kasper (2000), computer technology supported by the Internet connection provides a wide range of authentic materials. This is also supported by Cyrstal (2003) who argues that educational technology plays a great role in English language teaching as a global language and Jonassen (2000) who maintains that not only students but also teachers are positively affected by the use of technology.

Technology helps learners achieve their learning objectives in a shorter time and an easier way. In addition to this, technology strengthens the quality of language learning (Brown, 2003). Classrooms equipped with technological items help teachers create an interactive environment for students, increasing students' motivation (Stepp-

Greanny, 2000) and this creates classrooms where language practices are given importance and taken seriously, as a result of which success rates are remarkably high. Kang (1999) states that the computer technology allows students to observe the real-life situation and meaningful communication. Besides, technology in classroom plays an important role as it increases students' motivation and learning aptitude in multimedia content (Zengin, 2007).

The positive effects of technology on learners' motivation are also supported by Harmer (2007) who states that online education enables students to become more active and willing and technological classrooms attract students through attention-grabbing activities and motivate them and by Mayora (2006) who maintains that technology creates positive changes in students' motivation. Meurers (2012) posits that technology has the power of increasing students' motivation in addition to enabling them to communicate their ideas by using the target language vocabulary and grammar they have learned. Anderson and Speck (2001) state that students achieve higher levels of concentration on speaking, reading, listening and writing thanks to the use of technology. Belz (2002) expresses that activities through which successful communication can be achieved is possible by means of interactive technology in the classroom. In addition to the advantages focusing on the instruction period, technology also facilities assessment procedure through well-structured feedback provided to the students. Taylor and Gitsaki (2003) believe that it is possible to give feedback that is suitable to learners' needs by use of technology.

It is not possible to imagine that there is an aspect of modern life that has not been touched and modified by technology and education is one of these aspects without a doubt. Reinder and Thomas (2012) are of the opinion that education is a very dynamic field driven by the technology and this occurs especially on the basis of the second language teaching with a wide range of tools. Han (2008) reckons that technological advancements brought about a serious increase in the numbers of teachers and students having access to the Internet and technology. The opportunities that can be derived from technology heavily depends on the competency of users of it; technology is certain to be effective on the grounds that there are teachers who can use

technology effectively. Hoppingarner (2009) puts forward that considerable teaching pedagogy necessitates being a skilful user of computer technologies in order to support teaching and learning.

Computer technology present students with a language environment in which they are exposed to the language in a more interactive and engaging way. Dickinson, Brew and Meurers (2012) assume that a huge number of various materials such videos, podcasts and blogs pave the way for a more communicative and interactive environment wherein students expand both their language capacities and cultural competences as well. It would be unrealistic to maintain that today's language instruction should be totally on the basis of technology, though. Teachers are also responsible for equipping students with the necessary knowledge they will need to achieve using the technology.

Accessing technology is of great importance, however, as Gill (2011) states, knowing how to make use of technology appropriately would maximize the benefits deriving from it and the effects on the second language learning abilities. Students should be trained how to benefit from technology when they are outside the classroom. Meurers (2012) puts forward that students should be taught how to succeed as they are left to technology on their own. Edwards-Grover (2012) argue that students show more interest to technology they are familiar with. It is noteworthy that accessing technology is significant, however, knowing how to make use of it to be able to achieve desired outcomes is vitally important.

Learning settings have flourished since the advent of technology into the classroom. According to Poureau and Wright (2013), modern classroom has evolved into an interactive environment in which learning and teaching are driven by more authentic and culture-oriented objectives and materials. Teaching is not a stable field, on the contrary, it is constantly changing and second language teaching takes a large portion from this change. One of the most radical changes in English language teaching is the perception that students are not passive learners any more.

Furthermore, Bezircilioğlu (2016) states that modern classroom can be constrained neither to walls nor to a limited number of teaching hours. The more technology is implemented to the classroom, the more active and engaged students become. The change is observable both on the hardware level from desktop PCs to tablets and superfast mobile phones and also on the software level. Levy (2009) puts forward that applications that are designed around the second language teaching sphere vary a lot and they are a lot more sophisticated than they were twenty years ago. As Gill stated (2011), in the last ten years the role of technology in second language teaching has gone through radical changes as they are more capable in providing content brittle with more interaction like live chat and discussion platforms. According to Abdollapour and Maleki (2012), second language teaching has experienced an enormous change as a consequence of its widespread availability and easy access by the L2 students.

Warschauer (2010) is of the opinion that second language learning built on technological opportunities is an obvious positive side of technology since learners can reach easy access to technology almost whenever and wherever they need or wish. Godwin-Jones (2013) believe that embedding technology into second language teaching is crucial in terms of creating a multicultural and multilingual society. Nunan (1999) stresses the fact that visual media that is provided by computers in an interactive method like-no-other instructional capability for subjects including social situations requiring communication.

Technology is of great important in terms of diminishing learner anxiety, making learning process easier and funnier. Taylor (1980) states that computer assisted teaching could be an excellent motivator for second language learning.

Lee (2000) provides a list of the advantages of technology use in the classroom:

a) Provides students with practices enabling them to be engaged in experiential learning

b) Facilitates learning through higher motivation of students

c) Increases student success

d) Creating more opportunities for using authentic materials

e) Allowing more interaction between teachers and students and peers

f) Diversifying sources of information

g) Growing global vision

A number of studies have been done to analyse the impact of technology in ELT. In a study carried out by Hennessy, Deaney and Ruthven (2005) in which the teachers used a variety of computer-based technology, it was found out that technology acted as a facilitator in motivating learners towards working in novel ways; it was also noted that the learners were granted the opportunity to reason independently due to the fact that they gained more autonomy.

According to the evidence given by Costley (2014), technology provides many advantages with learners irrespective of their age groups. Among these advantages elaborated by the study were a positive effect on learners' motivation and confidence, higher participation, higher tendency to work together and improved capabilities in using technology.

In Baytak, Tarman and Ayas's study (2011) in which the feelings and attitudes of six children regarding the use of technology were put into analysis by means of a variety of data collecting instruments, it was revealed that the students adopted the use of technology in their learning process as they regard it as a motivator and facilitator. The other characteristics attributed to the technology use in the classroom were positive since the students think that technology use is fun and interactive. The study also emphasized that the students believe that tasks that are thought to be difficult can be performed easier via technology.

Kenney (2011) found out in his study in which he analysed the effects of various communications technologies in elementary schools that there is a positive relationship between technology and motivation. The study indicated that technology

leads to increased student motivation and higher engagement. The other point highlighted by the study was that students have an expectation that technology will be entirely integrated into their learning experiences.

Examining the effects of *Whatsapp*, a messenger application for smartphones, on developing the students' skills in writing, Alsaleem (2013) revealed that the students made a remarkable progress in their writing abilities. The positive effects of the application were observed specifically in the learners' better word choices and better use of voice.

According to the results of the study carried out by Coffey (2017) in which the learners held discussions supported by the integration of technology including the use of online websites and online book clubs, the learners developed a sense of group solidarity along with stronger social integration, thereby increasing learner engagement and motivation.

Lin and Yang (2011) studied the effects of Wiki technology on developing students' writing skills in English. The study whose aim was to reveal if Wiki online system would bring out improvement in students' writing skills were conducted with the participation of 32 students. The students joined a Wiki page in which they were requested by their instructor to write and share passages and to read and respond to their friends' written works. Among the results of the study was that the students embraced the idea of Wiki technology for writing passages online instead of using traditional tools like pen and paper. Additionally, the learners expressed that they expanded their vocabulary range and learned sentence structures by reading their peers' texts. The study also drew attention to the fact that learners who were aware of the fact that their texts would be read by their friends attached importance to the writing activity and worked harder on them.

It is explicit that there are a lot of advantages of integrating technology into the classroom. Classical teaching methods are short of arousing interest and getting students motivated as a result of multimedia technology featuring a rich world of visual

and auditory materials supported by authentic resources. As is the case, the modern teaching principle should be based on embracing technology so that learners' needs can be met effectively.

2.3. Computer-Assisted Language Learning (CALL)

Covering a wide spectrum of theory and practice, Computer-Assisted Language Learning (CALL) is a term that is used to describe language learning through computer technology. CALL, which is delineated by Levy (1997, p.1) as the means of finding the use of the computer in language teaching and learning, is generally regarded as a technique in which computers are used to help with presentation, reinforcement and assessment. There are also other names like technology-enhanced language learning, computer-assisted language instruction and computer-aided language learning that are used when mentioning CALL, however, according to Hubbard (2017, p.153), CALL is accepted to be mostly-common used term including computers and computer-related technologies ranging from laptops to smart boards.

Teachers also resort to CALL to brush up, to strengthen and to test learners' prior knowledge. CALL is utilized in order to present, reinforce or test particular language elements (Gündüz, 2005). Some explanations, rules along with some examples are given to a student, upon which she/he takes a set of questions and receives feedback regarding the test. The information is stored for further inspection by the teacher.

Computer-based sources like the Internet are widely used to present and test second language teaching. However, CALL is intended not to replace the teacher in the classroom, but to reinforce the teacher. This is also supported by Muslem, Yusuf and Juliana (2018) who revealed in their study in which they examined the teachers' standpoints regarding the use of technology that all of the participants diverged from the notion that technology should replace teachers. Software is the main platform upon which CALL is based as programs can be designed in order to supplement foreign language teaching and learning. In addition to software, internet-based activities hold a huge place in the context of second language teaching as they can be used for a wide range of different purposes.

CALL is also believed to make positive contributions in developing learner autonomy. Autonomy, a term that is used to describe learners who are able to take responsibility for their own learning and monitor and assess their progress (Hedge, 2001) is a characteristic that can be strengthened by means of CALL. According to Mutlu and Tuğa (2013, p.110), learners' autonomy is possible to be increased with the use of CALL as it emancipates learners from physical boundaries and time-related constraints. What is significant in the context of CALL is that students are expected to work on their own by means of interactive and individualized learning aids. CALL is utilised by teachers so as to facilitate and reinforce language learning.

Additionally, CALL is given place in refreshing or assessing learners' knowledge. Among the advantages stemming from the use of CALL are the increased test security as a consequence of expanded treasury of question banks and the opportunity of immediate feedback as well as testing specifically customized to leaners' needs (Liu, Moore, Graham & Lee, 2014, p. 257). This is also an obvious indicator that CALL provides a variety of opportunity in second language teaching.

2.3.1 The History of CALL

CALL has been in implementation since the 1950s. The first use of CALL, however, did not take place for the purpose of language teaching. CALL can be said to have emerged in 1960s with the aim of teaching a second language together with the Plato project started at the University of Illinois, which is accepted to be turning a point in the history of CALL (Davies, 2016).

The use of CALL for language teaching was first initiated by the language teachers in the UK (Chapelle, 2001). The projects that were created to teach French within the framework of CALL were called PLATO, which stands for Programmed Logic for Automatic Teaching Operations and TICCIT, an abbreviation for Time-Shared, Interactive, Computer-Controlled Information Television (Tafazoli & Golshan, 2014).

CALL was not prevalent in educational contexts until 1980s as it was far expensive to access that technology and it was not given much attention. This is why only large universities and institutions were able to make use of CALL, and the use of CALL was rather limited. Through 1970s, computers started to grow in size and in their capabilities in processing and storing larger amount of data, which led to its increased use on a wider scale (Higgins, 2008).

It was in 1980s that the computers began to be used at schools. Furthermore, the 1980s were the years during which conferences were organized for scholars to discuss the newly-introduced computerized systems (Singh, 2015, p.26). The spread of CALL continued along with cheap computer peripherals and tools emerging in the market, enabling users to store large amount of data via such storage devices as CD-ROMs and DVD-ROMs. According to Seljan, Berger and Dovedan (2004), CALL, previously used as a tool for changing sentences and texts, made its way into the classroom with the advent of CD-ROMs due to their large capacities for storing data including both audio and visual contents.

The demand for commercial content for second language learning increased remarkably as CD-ROMs infiltrated into homes. This period also witnessed the fast development of the world-wide web. These advancements in technology urged many educational institutions to equip themselves with computers providing students with the freedom of accessing information they want to have through only a few clicks. CALL was no more limited to schools or universities; it was also used outside the classroom. Hence, computers were given a large room in education and it inevitably became an integral part foreign language programs in many schools.

It is apparent that CALL has expanded its use in all over the world; according to Motteram (2013), CALL has evolved from being a tool which is given a marginal place and used by the minority to being a standard and usual way of teaching. This is because the changes that digital technologies have brought into people's daily lives can be observed almost everywhere. Technology, which was considered to be an unusual aspect of daily life, has become normalized and its existence is no more unexceptional.

CALL has gone through a number of changes over time. According to Warschauer and Healey (1998), the development of computers is analysed under three group: structural CALL, communicative CALL and integrative CALL.

2.3.2. Structural CALL

The first phase of CALL, structural CALL covers the years between 1950s and 1980s during which operant-conditioned learning by Skinner whose main argument is based on a kind of learning that takes place as a result of stimulus and positive reinforcement was accepted to be a dominant approach (Singh, 2015).

Under the effect of this learning mindset, Structural CALL focused on the forms of the language in which language practice was performed through drills as it was thought that exposing to language was necessary in order to develop language competency. Computer was used so as to provide grammatical explanations, repetitive drills and translation.

Computers were regarded as a tutor, providing students with feedback on an individual basis, thereby enabling students to have more time to study further (Chen, 2018). The main criteria to teach learners English was to get them exposed to the language as much as possible to the extent that they would finally develop correct language habit formations.

2.3.3. Communicative CALL

The entrance of personal computers into the market together with the objections raised against the tenets of the behaviouristic paradigm paved the way for a new phase in the sphere of CALL, which was called as communicative CALL (Gündüz, 2005).

It is also possible to mention a change from a traditional understanding of the second language teaching heavily built on such bases as exposure, repetition and reinforcement to a communicative mind-set that highlights functional aspects of the

language and that attaches great significance to practices promoting interaction and communication between learners (Gruba, 2004).

It was in 1980s and 1990s that traditional methods like behaviouristic approach was under heavy criticism and fell short of answering theoretical and practical questions. It was also the time when computers developed their capabilities of processing and storing data, allowing more individual study for students on the basis of communicative activities.

Drilling activities which were in widespread use before they were replaced with non-drilling ones as a result of more emphasis put on communicative competence in learning a foreign language. Since it was believed that effective language learning can be achieved for communicative purposes (Evans, 2009), computers were programmed so that they presented content including activities which directed students towards critical thinking and the grammar was given not in an explicit way as it was done in previous periods, but in an implicit way, as cognitive theories stressed the significance of language learning through discovery and development (Baker, 2015).

Instead of being regarded as a tutor, computer was accepted as a tool by means of which spelling and grammar were checked and word processing was used. In communicative CALL, the emphasis was placed on students' performance rather than computers. Ozkan (2011) asserts that by use of communicative CALL learners can act more independently as they are allowed to become an active user of the language by producing and modifying their own ideas. (as cited in Singh, 2015).

2.3.4. Integrative CALL

Integrative CALL drew attention to authentic discourse, encouraging language teachers to create a learning environment in which the focus was on carrying out real-life tasks (Warschauer & Meskill, 2000). There was a consensus that students need to be put in an environment where they can join authentic social interaction, thus enabling them to use the language both inside and outside the classroom for real-life purposes

(Singh, 2015). The prominent aspects of the integrative CALL were mainly shaped by the use of multimedia encompassing pictures, sounds and videos as well as the Internet (Warschauer, 2010).

Different skills of language such as reading, listening, writing and speaking were harmonized on a continuous, computer-supported basis. Integrative CALL made it possible to implement computer use in a more effective way and students were able to gain more control over what and how they were learning. The development of multimedia technology like CD-ROMs and web-based call (i.e. the Internet) made it possible to concentrate on the meaning and content of the language based on the context in which it is used. Real language usages grew into prominence, departing from the form-based approach to the one which was more student-centred and content based.

2.3.5. The Importance of CALL

The twentieth century witnessed a swift development in computer technology with its effects easily observed in second language teaching. Chapelle (2001) states that the term CALL went into circulation in the early 1980s. At the beginning of the 21st century, computer-driven technology began to shape teaching methods. The computer technology is developing rapidly, creating more effective ways of teaching. Computers are faster, much more powerful and relatively cheaper, and their capacity to process and store information is nearly beyond measure.

Gündüz (2005) thinks that computers cannot be regarded as simply machines processing information, adding that they are gadgets that are used to communicate. It is a fact that CALL covers such technological utilities as online blogs, applications, online learning environments and computer-aided communication. However, this definition may fall short from describing the scope of CALL comprehensively enough as the term CALL also refers to hardware including the computer, monitor, printer and

software which is composed of a set of instructions that are written to make the computer do the desired tasks.

According to Beatty (2010), CALL is a process whereby the learner's language is improved by use of the computer. Acquiring an insight into the potential of Computer-Assisted Language Learning helps teachers as well as learners to adapt a wide range of learning teaching opportunities. The last 20-30 years have witnessed a dramatic increase in the use of technology for teaching English to learners. According to Park and Son (2009), computers prevailing in the education field have seriously changed the teaching philosophy deeply. Morales (2014) believes that it is a lot easier to reach software programs thanks to the Internet.

A great amount of literature shed light on the positive aspects of CALL in second language teaching. The research study carried out by Bush (2008) indicates that computer-integrated teaching creates better learning outcomes for L2 students as they can be exploited by the students at the right time. According to the findings of the study that Almekhlafi (2006) carried out with a group of elementary students in order to examine the effects of CALL on the performance of students' learning English, it was revealed that CALL proved to be helpful in terms of creating better learning opportunities and students expressed positive feelings regarding its use. The results also revealed students' strong desire to continue to benefit from CALL in the upcoming classes.

Another study carried out by Al-Seghayer (2001) focused on the effects of CALL on vocabulary teaching in English. In the study, the participants were asked to read an English text. Divided into three groups, each group was provided a text in the format of plain text, text with pictures and text with video clips. According the results of the study, it was revealed that text supported by video clips proved to be the most effective tool for teaching vocabulary to learners as it prolongs the retention span and makes recalling easier.

The study conducted by Klassen and Milton (1999) investigated the potential benefits of English instruction on the basis of multimedia content. In the study where the participants were divided into two groups, the experiment group was instructed on the basis of multimedia content including CD-ROM specifically designed for the study and the control group followed the same syllabus without making use of the CD-ROM. The results of the study revealed that students who were taught by means of multimedia-supported materials achieved better results in terms of listening skills compared to the other group. The study also emphasized the importance of getting learners exposed to the interactive content.

Holmes (1998) examined the attitudes of the freshman students studying at a university in Japan towards the use of CALL in their English language classes. The study conducted with the participation of one-hundred students revealed that students liked the integration of technology. Another remarkable result found out by the study was that students who were interviewed stated that they associate the use of CALL with their intention to communicate all around the world as CALL was considered to be a platform where international communication was possible via the Internet.

Undoubtedly, technology is shaping English language teaching mentality. Reinders and Thomas (2012) state that this is the age of CALL and they are pointing that we are coming into a complete integration phase of CALL. Hubbard (2008) states that CALL has prevailed not only nationally but as well internationally and the focus of CALL will be directly on language teaching. The effective of technology has a great potential for increasing the quality of teaching as it terminates a teacher-centred classroom instruction and creates a suitable ground for a more student-centred atmosphere, thus minimizing the risk of deviating from the learning objectives. Traditional classroom teaching has been superseded by the developing technology as the latter is providing games and activities which are as much close to the real-life situations as possible, thus enabling them to take responsibility of their learning exempting the teacher from the ultimate source of guidance and knowledge.

2.4 Mobile-Assisted Language Learning (MALL)

Mobile-assisted language learning (MALL) is considered to be a sub-branch of mobile learning and computer-assisted language learning and it is used to support students' language learning through the use of a mobile device. ("Mobile-assisted language learning", 2018). MALL is term that emanates from a broader concept of CALL and it basically points to the handheld devices like mobile phones and tablets which are used to improve language skills. According to Yaman and Ekmekçi (2016), MALL is a term that covers a range of mobile devices including personal digital assistants (PDAs), and smartphones. MALL enables students to reach language learning content and to get into contact with their teachers and friends whenever and wherever they want.

Mobile technologies present innumerable opportunities to enhance language learning experience (Valarmathi, 2011). It is thought to be bring a novel experience of learning to second language learning with its high potential and dynamism as it allows more time to be allocated and easy access to learning. M-learning in language learning specifically refers to the use of mobile technology. It falls different from traditional learning patterns since there is no need for learners to be available in the classroom.

M-learning can be regarded as a learning strategy with which such barriers to learning as time and space could be discarded easily. Mobile technology and wireless communication are developing at unprecedented pace, and high capacities as well as the ubiquity of these technologies can be observed clearly. On the other hand, it cannot be argued that mobile devices will replace available learning tools since according to Salaberry (2001) classical pedagogy offers more than technology-supported one however evolutionary the latter is. Rather, they are believed to be learning aids that can be used to support learning. Mobile learning is used especially by learners who have shortage of time and due to long hours of working or studying. With this in mind, it can be regarded as a great opportunity for people without enough time to spare time for learning English.

There are a number of mobile devices available on the market ranging from mobile phones, tablet computers to e-book readers and netbooks, and mobile phones are the most prevalent ones among all the other mobile devices. Mobile phones enable learners to set their own learning pace and they can make progress according to their own language levels and abilities. Mobile learning removes the barriers of a typical classroom by providing learners with access wherever they are, which is due to the portability and connectivity of the mobile devices.

2.4.1. The History of MALL

All learning and teaching behaviours often include the implementation of a specific kind of technology (Warschaur & Meskill, 2000). For example, teachers who used to teach English at those times at which grammar translation was popular used chalk and blackboard as technological products. Even though both chalk and blackboard still preserve their places in the classroom, many developments have given rise to changes in the way teaching is performed with the advent of computers and mobile devices.

As the teaching methods and techniques changed through the course of time – i.e., from Grammar Translation to Audio-Lingual Method to communicative approaches, the needs for different technology emerged. Language laboratories were established to apply Audio-Lingual method, followed by computer-assisted language instruction in 1990s (Baleghizadeh & Oladrostam, 2010). Technological devices are observed to have shrunk in size over time, however, they have also gained amounting importance and momentum in language instruction due to their effectiveness. MALL, enabling various forms of communication like face-to-face, distant or online to be performed, is a relatively recent derivation of computer technology (Baleghizadeh & Oladrostam, 2010).

Technologies having the capacity for language learning are PDAs, mobile phones, MP3 players, CDs, DVDs, laptops and tablets. The birth of MALL dates back to 1980s, when distant language learners were provided with feedback and assistance.

1990s witnessed distance education English course from Hawaii to Tonga over telephone as well as computer (Green, Collier, & Evans, 2001). In 2000s, personal digital assistants (PDAs) were launched and they were capable of storing addresses, personal information and taking notes. PDAs were then replaced by smartphones and tablets, which can perform much faster and offer more connectivity abilities.

2.4.2. The Importance of MALL

The world is going through an information and communication age whereby information can be shared within only seconds. Devine (2014) contends that speed is an element that cannot be ignored in the modern world. Chinnery (2006) states that mobile-assisted language learning first came out in the year of 2005 during which mobile devices were given to the students without a charge in America, followed by mobile applications for language learning. English language teaching publishers also create course book oriented mobile applications specifically designed for the book syllabus, thus facilitating the improvement and spread of MALL all around the world.

As it is defined by Bezircilioğlu (2016), MALL refers to the integration of mobile devices into language learning experience. In spite of the fact that MALL owns some drawbacks such as small screen sizes or battery capacities along with uncommon connection problems, Çavuş and İbrahim (2009) maintain that it is becoming a lot more widespread. Although MALL involves a wide range of portable devices such as MP3 players, smart phones, tablets, laptops and e-book readers, Taj, Sulan, Sipra and Ahmad (2016) state that the term mobile-assisted language learning (MALL) has recently been associated with mostly mobile phones. According to Stockwell & Hubbard (2013), portable technologies have become more affordable over the past ten years, which is why language teachers have been embracing mobile technologies into their teaching contexts. Taj et al., (2016) argue that mobile phones create a sound ground on which teaching English philosophy can be based thanks to the increasing data storage capacities, user-friendly interfaces, and easy access to the Internet.

Jarvis and Achilleos (2013) point to the difference between CALL and MALL by emphasizing the mobility and spontaneity provided by mobile devices in their contexts. Kukulska and Hulme (2009) state that the evolution of technology from desks to palms can be considered as an invaluable opportunity for teachers and learners. It is obvious that we live in a world that cannot be isolated from technology.

Taj et al., (2016) propose that MALL makes it possible to provide attention-grabbing and a lot more engaging learning activities. Palalas (2012) explains that it is possible for peers to connect each other over technology so as to complete their learning. Abdullah, Hussin and Zakaria (2013) put forward that tasks that are completed in a collaborative way are accepted effective. Park (2011) states that the learning environment can be scaffolded by technology under the responsibility of the teacher and the support provided might be lessened in such a way that students can take initiatives on their own learning progress.

MALL is also evaluated within the spectrum of presentation, practice and production (PPP). According to Jarvis (2015), wealthy content can be served by mobile phones. Lung-Hsiang Wong (2012) presents the idea that a number of disparate learning scenarios can be included in MALL-based learning environment in a formal and informal way. Taj et al., (2016) posit that teachers and learners show a lot of interest in mobile learning due to the ubiquitous uses of mobile devices and their increasing mobility. Oz (2015) states that teachers are pleased with the idea of having a variety of options to present the lesson in an engaging way.

There are a number of communication tools, however, mobile devices or mobile phones come into prominence when it comes to communication. One of the powerful aspects of mobile phones provides learners is that it grants the opportunity to work in a collaborative environment (Miangah & Nezarat, 2012). Thus, mobile devices are being utilized by both foreign language teachers and also learners in order to create a better learning environment. Mussa, and Izkair (2017) maintain that the number of studies focusing on the benefits of MALL is rising with a scope including its different

aspects. It can be asserted that mobile-assisted language learning is a modern medium of teaching English.

According to Miangah and Nearat (2012), mobile learning devices are used for educational purposes. Yang (2013) defines mobile-assisted language learning (MALL) as a growing and developing sub-branch of computer-assisted language learning (CALL). O'Malley (2003) learning that happens free from a fixed place providing learner with mobility whose advantages can be utilized is defined as MALL. Kukulska-Hulme (2013) describes MALL as a language learning environment blended with device portability with various advantages.

In today's world, time is a crucial factor that cannot be ignored by anyone, so second language learning can be supported by mobile technologies to make it faster and more efficient. Khansa (2013) maintains that people living the modern life have lessening time whereas their interest and desire in language learning is on the increase, so mobile phone draw much attention due to their high potentials. Salaberry (2001) states that it was possible to extract audio language from video cassette recordings or personal computers, and speech that occurred in its authentic context was available through radios or televisions. Chimnery (2006) posits that educational contexts have been enriched as a consequence of developing technology as technology is becoming more accessible and smaller in size. Sharples (2000) maintains that the advent of the Internet and its ever-increasing fame among all ages paved the way for the next level of e-learning. Gholami and Azarmi (2012) argue that language learning through mobile devices have matured enough to meet the needs of educational organizations over the last ten years.

Games, communicative activities, online quizzes and tests, collaborative and interactive language activities can be created by means of mobile devices, thereby supporting not only cognitive abilities but also social skills.

Mussa and Izkair (2017) assert that MALL plays a considerable role in intensifying learners' motivation and autonomy. According to the results of the study conducted by Alemi (2012), students showed better performance in learning vocabulary via the use of SMS technology. The study carried out by Ally, Tin and Woodburn (2011) indicates that grammar and vocabulary lessons were desired more through the use of mobile device and it provided a more effective format and content. Al-Fahad (2009) found out in his study examining how effective mobile learning was that students had longer retention duration. The study conducted by Evans (2008) concentrating on the effectiveness of mobile learning through podcasting for undergraduate students propose that students preferred podcasts to paper books as a learning tool. In the study carried out by Osman and Chung (2010) were observed positive behaviours towards mobile learning. Hussin, Manap, Amir and Krish (2012) showed in their study that students took a like to the integration of mobile language learning.

> Ahmad and Farrukh (2015) provides a list of benefits of mobile phones (p.97):
>
> 1. *Scaffolding*: this is the tenet meaning that students are in need of guidance by the teacher regarding what and how they need to do with a collaborative approach
>
> 2. *Task Dependency*: it refers to the fact that tasks should unfold in a way that paves the way for the next task so the order is predictable and complementary
>
> 3. *Recycling*: this term expresses the vitality of going over a subject point in order that learners can understand and describe what they have been taught
>
> 4. *Active Learning*: It is essential students should be given as many chances as possible to get them to practise the language for authentic purposes

5. *Integration*: this principle implies that it is not enough for learners to know what the linguistic pattern means; they also need to know its function in a communication process

6. *Reproduction to Creation*: in the first place, what students need to learn is how to use the language patterns. During this stage, though, they should not be constrained to any pre-determined patterns so that they use them independently

7. *Reflection*: Tasks should be designed and applied in a way that leads learners into consideration of the significance of the task they are working on

As numerous studies (Chen, Hsieh & Kinshuk, 2008; Gay, Stefanone, Grace-Martin & Hembrook, 2001; Huang & Sun, 2010; Kennedy & Levy, 2008; Sharples, 2000; Thornton & Houser, 2005; Jolliet, 2007) indicate clearly, the effects and potentials of mobile technology on English language teaching and learning hold a significant place in terms of performing more effective and interactive teaching sessions and enhancing learning experience along with a number of different teaching practices and activities.

2.5. Student Response System and Its Implementation

Student response system (SRS) can be described as a system by which students can participate in classes or take online quizzes, questionnaires or quizzes with their answers and performance being projected in the classroom. SRS enables teachers to reach immediate assessments by making it possible to create questions and receive results (John & McLeod, 2005).

It is highly likely to meet the concept of student response system under different names containing Personal Response System, Audience Response System, Student Response System, Electronic Response System, Electronic Voting System and

Classroom Performance System, Audience-paced Feedback System. ("What is a classroom response system?", 2018).

In the first place, a teacher produces a test composing of multiple-choice questions through the software. Students answer the questions through their hand-held devices and their results are displayed on the teacher's screen or it is also possible to show the results through a computer projector. (John & McLeod, 2005) According to Liu (2009), student response system can be used for different purposes including taking the register, organizing formal or informal quizzes, collecting student opinions on a specific subject, or presenting students with immediate feedback.

Along with these different usage varieties, SRS possesses a huge potential of integrating mobile technology into the classroom, which creates a learning environment where communication increases and effective integration can be built (Edens, 2009). Hall, Collier, Thomas and Hilgers (2005) stress that SRS owns a considerably positive effect on student motivation and engagement. Roschelle (2003) emphasizes that SRS technology gives a valuable opportunity for students to become anonymous, a rapid of collecting answers given to the questions. SRS allowing teachers to embrace a more interactive approach has been found effective as instructing adult learners (Home, Asay & Morgenstern, 2004).

A sense of mutual support is observed to grow among students as they are trying to answer the questions (Kenwright, 2009). Caldwell (2007) points out that students appear to be more alert and motivated during classes supported by SRS. The study conducted by Caldwell (2007) revealed that the possibility of students' answering questions was two times higher compared to ones addressed in a traditional way. It was also emphasized that student participation increased and included a high percentage of student numbers.

Students also reported that lesson subjects were understood better and students were more attentive (Judson & Sawada, 2002). Another advantage of SRS is that it eliminates the possibility that the teacher calls on the same student or students upon

addressing a question during the classroom (Ribbens, 2007). Despite the fact that much work is needed to reach a more in-depth insight into the potentials of the system (Mork, 2014), the benefits of SRS can be monitored in language teaching classrooms.

According to the findings of the study conducted by Agbatogun (2014), the experiment group in which SRS was implemented performed better in listening and speaking compared to the control group, thus stressing the bright potential of SRS-integrated classroom instruction. Analysing the effects of SRS on students, Cardoso (2011) revealed in his study that SRS brought about positive effects regarding students' motivation and it was observed that student partook in classes more attentively. SRS also enables teachers to design their classes in a way that meets students' emerging needs as a consequence of the immediate feedback (M. Novak, Patterson, Garvin, & Christian, 1999).

Student response systems, which are also called 'clickers', evolved into web-based system over time, allowing students to take part easier through their handheld devices. It is possible to make use of SRS in a wide range of different ways according to the literature. SRS can be utilized so as to evaluate how well learners have understood the points covered in the lesson involving four basic skills (Cardoso, 2011). It is also emphasized that teachers customize their lessons according to the needs of their students on the basis of the immediate and reliable feedback. Mazur (1997) asserts that SRS has the capacity of increasing classroom interaction among learners through different activities.

Bruff (2009) puts the emphasis on the easiness of taking the register and observing class participation, adding that attendance and participation can be elevated through SRS. Kennedy and Cutts (2005) point out that learners who are less attentive and reserved can be more easily dragged into the flow of the lesson through the use of SRS. Caldwell (2007) states that SRS makes it possible to create content-based discussion and activities. Classes can be built in a more controlled order in which relevant topics are pursued by clicker-based questions. Cardoso (2011) also adds that different learning styles are supported thanks to extra evaluation and delivery methods.

In a similar vein, Bruff (2009) stresses that students can be frequently tested, which serves a function of assessing students' performance on a regular basis.

Caldwell (2007) posits that teachers may obtain students' opinion with regards to their learning experience in addition to demographic information and make-up of the classroom. It is also emphasized in the literature studies that SRS creates a basis for a fun atmosphere (Caldwell, 2007). Cardoso (2011) found out in his study analysing students' attitudes towards the use of SRS for the purpose of teaching vocabulary from the target language that an increase in motivation, participation, interaction and contribution to learning was observed.

The study carried out by Çelik (2015) focusing on the effectiveness of vocabulary teaching by means of SRS supported by Think-Pair-Share pedagogy revealed that students were able to reach higher scores in the vocabulary achievement tests. Çelik (2015) also puts emphasis on the fact that students demonstrated higher engagement and concentration for in-class activities, adding that both instructors and students were provided higher quality feedback, leading to a rise in self-confidence, cooperation and competition among students.

There is a strong consensus in the literature that SRS makes valuable and important contributions to teaching and learning experience, creating an environment supported by increased interaction and motivation.

2.6. Commonly-used Online Student Response Systems

The number of the online student response systems is apparently on the increase owing to the apparent benefits extracted from these programs such as making students feel engaged and motivated as well as allowing teachers to receive a better insight about how students' progress. It will be beneficial to mention some of the popular online student response systems.

2.6.1. Kahoot!

Kahoot! is a free online student response system which is mostly based on games and it is an educational platform for learners ("EdShelf", 2018). Kahoot! is a website where quizzes, discussions and surveys can be created for educational and entertainment targets. Kahoot! allows teachers to create multiple choice or true/false quizzes through the quiz maker tool of the program. Receiving a password and URL link to be able to access to the quiz, students are registered in the quiz prepared by the teacher in advance. Formative assessment is possible by means of Kahoot! and teachers can also present students with discussions.

Kahoot! is considered to be a very engaging tool for a language classroom as it motivates students by pushing them to be competitive through games and it makes positive contributions to the increase of participation of students having more control in their own learning. Players can join games through any devices that can connect to the Internet and have a web browser. Kahoot! is a website that is visited by millions of people every day and the numbers prove that it is preferred by many as an education tool. Seventy million people visited the website in 2017 and the games were played by people from all the countries in the world (Kahoot!.com, 2018).

2.6.2. Quizizz

Quizizz is a free tool by which students can practice and learn together. Quizizz allows teachers to create quizzes with avatars, leader boards, themes, music and memes, thus keeping students engaged. The program runs on any device equipped with a web browser. Learners can take formative assessment through Quizizz while having fun and staying engaged. They can answer questions according to their own learning pace, and it is also possible for them to have a look at their answers when they have finished. The application works at a device that is capable of running a web browser, including mobile phones, tablets and desktop computers. Additionally, the application has a wide range of content and the content is added by teachers all around the world.

2.6.3. EDpuzzle

EDpuzzle is a program that allows teachers to select videos, edit them and assign them to students and have them take quizzes as they are watching ("Edudemic", 2018). EDpuzzle is a video-based program which enables teachers to create individualized video lessons that may be designed for learners' specific needs and points of interest. One of the most striking features of EDpuzzle is that teachers can embed quizzes anywhere in the video in the format of multiple choice questions in addition to cropping the part of the video that is desired. Edpuzzle grants teachers the opportunity to control their learners' video watching preferences with such options as disabling video fast-forwarding and teachers can set a due date for each video which is assigned as homework.

Edpuzzle is totally worth using in terms of determining whether students watch the videos which they are assigned as homework and seeing how well they understand the content of the videos. It can also be maintained that Edpuzzle is a time-saving application as teachers can make use of videos available on popular video-sharing websites like Youtube so they do not need to create their own videos, which requires much more time to be allocated.

2.6.4. Poll Everywhere

Creating live polls is the basic function of Poll Everywhere, a free web-based program. Responses can be sent through web, text messages, smart phones and Twitter. ("ESL Technology.com", 2018). The results of polls can be collected so as to receive feedback and make assessments on the learning experiences of learners, thereby allowing instant feedback to be collected and to be assessed. The application is not limited only to polls, though. Teachers can also use different question types in an interactive way. Both teachers and students need to create an account from the website of the application so they can start using it.

2.6.5. GoSoapBox

With GoSoapBox, it is possible to create quizzes, polls and discussions in a user-friendly way as the program does not require users to sign up or register and it runs on almost any device like a computer, tablet or smartphone. ("Tech Tools for English Teachers", 2018).

Teachers can make use of GoSoapBox by preparing multiple choice questions on any subject they may wish, and it is also possible to create a poll regarding a subject. The results be collected in graphs and they can be printed off. The program allows students to take part in the surveys, polls, discussions and quizzes anonymously. This feature is observed to increase participation and collect more information. GoSoapBox allows teachers to design their teaching sessions on the basis of students' weakness and strengths.

2.6.6. Nearpod

Nearpod is a tool allowing teachers to provide students with presentations and assessments. It is an education platform in which teachers can manage and control the content on students' mobile gadgets. Teachers can prepare their lessons through Nearpod and give students a password so that they can access to the content prepared by the teacher. Teachers have a control on the pace of the lessons and students use their own devices in order to participate in assessment and activities in a collaborative way. It makes it possible for teachers to receive real time responses given by students. The program covers a wide range of different contents like multiple choice questions, open-ended questions, polls, discussions, surveys, fill in the blank activities.

2.6.7. Padlet

Padlet is an online notice board on which teachers and students can post words, sentences and pictures regarding any subject. The board can be used as a discussion board enabling students to share their thoughts on different subjects with or without their names. Students can find and post the information they have found on this virtual

board using a drag-and-drop system. The information can be shared in different formats like text, picture and link. Furthermore, the board can be organized anyway desired and there is no limit to the number of posts shared since the page can be scrolled down.

Padlet also allows students to work in a collaborative way because they can work on an assignment or project together and they can share it on the board; however, students have the option of keeping their work secret as well.

2.6.8. AnswerGarden

AnswerGarden is a program that works in a minimalistic format whereby students' responses on particular subjects can be collected. Not requiring to create an account, the program makes it possible to create, share, answer and control topics. It can be utilized for different educational purposes like formative assessment, polling and brainstorming. ("Online Tools for Teaching and Learning", 2018). The application analyses the responses that are collected through mobile devices and the most common answers are shared. The application is beneficial for gathering students' thoughts regarding the subject matter in a very short time.

2.6.9. Plickers

Plickers is a free online polling program that terminates the need that students should have their own mobile devices. Students are provided cards and these cards can be used to carry out polls, surveys and quizzes. The program uses iPhone so as to scan the cards, saving the results automatically. ("ELT Planning", 2018). The most distinguishing aspect of this application is that students do not need their mobile devices and teachers can collect real-time formative assessment regarding the subject matter. Students are provided with the opportunity to partake and get engaged in classes.

2.6.10. BrainRush

BrainRush is a free program whereby teachers can create or choose flashcards, assignments from a large collection of resources. As students get questions right, questions become more difficult so it changes the difficulty of the questions depending on students' performance on the tests ("Common Sense Education", 2018). The application is quite effective in terms of grabbing students' attention and keeping them engaged and concentrated. The application makes learning fun thanks to its game-based activities in which students need to respond. Teachers can establish online classrooms where they can assign projects and homework and they can also track and monitor their students' progress. It also helps facilitating students' learning.

2.7. Feedback

Feedback is given utmost importance as a result of its high potential in shaping students' learning experiences, which is proven through a huge number of academic studies carried out worldwide in various educational contexts. Feedback means providing information to learners about their learning and telling them that they have understood or not understood what has been taught (Spratt, Pulverness, & Williams, 2012).

Feedback is simply information that the teacher provides their students regarding their learning performance in order to develop some troublesome points and improve their learning ("British Council", 2018). Feedback is also defined as the teacher's response to a student's work (Norlin, 2014). White (2007) draws attention to the significance of effective feedback by emphasizing that it allows students to reflect on their learning and it also creates a dialogue zone where the teacher and the student are able to share their ideas.

Hattie and Timperley (2007) define feedback as information given by an agent like teacher, peer, book or parent, indicating that feedback is a result of performance. Brandt (2008) explains the target of feedback as presenting learners information with regards to their performance. According to Percara (2014), feedback is provided so as

to enhance learning experience and it can be presented in computer assisted formats. The benefits that can be extracted from feedback can be increased on the grounds that some criteria regarding feedback are met.

According to Percara (2014), the effects of feedback can be elevated providing that it is transferred in a safe environment where students feel psychologically secure; information is gathered by means of different sources and feedback is aimed at concentrating on behaviour instead of the learner. Percara (2014) also suggests that negative feedback should embedded into positive comments. Whereas providing students with feedback with regards to their learning performance is undoubtedly crucial, it also important to take into consideration the way and the time feedback is given.

According Brown and Bull (1997), feedback is most useful on the grounds that it is provided at right time and it is relevant and meaningful and opening new horizons for improvements. Norlin (2014) posits that feedback has great importance in today's classroom, adding that it should be used in every classroom. Hattie and Timperley (2007) state that feedback is the most powerful factor that facilitates achievement. Nicol and Macfarlane-Dick (2006:205) introduces the seven principles of good feedback practice:

Good feedback practice:

1. provides an obvious definition of what is expected as performance (objectives, standards, desired criteria);

2. encourages learners to think on their own learning;

3. giving learners an insight into their own learning process;

4. promotes instructor and peer conversation based on learning;

5. helps learners gain motivation and self-confidence;

6. acts as a facilitator in terms of bridging the gap between current and aspired performance;

7. feeds teachers with information according to which they modify their teaching.

Klimova (2015) supports the significance of giving feedback by drawing attention to the fact that feedback has a vital role in every educational context as it can advance not only learner's performance but also teacher's performance by shedding light on weak aspects that need developing. Klimova (2015) ranks feedback the most important skill both inside and outside the classroom as a result of its constant availability. Hyland (2006) maintains that giving feedback is an indicator of showing individual attention to learner needs.

Hattie and Timperley (2007) analyse feedback at four different layers, all of which have a different purpose. The first layer is called the self, a type of feedback that is directed not towards the work itself but the learner himself. Task is the second layer of feedback at which the concentration is on the work itself. The third layer of feedback is process, which is associated with completing the task. The last layer of feedback stated by Hattie and Timperley (2007) is regulation whereby self-assessment and eagerness to receive feedback become prominent. Process and regulation are the feedback layers that are promoted by Hattie and Timperley so as to enrich the learning experience (van der Kleij, Eggen, Timmers, & Veldkamp, 2011).

The sign that the response given to an item by the student is described as feedback. Feedback serves the function of correcting wrong answers so that the right response can be retained for a longer period of time. Giving feedback immediately after learners' performance is the right thing to do as it helps increase the benefits of providing feedback as a result of eliminating time delay, thereby freeing learners from having to remembering what they did (Hubackova, 2016). Mory (2004) maintains that

feedback allows learners to make sure of their knowledge or to change it, thus increasing the efficiency of the learning experience.

Given the importance of providing feedback is undoubtedly clear, it can be argued that feedback assumes much more significance when it comes to e-learning (Hubackova, 2016). In an online learning environment lack of feedback may lead learners to fail achieving their learning goals. Good feedback creates a positive impact on learners' motivation (Hubackova, 2016).

Zlamal (as cited in Hubackova, 2016) presents eight important pillars of good feedback:

- Systematic approach, which can be delineated as a way of considering the feedback in terms of students' improvement.
- Complexity, which is designated as a result of using sources of knowledge in a way that covers a larger scope.
- Continuity, which refers to providing feedback on a situational basis.
- Clarity, expressing the correct use of language to provide feedback and how it is used.
- Acceptability, which assures that students regard feedback as constructive.
- Factuality that highlights the use of authentic pretentions.
- Objectivity meaning that performance is the only criterion by which assessment is carried out.
- Practical use, helping learners choose the appropriate way to develop their own performance.

A huge pile of literature presents the significance of providing feedback with learners as they need to know how well they are doing. Today's students are digital natives, and they are accustomed to the fast flow of information, which is why the time and the way feedback is presented attaches great importance.

2.7.1. Immediate Feedback

One of the advantages of digital learning tools is that they are able to provide learners with automated feedback regarding their performance to tests (Attali & van der Kleij, 2017). When to give feedback is a subject that has been researched widely in spite of the fact that it has not been well understood (Attali & van der Kleij, 2017).

An array of studies carried out on the timing of giving feedback emphasize the difference between immediate feedback and delayed feedback. According to Attali & van der Kleij (2017), immediate feedback is the one that is given immediately after answering an item, whereas delayed feedback is described as the one given after completing the test. Research studies generally draw attention to the fact that immediate feedback is more effective than delayed feedback.

Phye and Andre (1989) contend that immediate feedback plays a more important role compared the delayed feedback as the former is highly likely to be remembered by the learner. It appears to be the case that learners do not spare time to find the right answers regarding their wrong answers, this is because feedback is generally provided at a later time than the test is held in conventional educational contexts. However, Fulmer and Rollings (1976) state that a remarkably better performance was achieved as a consequence of the feedback that were provided immediately on a multiple choice test. Kulik and Kulik (1988) put emphasis on the high success achieved through immediate feedback on tests and quizzes.

As an online student response system, *Socrative* provides immediate feedback with the correct answer and the explanation prepared by the teacher beforehand, thus encouraging students to focus on the points that they feel they do not understand yet. Kulhavy (1997) posits that immediate feedback is helpful on the grounds that the student lacks the opportunity to get the correct answer without answering. Therefore, online student response systems are suitable for collecting answers and giving immediate feedback to leaners.

Socrative provides the correct answer with a more in-depth explanation regarding the correct answer, which serves an important function meeting the principles of good feedback practice. Immediate feedback falls short unless it includes an explanatory information. Learners are not the single group that immediate feedback benefits. Teachers also can take advantages from immediate feedback since they indicate whether learners fully understand the target subject (Draper & Brown, 2004). Whether further clarification regarding the focus point is needed or not can be determined by means of immediate feedback (Crossgove & Curran, 2008).

Bamieh, Jovanovic, Mitra and Patterson (2009) revealed in their study researching the effect of clickers in a large classroom environment that the students participating in the study were pleased with immediate feedback, expressing that it facilitates apprehending complex topics. Students who are taking the test and feedback at the same time could achieve higher scores as a result of computer-based assessment which facilitates the learning by connecting previous knowledge with the targeted learning consequences.

CHAPTER 3

3. METHODOLOGY of RESEARCH

3.1. Introduction

This chapter introduces the methodology and covers the research design of the study, the participants, ethical issues, data collection tools, data collection procedure as well as data analysis procedure.

3.2. Research Design

This research was carried out so as to find whether or not mobile phone applications lead to higher achievement in students' grammar learning. The study was conducted with students studying various engineering departments at a private university located in Konya. Besides, students' perceptions regarding the integration of a mobile phone application into the classes were analysed and reported.

This study resorts to the mixed-method design to be able to achieve the aforementioned targets. The mixed methods research design is referred as embracing a research strategy in which more than one type of research method is applied (Brannen, 2005). Bentahar and Cameron (2015) assert that mixed methods research design use is being increasingly applied in various fields of the scientific studies ranging from sociology, psychology through education. Denzin and Lincoln (2011) state that methodological eclecticism allows researchers to embrace the methods that they find the most suitable for their studies. Fraenkel, Wallen and Hyun (2012) maintain that mixed methods research makes it possible to uncover relationships that exist between variables, adding that this enables for researchers to make in-depth analysis. Clark & Creswell (2008) contend that there is a consensus that using mixed methods research design is an essential part of the scientific studies.

Combining two different research designs help prevent individual prejudices of the researcher ("Center for Innovation in Research and Teaching", 2018). This viewpoint is also supported by Denzin (1973) who recommends the use of mixed methods by arguing that it would terminate the birth of any bias towards the study. Malina, Nørreklit and Selto posit that (2011) complex issues regarding the human relations and the social world is made possible through bringing together both quantitative and qualitative methods. This is why this study implemented the mixed methods research design so as to provide reliable findings.

3.3. Participants

The participants in the study were informed that all information about their identities would be treated with complete confidentiality and it would not be shared with any third persons under any circumstances. Information regarding students' age, gender and background were collected although they were not taken into consideration for our analysis.

The students participating in the research study different departments of the engineering faculty at a private university located in Konya. The total number of the students who partook in the study was 55. The number of the male students was 23 and that of the female students was 22. The mean of their age was 19. Below is given a table showing the details about the distribution of the students who participated in the study:

Table 1: Distribution of the students on the basis of the departments they study

Department	Student Number
Electrical and Electronic Engineering	9
Mechatronics Engineering	7
Materials Science and Engineering	6
Mechanical Engineering	12

Table 1: Distribution of the students on the basis of the departments they study *(Continued)*

Department	Student Number
Civil Engineering	11
Computer Engineering	10
TOTAL	55

Table 2:Distribution of the students on the basis of their genders

Gender	Student Number
Male	23
Female	22
Total	55

It was observed that the participants were from the various departments of the engineering faculty. It was also noteworthy that the number of female students was almost equal to the number of male students with a total of 55 participants.

3.4. The Setting

Students who wish to study one of the engineering departments provided by the engineering faculty at the university have to take one-year compulsory English preparatory class in the event that they fail to pass the English proficiency exam that is held at the beginning of each education year. The reason why the English preparatory school is obligatory is because of the fact that English is the medium of instruction. However, the English preparatory school is not mandatory for students who would like to study industrial engineering as the medium of instruction is Turkish.

Students studying at the preparatory school study English on three different levels beginning from elementary to intermediate through a year. After their graduation from the English preparatory school, students begin to take their major area

courses including English in their freshman year. Regardless of their majors, all students have to take English courses in the first year.

Students who pass exemption exams that are organized at the beginning of each semester are eligible to become exempted from the English classes during the semester. Exemption exams are made up of questions based on the course book that is going to be the studied during the semester. Students who prefer not to take or fail to pass exemption exams have to take the two-hour English course each week.

The course that is taken in the first term is English I (ENG112) and the other course taken in the second term is English II (ENG212). The course book that is studied through the year is Oxford English for Careers: Technology 1 Student's book published by Oxford Press. The book is ideal for students who will need to communicate English fluently and accurately at work with their levels from pre-intermediate to intermediate ("Oxford University Press", 2018). The course-book is designed to cover a wide variety of topics closely related with different branches of engineering departments and involves technical vocabulary, language and skills through which students will be able to use the target language effectively during their professional lives.

Each semester students take the English I and English II courses for twelve weeks respectively and they do midterm and final exams. Since the number of students taking the English courses I & II is generally around 150, students take the courses in different classrooms that begin and end at the same time on the same day which is designated by the administration. Although the course is taught in different classrooms, all instructors are supposed to follow the syllabus that is determined at the beginning of each year and shows which units or pages are to be studied or which ones are to be omitted. The syllabus prevents an instructor from staying either behind or going beyond the syllabus, thus enabling every instructor to study the same topics on the day of the course.

The table 3 below demonstrates the information regarding the grammar subjects that were studied during the fall semester of the 2017-2018 education year. The other skills such as listening, speaking, reading, writing and vocabulary that are given in the book were excluded from the table on the grounds that the students' grammar learning was analysed in the study.

Table 3: The units that are covered:

Unit Number & Name	Language Spot
1. Technology and society	Comparisons with adjectives and adverbs
2. Studying technology	Present Simple & Present Continuous
3. Design	Question types
4. Technology in sport*	Used to, used for, made of, made from
5. Appropriate technology	Time clauses
6. Crime-fighting and security	Describing function
7. Manufacturing	Present passive
8. Transport	Prediction: will, may, might

* Unit 4 is omitted from the syllabus.

Presented in English fully, each unit is completed in approximately two weeks, however, some units may take longer or shorter based on the intensity of the content of the unit that is studied.

3.5. Ethical Issues

Before putting the research study into implementation, the researcher gave a presentation to the ethical committee of the university in which a general framework about the study as well as the research questions, the methods to be applied during the course of the research were explained in detail. After the ethics committee approval was received from the university, the study was put into implementation.

The participants of the study were informed about their contribution to the study before it was implemented. They were given information that the results of the pre-test and post-test exams in addition to their perceptions with regards to the implementation of the mobile phone application, and they showed their consent orally, and they also provided their written consent (see Appendix 1). Confidentiality was given utmost importance and strictly attached throughout the study.

It was also stated that the results taken from both the pre-test and the post-test exams and quizzes held at the end of each class for a period of six weeks would have no impact on their grades and their final evaluation. The students were also made sure that the results would not be used for a reason that falls out of the scope of the study under any circumstances.

3.6. Data Collection Instruments

A mixed research design that included both qualitative and quantitative data was implemented in this study. A pre-test and a post-test, grammar learning tests (See Appendix D) and an open-ended survey were applied to both of the groups so as to gather data to be able to find the effect of a mobile phone application – *Socrative* – on learners' learning grammar subjects. The reliability of the tests were tested by applying the tests to two classes that I did not teach and it was understood that the results were similar.

3.6.1. Pre-test and Post-test

At the beginning of the fall semester, the students of the both experiment and control groups took the pre-test test that were made up of 20 questions for the purpose of making sure that they were comparable to each other and determining their current level of grammar knowledge. The questions were prepared based on the units of the course book, and it was paid special attention in order not to include any grammar points which are not covered in the book. At the end of the study, students were applied

post-test, which covered questions that were studied throughout the semester. The post test included 20 grammar questions testing students' knowledge of the grammar points covered during the classes.

3.6.2. Grammar Learning Tests

Grammar learning tests were applied to the students for six weeks, during which the experiment group took the quizzes through *Socrative* via their mobile phones and the control group took the paper quizzes. A grammar learning test was made up of ten questions in the format of multiple choice, and they were prepared by the researcher ahead of the class according to the grammar subject that would be covered that day. Each grammar learning test was applied at the end of each unit that had been studied together with the students.

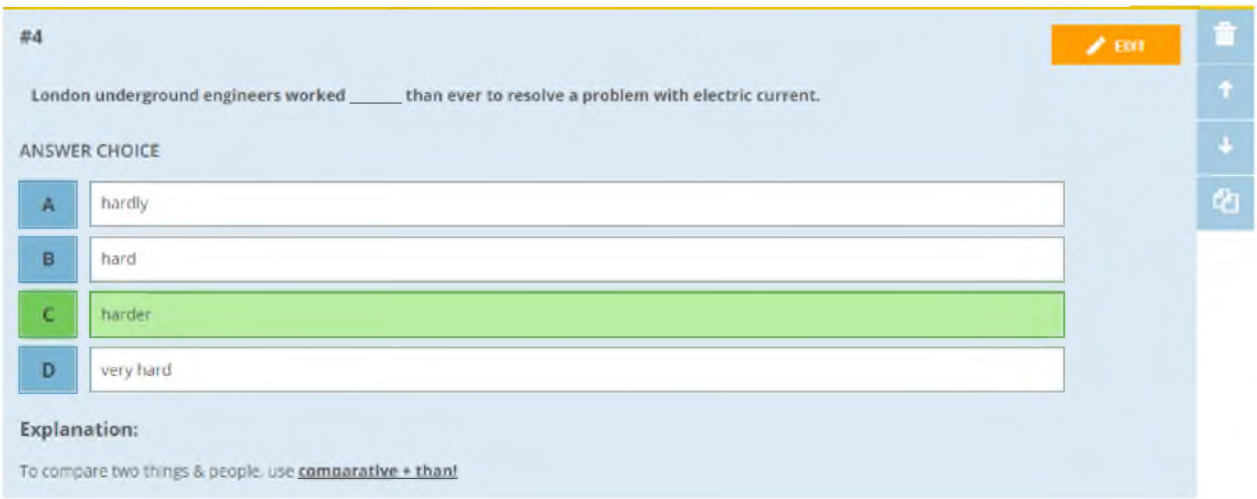

Figure 1: A screenshot of a question that students take through *Socrative*

The screenshot displays a question that students receive along with the explanation. The explanation is provided on condition that the learner gets a question wrong.

3.6.3. Open-ended Survey

At the end of the study, the students from the experiment group were requested to reflect on our study in which *Socrative*, an online student response system, was implemented into the classes for six weeks through an open-ended survey that included five questions. The questions were prepared in the open-ended format so as not to take the risk of limiting or directing their opinions in one way with regards to the study conducted along with them.

The questions are:

1) What do you think about the use of *Socrative* on your grammar learning?
2) What do you think about the use of *Socrative* on your general learning?
3) Do you think *Socrative* affected your motivation and participation? If yes, how?
4) What do you think about the immediate feedback upon your answering the questions?
5) What are the general advantages and disadvantages of using *Socrative*?

The data collected through the open-ended survey were analysed by means of thematic analysis. Paying attention to codes produced in the text is referred as open coding (Blair, 2015). Zochodna (2018) contends that open coding is implemented for the purpose of producing qualitative data, which scrutinize words or phrases instead of qualitative data like numbers. She also states that open coding is a technique by which words or phrases can be transformed into abstract concepts, emphasizing its importance by explaining that a further research can be grounded on these concepts derived through open-coding.

3.7. Data Collection Procedures

The study was conducted in the fall semester of the 2017-2018 education year, during which the course English I (ENG112) was given in six classrooms, two of which participated in the study. Classroom 1 was designated as the experiment group

who was taught by the researcher of this study while classroom 2 was named as the control group who was taught by another English instructor. At the beginning of the term, the students of the both groups were informed that they would take quizzes with 10 grammar questions before switching to the coming unit so that they could revise the points. The experiment group was informed that they would take the quizzes online via *Socrative* and they were requested to download the program from the application stores.

As most of the students would take a number of online quizzes through *Socrative* when they were at the English preparatory school, they already had the program installed and they were ready to use it. Furthermore, most of them were familiar with how to use the program very well. A small number of students who had not used the program before were made a small presentation showing them how to download the program, how to the enter the quiz room and how to use it to take online quizzes. Those students were also provided with a sample quiz with 20 general grammar questions so they could use the program effectively in the coming weeks without having any trouble or hesitation. The control group was also announced that they would take paper-based quizzes with the same number of questions as the experiment group would do at the end of each unit that would be covered during the fall semester.

Both groups were made ensure that the quizzes they would take during the term would affect their grades in no way, however they were also recommended to take the quizzes seriously in order that they could understand their strong and weak points regarding the grammar subjects. The questions both in the online and the paper-based quizzes were the same, and they were prepared by the researcher in advance in accordance with the syllabus that was to be followed by each instructor giving the course English I (ENG112).

The students from the experiment group were stated that a pop-up window would appear as they made progress through the quiz by answering the questions. Each pop-up window contained a piece of information that was written to correct their probable wrong choices. These pop-up windows came up once a student answered a question

wrong, and the students were notified to read the feedback carefully coming up in the pop-up windows, by means of which they could understand their weak points and revise their previous knowledge regarding the grammar subjects studied.

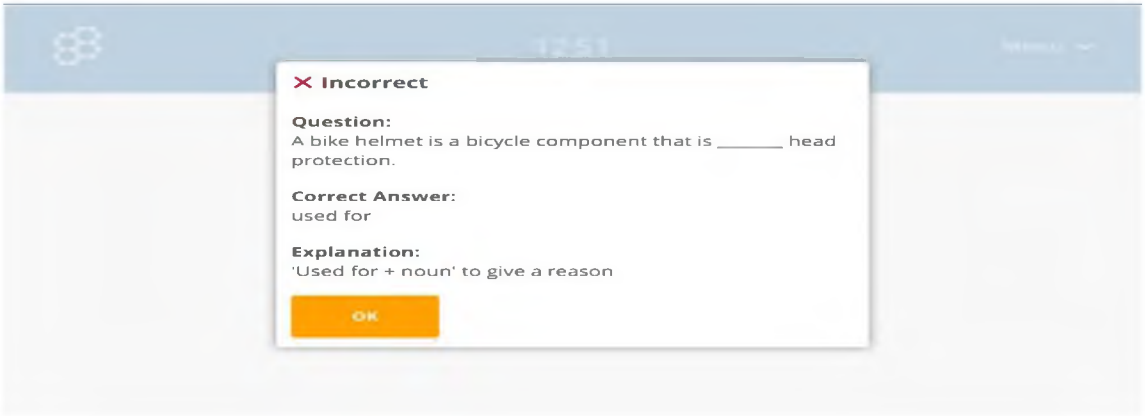

Figure 2: A screenshot of an example pop-up window that includes the explanation

As mentioned in the literature review, the information included in the pop-up window appearing once a question was answered wrong was named as immediate feedback. Additionally, the control group was informed that the answers to the quiz questions would be given next week as it was not possible to grade them within the classroom hour. They were also reminded that they could ask questions about their wrong answers the other week as well.

Both groups were given ten minutes for each quiz they took. The quizzes held in the both groups were started and finished in the same session on the same day. The students of the both groups took a total of seven quizzes, all of which included ten questions. At the end of the study, the students from the experiment group were given an open-ended survey with five questions requiring them to ponder over the implementation of technology, the online quizzes and the immediate feedback they received. They were informed that they should feel free to write down any ideas, which could be negative or positive regarding the use *Socrative*. This way it was aimed to discover the effect of immediate feedback the students from the experiment group was

provided and the integration of *Socrative* on the learners' achievement in learning grammar subjects.

3.8. Data Analysis

Both qualitative and quantitative methods were put into practice so as to analyse the data collected.

3.8.1. The Analysis of Quantitative Data

The quantitative data were analysed through the Statistical Packages for Social Science (SPSS). Descriptive and statistical procedures were implemented to present the data and to make conferences from the acquired results and the level of significance was $p<0.05$.

3.8.1.1. Normality Analysis of the Pre-test and Post-test Results

In the first stage of the quantitative analysis, the Kolmogrov-Smirnov test was applied in order to see whether the data were distributed normally. The table below (Table 4) presents the distribution of the data.

Table 4 Normality Test Results

Normality Test Results

Test	Group	Kolmogrov-Smirnov p-value
Pre-test	Control G.	,200*
	Experiment G.	,162*
Post-test	Control G.	,200*
	Experiment G.	,200*

*This is a lower bound of the true significance.

According to the Kolmogrov-Smirnov test, the data belonging to the control group were normally distributed on the pre-test with a p value of p > ,200 and the data belonging to the experiment group were normally distributed on the pre-test with a p value of p >,162.

The data belonging to the control group were normally distributed on the post-test with a p value of p > ,200 and the data belonging to the experiment group were normally distributed on the post-test with a p value of p > ,200. As it can be understood from the numbers extracted by applying a normality test, the data from both of the groups were distributed in a normal way.

3.8.2. The Analysis of Qualitative Data

In addition to the quantitative data, an open-ended survey was presented to the students to be able to collect qualitative data, which was analysed through thematic analysis. The procedure was carried out on the basis of open-coding according to the concepts extracted from the data, one of the three coding types (Strauss and Corbin, 1990). According to Yıldırım and Şimşek (1990, p.32), this type of coding is suitable for research studies focusing on issues that do not own a particular scientific foundation, hence, collected data are revealed by the researcher by drawing on an inductive approach, thereby making it possible to produce codes directly from data on the basis of the inductive analysis.

As thematic analysis does not have strict theoretical boundaries, it could be utilized in order to find answers to different types of questions. Braun and Clarke (2006) maintain that thematic analysis is a basic method for qualitative analysis due to the fact that it helps conduct qualitative analysis. Boyatsiz (1998) contends that thematic analysis acts as a translator by means of which researchers implementing different methods are able to communicate with each other. For the thematic analysis to be implemented into this study, the steps provided by Braun and Clarke (2006) were used.

3.8.2.1. Thematic Analysis of the Qualitative Data

As a qualitative data tool, an open-ended survey consisting of five questions was carried out in order to collect data regarding what kind of attitudes the students developed towards the use of *Socrative* at the end of the study. The participants were given pseudonyms in accordance with their gender and age; the pseudonym that was determined for gender was M and F and number was determined as the pseudonym for defining age. The participants' ages ranged from 18 to 25. The findings of the open-ended survey that the students in the experiment group took revealed that a great majority of the students developed positive attitudes towards the use of *Socrative* as an online assessment tool.

The thematic analysis of the survey brought about five themes:

a) grammar learning,

b) general learning,

c) motivation and participation,

d) immediate feedback,

e) advantages and disadvantages.

The themes that emerged from the answers provided by the students to the open-ended survey were also checked by an independent researcher.

CHAPTER 4

4. RESULTS OF THE STUDY

4.1. Quantitative Findings

In this section the research findings are presented. After it was observed that the data distribution in both of the tests was normal, the quantitative data with regard to the difference between the control group and the experiment group on the basis of their grammar learning was measured through applying an independent samples t-test to the post-test results of the groups.

4.1.1. Independent Samples t-test Results

An independent samples t-test was applied in order to see whether there was a statistically significant difference between the control and the experiment group. The following tables (Table 5 and Table 6) display the difference between the two groups.

Table 5 Pre-test Results of the Control and the Experimental Groups

	Groups	N	x	Sd	t	p
Pre-Test	Control	30	45,16	12,69	,586	,560
	Experiment	25	43,40	8,86		

According to the results of the independent samples t-test, there was not statistically significant difference between the control group and the experiment group (t(53=,586, p=,560). The results also indicate that the standard deviation of the control group was higher than the experimental group due to the fact that it was the participants in the control group that received the highest and the lowest scores.

Another independent samples t-test was conducted for the post-test results in order to compare the experiment group in which *Socrative* was applied as an online assessment tool with the control group that took classical paper quizzes.

Table 6 Post-test Results of the Control and the Experimental Groups

	Groups	N	x	Sd	t	p
Post-Test	Control	30	48,33	21,42	-2,306	,025
	Experiment	25	60,20	15,57		

According to the results, it can be observed that there was a considerable increase in the mean score of the experiment group from a score of 43.40 to 60.20 while the mean score of the control group went from 45,16 to 48,33. The standard deviation of the control group was higher because of the participants in the group that got the highest and lowest points. The results of the post-test indicated that there was a statistically significant difference in grammar learning between the two groups. (t(53=-2.3, p=0,25).

These results suggest that the experiment group that used *Socrative* scored better than the control group that did paper quizzes. It can be inferred from the results given above that the use of the application as an online assessment tool produced better learning outcomes.

4.2. Qualitative Findings

Qualitative data which were gathered through an open-ended survey consisting of questions were analysed by means of thematic analysis. Thematic analysis is used with the purpose of identifying meaning sets that are provided as a reply to the research question addressed.

4.2.1.1 Grammar Learning

Because it was aimed to develop students' competence in English grammar by means of *Socrative*, the first question was designed to uncover students' thoughts focusing on the effects of *Socrative* over their grammar learning. The theme that emerged out of this question is *the effects of Socrative on grammar learning*.

Table 7 The codes for grammar learning

Category	Codes
Positive Attitudes	Beneficial
	Improving grammar
	Learning better
	Useful
	Helping to learn
	Successful
	Easier
	Good
	Different
	Interesting
Negative Attitudes	Not very effective

Almost all of the participants expressed positive attitudes with respect to the effects of *Socrative* on their grammar learning. Generally speaking, the participants mention that *Socrative* brings about better learning about grammar as a consequence of noticing their mistakes immediately after they answer a question in a given quiz. The positive codes that were determined from the participants' answers are *beneficial, to learn better, good, successful, to remember longer, useful, different, interesting.*

Some representative thoughts are:

P1: "I think *Socrative* is a very beneficial program."

P2: "This application is improving my grammar because when I used this application I learn a lot."

P7: "I think it is a very successful method for us because thanks to *Socrative*, we do not forget grammar rule."

P9: "Thanks to *Socrative*, I revise the grammar topics after I have learned them and I solve many questions in my mind."

P21: "We can understand grammar points better."

The only student expressing a negative thought about the use of the program is participant 23 (Male, 19), who regards the program not as an educational tool but one that is used for fun. The only negative code extracted from the answers is *not very effective*.

P23: "I think *Socrative* is not very effective because we don't use it for learning, but we use it for fun."

It can be concluded from the answers provided by the students that the students developed positive attitudes towards the use of the application in terms of its benefits with regards to their grammar learning.

4.2.1.2 General Learning

The theme that came out in this question is *the effects of Socrative on general learning*. Question two was addressed to the participants to discover the effects of *Socrative* on their general learning.

Table 8 The codes for general learning

Category	Codes
Positive Attitudes	Beneficial
	Improving grammar
	Learning better
	Useful
	Helpful
	Successful
	Easier
	Good
	Different
	Interesting
Negative Attitudes	Disliking
	No effect
	Not enough
	No learning

In this part, the proportion of the students that state a negative attitude is higher compared to that of question one as four participants present their negative attitudes whereas twenty-one participants mention their positive attitudes. The positive codes that were determined from the participants' answers are *beneficial, to learn better, good, successful, to remember longer, useful, different* and *interesting.*

Some students believe that:

P3: "*Socrative* affects my learning positively because students become happy."

P5: "It's beneficial for use because it is good to be busy with my phone."

P9: "Our grammar becomes better and we remember better."

P14: "*Socrative* tells you wrong answers and explains why it is wrong so I believe it has positive effect.

P21: "It affected positively because I learned from my wrong answers."

The negative codes regarding this question are *not to like, preference for pen and paper, not enough, no change* and *no learning*.

P17: "I didn't like the program because I want pen and paper instead of using my mobile phone."

P18: "It doesn't affect my general learning performance because it is up to me."

P23: "I don't believe I learn anything from *Socrative*."

Overall, it can be stated that a higher portion of the students indicated positive attitudes in terms of making use of the program, however, it can be understood that some students prefer traditional examining methods over the novel ones.

4.2.1.3 Motivation and Participation

The question three was formed in order to uncover students' thoughts about how the use of *Socrative* affected their motivation and participation. The theme that occurred in this question is *the effects of Socrative on motivation and participation*.

Table 9 The codes for motivation and participation

Category	Codes
Positive Attitudes	Positively
	Good

Table 9 The codes for motivation and participation *(continued)*

Category	Codes
	Learning easier
	Learning faster
	Encouraging
	Funny time
	Feeling motivated
	Attention grabbing
	Enthusiastically
	Interesting
Negative Attitudes	Affecting negatively
	No effect
	Feeling bored
	No learning

The majority of the participants provided positive thoughts about their motivation and participation.

Three out of 25 participants state that the programme did not have any positive effect on their motivation and participation. Participant four (male,19) states that his motivation was affected negatively due to the instant feedback provided once a question is answered. He explains that he becomes upset when he learns that has got a question wrong. The positive codes that were discovered through the answers to the questions provided by the participants are *positively, good, to join the class, fun, easier, faster, funny time, motivated, to increase motivation* and *to draw attention*.

Some considerations of the participants:

P1: "*Socrative* has affected my motivation and participation positively."

P3: "It makes classes fun."

P8: "*Socrative* affected my motivation positively and increased my participation in the lessons."

P9: "Motivation and participation get better and we read questions enthusiastically."

P13: "It increased my motivation. I took the quizzes more motivated and carefully because it was different from classical quizzes."

P16: "The programme affected my participation very well."

The negative codes are *badly, no effect, to feel bored* and *no change*.

P4: "I think my motivation is affected badly when I see my wrong answers and I get upset."

P17: "I didn't like the program because I want pen and paper.

P18: "It doesn't affect my general learning performance because it's up to me".

It is notable that one of the participants stating that he was discouraged by the immediate feedback upon a wrong answer, which means that not every participant liked the idea of the immediate feedback. The majority of the students, though, provide positive answers with regards of the application on their motivation and participation. It can be inferred that the application created positive effects on the participants' motivation and engagement.

4.2.1.4 Immediate Feedback

Socrative is an online quiz program that provides students with immediate feedback for each question to which they reply. Question four was formed so as to collect data about what attitudes the participants developed towards immediate feedback.

Table 10 The codes for immediate feedback

Category	Codes
Positive Attitudes	Liking
	Incredible
	Good
	Learning quickly
	Logical
	Learning instantly
	Helpful
	Understanding better
	Motivating
Negative Attitudes	Becoming discouraged
	Losing concentration

The theme for this question is *effects of immediate feedback*. 24 participants expressed positive attitudes. The positive codes that emerged in this question are *to like, incredible, good, quickly, logical, instantly, helpful, to understand, favourite part, best side, motivating, suddenly* and *fast*.

Some participants think that:

P5: "It is a good thing because we make mistakes, we learn quickly."

P6: "I like the immediate feedback because it shows my weak points."

P8: "We learn correct answers fast so we do not make that mistake again."

P14: "The immediate feedback is very helpful. Thanks to it, we can understand our wrong answers."

P19: "I like this feature because I can learn from my mistakes."

Only one participant (P17) stated that she did not like immediate feedback as she expressed that she was affected negatively when she realized she had answered a question wrong.

The negative codes for this question are *discouraged, wrong* and *to lose concentration*.

P17: "I didn't like the immediate feedback because I was discouraged when I got a question wrong. Then I lost my concentration.

Although some participants mentioned that immediate feedback negatively affected their motivation and feedback, immediate feedback was favoured by the majority of the students highlighting the facilitating feature of the program in correcting their wrong answers along with an explanation.

4.2.1.5 Advantages and Disadvantages

The last question of the open-ended survey, question five was constructed to reveal a general view of the participants with regards to *Socrative* on the basis of its strengths and weaknesses. The theme that emerged in this question was *the advantages and disadvantages of Socrative*.

Table 11 The codes for advantages and disadvantages

Category	Codes
Positive Attitudes	Having fun
	Learning better
	Increasing motivation
	Faster learning
	Easier learning
	Enjoyable
	No disadvantage
	Good
	Positively
	Informative
	Effective for revision
	Free of charge
Negative Attitudes	Lacking a mobile device
	Problems with connection
	Unresponsive
	Slow
	Problems with progressing

Overall, the participants state that they are content with the program. 13 participants draw attention to the positive sides of *Socrative*, explaining that it makes learning easier and funnier. The positive codes appearing in the answers given to this question are *to have fun, to learn better, to increase motivation, faster, easier, enjoyable, positively, good, informative, easy to use, free of charge, interesting* and *motivating*.

Some representative thoughts are:

P7: "No disadvantage. It is good because it makes our classes fun."

P9: "We take a lot of questions and they prepare us for our exams."

P14: "It makes taking quizzes fun and it helps revise our past information."

P17: "The advantage is that it is free of charge to use the program."

P22: "I can understand my mistakes and learn better with *Socrative*."

While 7 participants point to the only negative sides of the program, 3 of them mention both its advantages and disadvantages.

P6: "There are many advantages of using *Socrative*, for example we learn faster easier, and it is enjoyable to use. The disadvantage is sometimes the program doesn't respond.

P13: "Sometimes the Internet is slow."

P15: "I sometimes had problems with entering the exam room due to the Internet.

P16: "I have some problems with the Internet connection and I missed one quiz.

P25: "The program is interesting and easy to use. But sometimes I have problems with progressing to the next question. I think this is because of the Internet."

It can be understood from the answers that some participants had problems with the Internet connection that may cause the program either to remain unresponsive or to disallow a participant to move to the next question. The negative codes that come out in this question are *to lack a mobile device, problem with Internet, problem with connection, unresponsive* and *slow*.

4.3. Summary of the Results

The results of the open-ended survey which was put into analysis on the basis of thematic analysis revealed that a great majority of the participants developed positive attitudes towards the implementation of *Socrative* as an online exam tool.

The participants mostly mentioned that *Socrative* facilitated their learning through increasing their enthusiasm and motivation and immediate feedback by means which they are able to realize why they have got a question wrong. Another point worth taking into consideration is that most of the participants found the use of *Socrative* enjoyable, fun and interesting, demonstrating that the students are open novel ways of getting integrated into learning.

It can be argued that the results taken from the quantitative data were consistent with the positive attitudes displayed by the majority of the students mainly expressing the benefits of using *Socrative*.

CHAPTER 5

5. DISCUSSION AND CONCLUSION

5.1. Introduction

A brief discussion regarding the topic in addition to conclusion will be presented. Finally, we will provide suggestions for further studies.

5.2. Discussion and Conclusion

This study was conducted with the purpose of examining the effects of mobile phone applications on learners' grammar learning in comparison with the control group who took paper quizzes. The data were analyzed by making use of a mixed-methods methodology.

It is observed that the increase use of technology in almost every aspect of the modern life has brought about many advancements (McGrail, 2005), and education is no exception at this point. A great pile of literature suggest that technology plays a key role in facilitating and motivating learners. Every teacher wants their students to become satisfied with their learning results, and this requires teachers to resort to different tools that they think might be helpful in the course of their teaching methodology.

Student response system is one of the educational tools that teachers can implement into their classrooms so that their students can become more engaged and motivated. Student response system owns a number of advantages. According to Shaban (2017), the use of student response system raises student engagement, enables relatively reserved students to take part in the classes and promotes critical thinking and collaboration. He further suggests that the student response system should be made use as it has easy access.

The use of student response system helps teachers understand in what areas of the topics the students have weaknesses and strengths, allowing them to adapt their teaching strategy accordingly.

Among a number of student response systems was selected *Socrative* for this study. This study aimed at understanding the effect of *Socrative* both in terms of students' grammar learning and also in terms of their attitudes towards learning with technology. The test results revealed that the group that took quizzes via *Socrative* had a higher success in their grammar learning compared to the group that took paper quizzes, and it was revealed that there was statistically meaningful difference between the groups. The open-ended survey also revealed what kind of feelings the participants of the experiment group developed towards the use of *Socrative*. The results extracted based on the thematic analysis revealed that a great majority of the participants adopted positive attitudes based on different reasons like immediate feedback.

There is a huge pile of studies that side with the use and implementation of computer-assisted and mobile-assisted language teaching and learning. Krashen (1982) explains that mobile apps which are constructed discretely help create a better learning environment and eliminate the factors which could lead to unpleasant feelings and hinder learning.

Kukulska and Hulme (2002) put emphasis on the opportunities that MALL can offer due to its capabilities in integrating teaching English with daily tasks. Kiernan and Aizawa (2004) tested the effectiveness of mobile phones in language teaching in the classroom where the technique used was Task-Based learning. They argued that language can be acquired more effectively by means of tasks in which students are required to carry out particular actions, and this classroom order is difficult to establish as they are in close proximity, adding that mobile phone is one way to divide students.

It was found in Thornton and Houser's study (2005) in which students were asked to use their mobile phones to send text messages that foreign language learners

are able to benefit from mobile phones, and short text messages are helpful in acquiring vocabulary.

In a study conducted by Sole, Calic and Neijmann (2010), it was demonstrated that students develop their ability to eloquent themselves in various contexts through mobile phones. According to the results of the study, students become more engaged in learning and a healthier interaction is made possible. The study further asserts that learning is achieved on the basis of context.

According to the MALL project (2009), mobile phones augment students' confidence in such skills as listening and speaking. Baleghizadeh and Oladrostam (2010) found in their study in which they analyzed how effective mobile phones were in improving grammatical performance of students who utilized mobile-assisted learning reached higher level of success on the post-test than the control group. The results of this study approved Sharples (2005), who maintains that knowledge building is fastened via mobile phones. The findings of the study are in contradiction with Salaberry (2001), who argues that mobile phones are far from being effective.

Çelik (2015) reveals in his study that the online student response system had an increasing effect on students' level of motivation and engagement together with better feedback and strengthened confidence and cooperation.

According to Hung (2017), student response systems are interactive tools for learning which develops learner motivation and progress their skills like speaking. He also adds that learners can have higher satisfaction from their learning experience as a result of increased interaction with teachers and peers.

Langman and Fies (2010) revealed in their study that learners can participate classes in a more active way leading to higher engagement. According to Hall, Collier, Thomas and Hilgers (2005), the student response system helped the students achieve better results in addition to higher motivation and concentration.

In a study carried out by McCloskey (2012) in which the researcher examined whether using clicker technology in a French language classroom would improve students' acquisition, it was revealed that there was a remarkable progress in the classroom.

The research also emphasized that instant feedback was employed by the instructor as a tool for eliminating any confusion that students had regarding the grammatical rules of the language.

To sum up, it can be asserted that the use of student response system helps learners of English achieve better results in their grammar learning as a consequence of increased motivation and engagement. Under the growing body of literature supporting and encouraging the implementation of technology in the classroom, it is for sure that teachers can strengthen their teaching skills and learner can enrich their learning experiences thanks to the ubiquity and high capacities that mobile devices provide.

5.3. Suggestions for Further Studies

Technology has been affecting nearly all aspects of the modern life and its use in education has profoundly been affecting the way it is conducted (Zengin & Aksu, 2017). The course of technological improvement can be traced by looking through the birth of Computer-Assisted Language Learning (CALL) encompassing desktops and laptops and Mobile-Assisted Language Learning (MALL), which includes a wide variety of mobile devices including pods, pads and overwhelmingly smart-phones. The basic idea behind the integration of technology into second-language acquisition is to make students more engaged, highly motivated, and enable them to use the language for communicative purposes successfully.

The current study described the effects of student response system on learners' grammar learning. The study made a contribution to the literature about the effects of student response system on the basis of grammar learning. It would be healthier to do more studies on this topic so as to generalize the findings. It would better to extend the number of the participants as the number of the participants of this study is insufficient to make generalizations. Additionally, different results may be reached if it is applied to a different group. This study was carried out in order to see if using a mobile phone application would help learners improve their grammar use, so further research is needed to see the potentials of mobile phone technology in developing learners' various skills such as speaking or writing.

5.4 Pedagogical Implications of the Study

This study was performed in order to investigate the potential effects of a mobile phone application on learners' grammar learning. The results of the study which were based on both quantitative and qualitative findings indicate that mobile phones and applications designed specifically for them can be integrated into English language teaching in order that teachers can benefit from the increasing benefits of the mobile technology in terms of improving learners' competence in English.

Under the light of the statistical and qualitative results provided by the study, implementing technology into English language teaching yield better learning results and help learners develop positive learning attitudes. The implications of the study for teachers of English are that it is a must to bring technology to their classrooms and make it a natural part of their teaching; adult students studying at the university level cannot be expected to leave their mobile phones outside the classroom. It would be useless to ask learners to turn off their mobile phones during classes in today's world. This is why incorporating mobile technology is a great step that can be taken to improve teaching and learning process.

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APPENDICES

APPENDIX 1

CONSENT FORM

I confirm that the researcher Burak Demirkesen has informed me about the study to be carried out. I agree to participate in all the activities regarding the study.

Name – Surname:

Signature:

APPENDIX 2

Pre-Test

1. We never _____ television when I was a child.

a. have had b. hadn't c. had d. didn't have

2. We paid the restaurant bill _____ credit card.

a. to b. with c. on d. by

3. The last time I _____ Joanna was in Paris.

a. have seen b. see c. saw d. was seeing

4. It's Walter's birthday on Friday. He _____ be 30, I think.

a. should b. can c. will d. shall

5. Learning the piano isn't as difficult _____ learning the violin.

a. like b. so c. than d. as

6. If the weather _____ bad tomorrow, we can go to a museum.

a. will be b. was c. is d. would be

7. About a billion cans of Coca-Cola _____ drunk around the World every day.

a. is b. are c. was d. were

8. Would you mind changing my appointment? _____ time on Friday is fine.

a. Next b. All the c. Every d. Any

9. Can you help me? I've tried _____ hotel in the city and can't find a room.

a. many b. any c. every d. all

10. Lena used to find work boring _____ she became a nurse.

a. unless b. until c. if d. since

11. My doctor advised me _____ more exercise.

a. take b. taking c. having taken d. to take

12. I _____ up with the noise in the city, so we moved to the countryside.

a. fed b. live c. set d. take

13. A: I've got to be at work in five minutes. B: Don't worry, I _____ you a lift if you want.

a. give b. am giving c. 'll give d.'m going to give

14. There's no name on this dictionary. It _____ mine then. Mine's got my name on the front.

a. might not b. mustn't c. won't d. can't

15. Julia _____ married since she was 20.

a. is b. was c. has been d. is being

16. Boxing is a sport _____ requires a lot of speed and fitness.

a. it b. that c. what d. where

17. Jon _____ working on this Project for a couple of months.

a. is only b. has only been c. was only d. had only been

18. I was wondering _____ I could ask you some questions.

a. what b. if c. that d. how

19. I've finished this salad and I'm still hungry. I _____ ordered something more filling.

a. must have b. would have c. should have d. may have

20. I _____ to be picking Tom up at the station but I've lost my keys.

a. am supposed b. am requested c. am intended d. am obliged

Name & Surname:_____

Number: _____

APPENDIX 3

Post-Test

1. Engineers develop fascinating ideas that change the world, and they also create the technologies that make our lives _____.

a. easy b. easier c. more easy d. very easier

2. In a car accident, stretching seatbelts increase the stopping distance. The work-energy principle shows that a slightly greater stopping distance puts _____ force on passengers.

a. less b. less than c. least d. more little

3. The computer programs seem to be user-friendly, however, in the background, they work in a _____ way.

a. many complicated c. more complicated

b. complicated that d. complicated than

4. It doesn't matter if a robot gets damaged. But if a human guard gets injured, it's _____ the robot.

a. really serious than c. serious than

b. many serious than d. more serious than

5. You can patrol a warehouse _____ with robots _____ with human guards.

a. more efficiently / than c. very efficiently / ---

b. more efficiently / --- d. much efficiently / than

6. The energy consumption in Turkey usually _____ in the winter.

a. rise b. rises c. is rising d. rising

7. Can you come and have a look at the pump? It _____ a strange noise.

a. is making b. making c. make d. makes

8. The television _____ an aerial so I am going to connect a cable to one of the terminals.

a. don't have b. isn't having c. doesn't have d.aren't having

9. A: _____ your new phone weigh? B: It's 174 grams.

a. How much

b. How much are

c. How much do

d. How do much

10. A: _____? B: It's 8.484 meters.

a. How is Mount Everest high?

b. How high Mount Everest is?

c. What high is Mount Everest?

d. How high is Mount Everest?

11. A: _____? B: Each has 88 floors.

a. How many floors do The Petronas Towers has?
b. How much floors do The Petronas Towers have?
c. How many floors do the Petronas Towers have?
d. How much floors does The Petronas Towers has?

12. _____ the spark plug in the four-stroke internal combustion engine ignites, the gases explode.

a. Before b. After c. When d. As

13. _____ the crankshaft rotates, it makes the piston move up the chamber towards the valves.

a. Before b. When c. After d. As

14. You should be able to write simple HTML codes _____ you begin building web applications.

a. after b. when c. before d. as

15. _____ it is baked in giant ovens, bread must be removed and placed on a rack to cool.

a. Before b. After c. When d. As

16. Satellites are pulled back by the gravitational force _____ they orbit the Earth.

a. When b. After c. Before d. As

17. Carbon fibre is used _____ provide the necessary stiffness, without adding a tremendous amount of weight.

a. to b. for c. as d. by

18. Large drills _____ holes on the roof of the tunnel. Then the holes _____ with bolts and cement.

a. are made / are filled c. make / fill

b. make / filled d. make / are filled

19. In a car factory, many things _____ around the plant by forklift trucks or conveyor belts.

a. are carried b. is carried c. carries d. carries

20. Machine code and assembly languages _____ low-level languages because they are closer to the hardware.

a. call b. are called c. called d. calls

Name&Surname:
Number:

APPENDIX 4

Open-ended Survey

INTERVIEW QUESTIONS REGARDING USE OF *SOCRATİVE* FOR STUDENTS

1. What do you think about the effects of using *Socrative* on your grammar learning?

2. What do you think about the effect of *Socrative* on your general learning performance?

3. How do you think *Socrative* affected your motivation and participation?

4. What do you think about the immediate feedback upon your answering the questions?

5. What are the advantages and disadvantages of using *Socrative*?

APPENDIX 5

GRAMMAR PERFORMANCE TESTS WEEK 1

1. If I have a portable computer, I could work _____ than I do now.

a. efficiently b. much efficiently c. more efficiently d. very efficiently

2. The programs today are _____ sophisticated _____ in the past.

a. much / that b. more / than c. more / that d. very / than

3. Some companies are very keen to produce electrical vehicles that can travel _____ _____.

a. a lot / further b. more / further c. very / further d. many / further

4. London underground engineers worked _____ than ever to resolve a problem with electric current.

a. hardly b. hard c. harder d. very hard

5. Some people think that tablets are _____ than many desktops and laptops as they have lower storage capacities.

a. more efficient c. less efficient

b. efficiently d. much efficient

6. Recent technologies advancements in car industry have enabled engineers to design new engines that can reach up to a lot _____ levels of fuel consumption compared to the numbers of the past.

a. lower b. low c. very low d. much low

7. I often _____ two or three hours a day in the meetings.

a. spend b. spends c. am spending d. spending

8. Can you have a look at the pump? It _____ a funny noise.

a. make b. making c. makes d. is making

9. _____ you _____ the amount of air pollution in cities will increase?

a. Do / think b. Do / thinks c. Are / thinking d. Are / think

10. Our energy consumption usually _____ in the winter.

a. rose b. rise c. rises d. is rising

Name&Surname:
Number:

T.C.
NECMETTİN ERBAKAN ÜNİVERSİTESİ
Eğitim Bilimleri Enstitüsü Müdürlüğü

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