T.C.
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YÜKSEK LİSANS TEZİ

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PREFACE

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ÖZET

SÖZCÜK ÖĞRETİMİNDE BİLGİSAYAR DESTEKLİ DİL ÖĞRENMENİN ETKİSİ

Bilgisayar destekli dil öğrenimi, yabancı dil öğreniminde ve öğretiminde giderek daha büyük bir role sahip olmaktadır. Yabancı dil öğreniminin olmazsa olmazlarından olan sözcük öğrenimi ve öğretimi için bir alternatif doğurmuş olan bilgisayar destekli dil öğrenimi, günümüzde yabancı dilde sözcük öğretiminde sıkça başvurulan bir yöntem olmuştur. Söz konusu çalışmanın amacı bilgisayar destekli sözcük öğreniminin, yabancı dilde sözcük öğrenimini kolaylaştırıp kolaylaştırmadığını; bilgisayar destekli sözcük öğreniminin geleneksel sözcük çalışma yöntemi olan kelime listesiyle sözcük öğrenimiyle karşılaştırıldığında daha etkili olup olmadığını ve son olarak, öğrencilerin yabancı dil eğitiminde bilgisayar destekli sözcük öğrenimine pozitif yaklaşımları olup olmadığını incelemektir. Bir diğer deyişle, bu çalışma ile geleneksel bir sözcük çalışma yöntemi olan kelime listesiyle sözcük öğreniminin, bilgisayar destekli sözcük öğrenimiyle kıyaslanarak, bilgisayar teknolojisi ve onun getirdiği dil öğrenme programlarının öğrencilerin sözcük öğrenimi üzerine olan etkisinin araştırılması ve öğrencilerin teknoloji ile sözcük öğrenimine olan tutumlarının incelenmesi hedeflenmiştir. Çalışma kapsamında, A2 dil seviyesinde olan 80 öğrenci rastgele deney yada kontrol gruplarına atanmıştır. Deney grubu hedef sözcükleri çalışmak için bilgisayar destekli sözcük öğrenme aracı kullanırken kontrol grubu aynı sözcükleri geleneksel kelime listeleriyle çalışmıştır. Ön test ve son testlerin karşılaştırılması ile sonuca varılmıştır. Sonuçlar, deney grubunun kontrol grubundan daha iyi sonuç çıkardığını göstermiştir. Deney grubuna verilen tutum anketi sonuçları ise öğrencilerin bilgisayar destekli sözcük öğrenimini eğlenceli ve etkili bulduğunu göstermiştir.

ABSTRACT

THE EFFECTS OF COMPUTER ASSISTED LANGUAGE LEARNING (CALL) ON VOCABULARY TEACHING

Computer Assisted Language Learning (CALL) is constantly gaining more significance in foreign language teaching and learning. In recent years, CALL has come to the forefront of language teaching and learning. Computer Assisted Vocabulary Learning (CAVL), which is one of the most common applications of CALL is now an integral part of EFL education. The purpose of this study is to investigate whether CAVL facilitates vocabulary learning in foreign language education; explore whether it is more effective or not when compared to vocabulary learning with traditional wordlists and finally find out whether or not learners have positive attitudes towards CAVL in foreign language education. A sample of 80 students studying in A2 level participated in the study and they were assigned to either control or experimental group randomly. While the experimental group utilized a computer assisted vocabulary learning tool to study the targeted vocabulary, the control group used traditional wordlists to study the same vocabulary. The results were analysed through the comparison of pre-test and post-test results. The results reveal that experimental group performed better than the control group. The results of the attitude questionnaire given to the experimental groups show that students find Computer Assisted Vocabulary Learning fun and effective.

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LIST OF ABBREVIATIONS

CAI	Computer-Assisted Instruction
CALI	Computer-Assisted Language Instruction
CALL	Computer-Assisted Language Learning
CAVL	Computer-Assisted Vocabulary Learning
CLT	Communicative Language Teaching
EFL	English as a Foreign Language
ELT	English Language Teaching
FL	Foreign Language
ICT	Information and Communication Technology
YOK	Higher Education Council

CHAPTER I: INTRODUCTION

Technology has become people's reality in the 21st century and it is a fact that it cannot be separated from society. The ability to use computers and information technologies in language learning has become requisite over the last two decades. Computer Assisted Language Learning (CALL hereafter), which is defined by Baturay (2007:9) as the application of computer technology to language teaching and learning in which computers are used as an aid to the presentation, reinforcement and assessment of material to be learnt, has come to the forefront of language learning and teaching. Computer Assisted Vocabulary Learning (CAVL hereafter) or Computer Assisted Vocabulary Instruction (CAVI hereafter) is considered to be one of the most common applications of CALL.

Undoubtedly, having a good command in any language is closely associated with having large vocabulary knowledge. Nation (2001) suggests that vocabulary knowledge constitutes an integral part of learners' general proficiency in a second/foreign language and is a prerequisite for successful communication. It is for sure that without vocabulary, very little can be conveyed. By learning vocabulary, learners can improve all four language skills which are listening, speaking, reading, and writing. To this end, language learners often adopt various strategies to memorize vocabulary words. For instance, wordlists or paired associations are some of the instruments utilized by language learners to learn new vocabulary words. However, the growing popularity of CAVL has brought new perspectives among language learners and teachers. Presenting information using multimedia components such as visual text, spoken text, graphics and videos is believed to facilitate learning of new vocabulary words. According to Nation's vocabulary learning theory (2001), production opportunities should enhance the learning of new words. In this sense, unlike traditional, print exercises aiming to teach vocabulary, computer technology and its attached language learning programs provide varied and repeated production

opportunities for language learners. This makes CALL an attractive alternative for vocabulary teaching and learning.

CALL has become an integral part of EFL classrooms and is likely to preserve its place as it is or gain even more popularity as technology improves. While language learners can improve their vocabulary knowledge formally in the classroom, their chances of learning new vocabulary and practicing it outside the classroom through multimedia tools have been growing. Numerous computer-based vocabulary learning programs have been designed in the last couple of decades and their number is climbing in line with the growing popularity of integration of such programs in educational contexts. This trend's getting more popular results in more and more institutions' embarking on the integration of those programs in their educational settings in order to keep up with the trends in the field of education as well as to benefit from this cost-effective vocabulary teaching approach. Each school or institution has its own way to implement such programs in its specific settings or to achieve the maximum benefit from this approach. While some of these schools execute such programs as part of the lessons in the school labs or in class computers, some others prefer them as supplementary materials to be done outside the class. Among many other benefits of CALL integration into language learning and/or teaching practices, one benefit is that it is an invaluable platform to foster independent learning. As known, it is not always easy to foster learner autonomy within the normal context of language classes considering the common expectations of language learners about both learner and teacher roles in class. However, CALL creates the suitable environment for learners to take responsibility for their own learning. Another benefit is that the use of CALL programs as a teaching tool increases student motivation on a great scale by engaging them in more meaningful and authentic tasks. In addition, multimedia nature of the majority of recent CALL tools facilitates learning in multi-sensory environments. Regarding this issue, Yang (1998) states that multimedia involves learners in the learning process by activating their different senses.

A great number of studies have been conducted to investigate the effects of the use of computer-based programs on the vocabulary development of language learners. Most of the previous research in the field of CAVL has proven that learning vocabulary with computers facilitates and accelerates L2 vocabulary acquisition (Kocak, 1997; Ozdemir, 2001; Tozcu & Coady, 2004; Nakata, 2008; Cellat, 2008; Kılıckaya & Krajka, 2010; Yan, 2010; Lin et al., 2011; Kayaoglu et al., 2011; Gorjian et al., 2011; Fehr et al., 2012). However, there are also some other studies revealing no significant difference between the two groups (Bowles, 2004; Tokac, 2005; Basoz & Cubukcu, 2014).

Considering the growing popularity of and importance given to CAVL, this study will pursue the answer to the question of whether or not CALL enhances vocabulary learning in an EFL context. With this question as the main focus, the study will also explore how students at university preparatory classes regard the use of CALL to study vocabulary. It is also our assumption that the students in this study, with regard to their age and interest areas, will find CAVL fun and meaningful, and they will consider that studying vocabulary through CAVL is more effective than studying with a wordlist.

To find an answer to the question about the effectiveness of CALL in vocabulary learning, the starting point in this study is brief summary of technology integration into teaching. This is followed with the definition of CALL, brief history and benefits of it. In the second part of the literature review, the role of vocabulary in foreign language learning is investigated. In the same part, the role of vocabulary teaching in context, vocabulary learning in multimedia environment, the use of videos in language classes to teach vocabulary is investigated. In the methodology part, the background information about the research conducted for this study is presented. After all the details including participants, research questions, instruments, and data collection are presented, the results are discussed.

1.1. TECHNOLOGY INTEGRATION INTO TEACHING

Technology has been affecting every aspect of human life in different ways since the moment it entered our lives. Education, which is an indispensable part of our lives, has certainly been affected by this invaluable invention of mankind. Today almost everyone taking part in education sector appreciates the importance of integration of technology into teaching and learning practices due to a plethora of reasons. While explicating the significance of not falling behind the latest innovations in every field including education, Akcaoglu (2008:10) quotes relevantly from the Office of Technology Association's (OTA) Report (1995: 8):

> *"You wouldn't want a doctor to remove your gall bladder without the latest technology and the skill to use that technology, would you? It's the same with teaching. [Teachers need tools, skills]…it's a profession."*

The statement above draws attention to the necessity of technology use in teaching. Things are changing very rapidly with the demands and needs of the continuously developing globalized world and so do the teaching materials, techniques and methods. As we are living in the age of technology where even 3 or 4-year-old kids who cannot read and write can quite skillfully use tablets, mobile phones or computers, being able to use technology effectively has become a kind of must for teachers. Undoubtedly, the needs of today's learners may not be met with the tools or techniques used even in the previous decade. The fact of the matter is that education history is full of innovations differing from chalks to whiteboards and cassette players to projectors. Teachers whose main goal is to teach in the most effective way always hunt for better opportunities in terms of tools and techniques of the era. That's why; Information and Communication Technology (ICT hereafter) plays an important role in society when we take into account the social, cultural and economic role of computers and the Internet (Tondeur, van Braak & Valcke, 2007) and ICT offers flexible and individualized forms of learning. While motivating and encouraging learners to be more independent, it also promotes lifelong learning.

Teachers who are not intimidated to make use of new technologies in their teaching practices do not fall behind the latest educational trends and serve better for their students' needs by benefiting from this valuable invention. The benefits of Information and Communication Technology (ICT) for each party; namely, for the students, teachers and parents have been comprehensively summarized by Pelgrum (2001, as cited in Akcaoglu, 2008:11).

Actor	**Education in the Industrial Society**	**Education in the Information Society**
School	• Isolated from society • Most information on school functioning confidential	• Integrated in society • Information openly available
Teacher	• Initiator of instruction • Whole class teaching • Evaluates students • Places low emphasis on communication skills	• Helps students find appropriate instructional path • Guides students' independent learning • Helps students to evaluate own progress • Places high emphasis on communication skills
Student	• Mostly passive • Learns mostly at school • Hardly any teamwork • Takes questions from books or teachers • Learns answers to questions • Low interest in learning	• More active • Learns at school and outside school • Much teamwork • Asks questions • Finds answers to questions • High interest in learning
Parent	• Hardly actively involved in learning process • No steering of instruction • No life-long learning model	• Very active in learning process • Co-steering • Parents provide model

Table 1:Expected changes from education in an industrial society to education in an information society

As the table above illustrates, with the help of technology integration into education, not only students' but also teachers' and parents' roles differ enormously. Teachers' role as knowledge transmitters and students' as passive knowledge receivers are no longer valid since there is a shift from teacher-centered classes to student-centered ones. Students do not passively wait to be filled with information by the teacher. Instead, depending on the nature of the task, they work collaboratively or individually to learn, ask and answer questions and produce. As students have more freedom to decide what to do and how to do it, they take more responsibility for their own learning, which leads to autonomy in the long run. When students learn to be autonomous individuals, they succeed more in their future educational, professional and personal lives. In addition to the aforementioned benefits, technology integration also increases motivation levels of learners, enhances the opportunities to learn outside the school, lowers anxiety levels of particularly shy and less confident students, and engage learners more while learning/teaching takes place (Huang & Hwang, 2013).

However, every type of computer use may not necessarily trigger aforementioned changes in the teaching process as the use of computers can be categorized into using computers as 'teacher tools' and 'student tools' (Cambre & Hawkes, 2004). Using computer as teacher tools can be defined as the use of technology and computers by teachers to prepare worksheets and lessons, which increases student motivation thanks to the images, graphs, videos used. This usage does not bring about skill integration and authentic communication (Cambre &Hawkes, 2004; Young, 2003), but it eases teachers' work. Using computer as student tools, on the other hand, has more significance due to its direct influence on learner autonomy, student-centeredness, and motivation. Specifically, in language teaching, technology integration provides learners with opportunities to engage in authentic communications with people from all around the world and learn their cultures. It needs to be reminded that the usage of computers as student tools that require learners to take active roles in the learning process should be considered as the ideal and effective technology integration (Akcaoglu, 2008:12). The success of technology integration into teaching and learning depends heavily on the depth of the

knowledge of both learners and teachers on the benefits of it. Any form of technology integration should have an educational value on the side of the learners. Only in this way, ICT can bring about the expected and desired outcomes.

1.1.1. Educational Technology in Turkey

The economic and political changes in European countries in the 18th century had a profound impact on the education system in the Ottoman Empire until the establishment of the Republic of Turkey. Up until the establishment of the Republic of Turkey, there had been constant changes in the army and administration and these reforms clearly affected the educational institutions which were lacking in both quantity and quality at that time. A modernization period was witnessed in the educational institutions and one of the most important changes was the establishment of secularized education under the responsibility of the National Ministry of Education (MONE).

In the 1930s, teaching materials for instructional use in Turkish schools included maps, laboratory equipments, and film strip projectors. Until the 1940s, mostly printed instructional materials were used in schools. However, starting in the 1960s, Turkey began a journey of educational change that still continues today. Between 1950 and 1970, the schools had technologies like audio cassettes and overhead projectors. Although they may be perceived as minor developments by some, they, indeed, may have opened the doors to a more sophisticated, modern and technological means of education in 2000s. In 1962, the "Centre for Educational Radio" started to develop educational radio programs for students (Alkan, 1998).

Since the 1970s, the Turkish government has launched several projects aimed at improving the quality of education. These projects include up-grading the curricula and instructional materials, revising student achievement tests, improving the teacher training system, and increasing the research component in education (Turkmen and Pedersen, 2005:116). The introduction of television in the 1970s contributed to the integration of technology into education. The year when distance

education was first introduced to students in Turkey was 1974. In the mid 1970s, Turkey's first educational television project was designed at the Eskisehir Academy of Economic and Commercial Sciences. The immediate success of this small project showed that technology could be used for instruction in an educational setting (McIsaac, Murphy & Demiray, 1988). With the success of the project, positive attitudes and perceptions about the usefulness of television as an educational tool emerged among the educators. It was believed that television was a very useful educational tool, especially for teaching abstract ideas or concepts because of transmitting visual and audio signals at the same time (Turkmen & Pedersen, 2005). The integration of television into educational settings resulted in better learning experiences. Regarding this issue, Barkan and Demiray (1990:5) state that "with the help of television, students' learning of new concepts improved about 30%, their attention about 35% and their perseverance about 50%". In this way, television has become one of the most effective instructional technologies used in Turkey and started in the 1970s for foreign language instruction (Saglik & Ozturk, 2001). For foreign language instruction via television, the aim was to assist students in learning English, German and French. It was also in 1970s when graduate programs aimed at training professionals in the field of educational technology were offered by some big universities in Turkey. In 1987, the Ministry of National Education began to offer summer courses on television for students who could not progress in the official academic year. However, due to a plethora of reasons, television lost its popularity in the field of education. Mutlu (1995) states that teachers encountered some classroom management problems since interaction was missing while teaching via televisions. Besides, learning via televisions was a passive process since the lessons with televisions were not student-centered. Neither the students nor the teachers could get the expected feedback from televisions.

As a groundbreaking invention, computers started to be used in almost every field including military, business, economy and education all around the world in the 1980s. Since computers are seen as tools enabling smooth and rapid access to the knowledge and skills the students will need in the future, computers have gained more importance than any other educational technology. First of all, the MONE

embarked on a project called “Computer Aided Education” in 1984 aimed at training more teachers about how to use computers efficiently and effectively. In the scope of this project, 48 training programs on technology integration were organized and 2240 teachers were trained in computer literacy and programming (Turkmen & Pedersen, 2005). As an attempt to integrate technology in educational settings, a pilot study was started in the 1985-86 school year, for which 1100 microcomputers were purchased and given to 121 secondary schools for computer education at a ratio of one computer to one teacher or one computer to ten students (Akkoyunlu & Orhan, 2001). During the following years, secondary and vocational schools were provided with 2400 more computers. However, it was soon realized that the only purpose to use computers shouldn’t be to educate students about computers, but they should be used as an instructional media. Hence, Computer Assisted Instruction (CAI) gained momentum in the Turkish Educational System.

Another initiative started by the Ministry of Education came in 1989. The project inviting private computer companies to collaborate to integrate computers into teaching was supported by World Bank. This project had significance not only for its attempt for computer integration into teaching, but also for its leadership to train teachers about computer integration into teaching practices.

When it comes to the web-based instruction, it is said that in the 1990s, educational uses of the internet in Turkey were in their infancy period (Turkmen & Pedersen, 2005). At that time, there were only a couple of attempts to integrate the internet into K-12 schools and higher education institutions in Turkey. In 1990, the first computer network connection was established in Turkey. During the first six years, several universities were the dominant users of this tool. However, since the mid-1990s, the internet has become widespread in different fields all around Turkey. Although many attempts to integrate the Internet in primary and secondary school curricula have been observed since mid-1990s, many of them didn’t yield any positive, long-lasting outcomes. However, a few private schools and institutions were allowing their students to use the Internet to communicate with foreign peers and do research related to their homework.

In 1992, a computer-mediated distance education was implemented between Turkish Open University and American universities named the University of New Mexico, the University of Oklahoma, Florida State University, Arizona State University, and the University of Wyoming. Students in Anadolu University evaluated the project which was based on Internet connection among these universities as very successful. The students expressing their views on the project highlighted that the "global classroom" provided them with practice for their English skills, new friends from around the world, equal access to information, a cost-effective way of receiving information, delivery of information outside traditional classroom lectures, and the opportunity for individual interaction with information (McIsaac, 1992).

There is a tendency toward web-based instruction programs in most open universities and some other educational institutions. Some of them have already started to offer on-line degree or certificate programs. To give an example, Anadolu University declared as one of top ten mega universities for distance education in the world by the World Bank has provided online self-test opportunities for its distance learners since 1998. It has also been trying to offer some online alternative courses for its on-campus students in order to be able to understand how feasible, effective, efficient and appealing it is to offer online programs, and established a foundation for virtual university in 1998 (Usun, 2003). Just like Anadolu University, many other Turkish universities are opening online certificate and degree programs recently.

Regarding the more recent IT policies in Turkey, Akkoyunlu and Orhan (2001) maintain that the National Council of Education which convened in May 1996, focused its work on the following five issues in order to reconstruct the education system in conformity with the anticipated social, scientific, and technological developments of the 21st century:

1. Primary education and its orientation
2. Reconstruction of the secondary education system
3. Re-arrangement of the ways of transition to higher education
4. Meeting the educational needs of society

5. Financing of education.

The project called “Project for Globalization in Education 2000” and supported by the World Bank was one of the very important steps taken in the Turkish Educational System (Akkoyunlu & Orhan, 2001). The aim of the project was to catch up the innovations and developments done in the field of instructional technology and to integrate instructional technology in each level of the education system. With this project, the use of computers in educational settings became more widespread since new computer labs were founded in 2451 primary and secondary schools in 80 cities and 921 towns in Turkey. The technology classes in each of these schools were equipped with computers, printers, scanners, office programs, courseware for computer literacy, courseware for different subjects, edutainment (education+entertainment) courseware, electronic references, video, overhead projectors, TV, educational videocassettes, and transparencies. Free Internet access was provided to these schools by the computer companies sponsoring this project. In addition, people living near the schools had a chance to use the internet during the weekends. In this project, some basic principles were accepted for Turkey to move into the 21st century and these principles are as follows:

a. To support formal education through distance education
b. To install computer labs in primary education institutions and provide access for all students to Computer Assisted Education
c. To make students and teachers computer literate
d. To equip the schools with modern technological materials

In-service training programs for teachers to develop their skills in using computers and computer assisted teaching methods have been in practice since 1985. Within the framework of reconstruction of educational faculties, “Computer” and “Instructional Technologies and Material Development” courses are part of compulsory teaching certificate courses in all teacher education departments. The aim of this new arrangement is given as follows in a Higher Education Council report:

> *"It is aimed that via these courses the teacher candidates be familiar with and capable of using technologies as computer, Internet, multimedia, television, video, and projection equipment. Thus, the future teachers are anticipated to know the technology and apply it efficiently in instructional settings."*

The Higher Educational Council (YOK) has established a committee named the "National Informatics Committee" (EMK) with the purpose of facilitating academic cooperation by enabling the sharing of educational resources among universities, increasing effectiveness of education through information technology and increasing the efficiency of higher education (Usun, 2003). Usun (2003) conducted a survey to determine the attitudes of undergraduate students towards the educational uses of the Internet. Turkish students taking part in this survey believed that:

1. The Internet is as important as other research tools
2. Using the internet is easier than using library
3. Using the Internet makes learning fun
4. They accessed the Internet more at school than at home
5. Their knowledge of the Internet is essential for surviving college.

Bearing the results of Usun's study in mind, it can be claimed that although both Turkish educators and students know how important and useful the Internet and technological tools are for teaching and learning, the extent to which they are exploited in educational platforms is limited due to a variety of reasons such as lack of financial resources and appropriate planning. It is well-known by educators that the Internet is an educational tool of enormous potential. Although there have been many tendencies and attempts to integrate the Internet into Turkish educational system, the educational uses of the Internet in Turkey are still in the infancy period compared to the other developed countries (Usun, 2003).

In spite of the reforms made over the last decades, the integration of computer-assisted education into the Turkish education system has been at a rather slow pace.

Even in 2010s, the number of computers available in K-12 schools is low. Although some private higher institutions and K-12 schools started to utilize the hardware and software educational tools to assist their education, in particular language teaching, this could only be achieved nationwide in 2006 when English Language Training System DynED was donated to the Ministry of Education.

Since then, the number of institutions interested in the integration of computer technology and its attached language learning programs has been on the increase; however, the integration of computer-assisted education and computer-assisted language learning is still an ongoing process in the context of Turkey.

1.1.2. Instructional Technologies in ELT

Revolutions in technology have had a profound impact on foreign and second language classes as well. To meet the requirements and the challenges of the high-tech world, developing digital practices in the language class has become a necessity. Zengin (2005) states that being indifferent to current developments brings about English language teaching which falls behind the conditions of the time. To that end, the introduction of ICT in language teaching seems to have become a prerequisite to the modernization of the education system and learning methods. It can be suggested that especially, in the last decade, institutions are in a kind of competition to take better advantage of new technological tools in language classes as they have the potential to compensate for the inadequacies of traditional language teaching practices such as lack of authentic communicative interactions.

Dramatic increase in the use of computers and the World Wide Web in language classes in recent years indicates the educators' belief in the benefits and effectiveness of technology as a language learning and teaching tool. A significant amount of research has been conducted to reveal the potential of the use of Instructional Technologies in ELT. In the early 1990s, there were some concerns over the value and place of computer technology in foreign language classrooms. At present, on the other hand, the question is not whether to implement computer technology in language classes or not. Given the strong faith in the potential of

computer technology for language learning, the question today is how to integrate it into language classes to augment teaching and learning and increase student involvement. There are several studies aiming to reveal the potential benefits of ICT in English Language Teaching classes. Regarding this issue, Lee (2000) and Young (2003) claim that successful implementation of technology has the potential to improve the efficiency of language teaching and learning practices by increasing learner motivation and autonomy. In their research from 1990 to 2000, Liu, Moore, Graham, and Lee (2002) found out that the use of visual media supports vocabulary acquisition and reading comprehension and helps increase achievement scores while the use of online communication tools improves writing skills of learners. It is also revealed in their research that simply using the computer to generate materials, authentic or not, was not enough; rather, tasks and activities that involve the use of such materials were found to promote successful learning. Therefore, in addition to being a source of motivation, technology integration into language learning helps learners to improve all their language skills with the support of visual media, and authentic texts as well as authentic communication opportunities.

During the 1960s and 1970s, language teaching history witnessed a rapid increase in the establishment of language laboratories which were actually the early uses of computers in L2 teaching/learning. The instant spread of language labs was the consequence of two major developments in the field: legislative support and new learning theories (Salaberry, 2001:43). First, at that time, there was a strong legislative support for such instructional equipment. Salaberry (2001:43) pointed out that "…since the enactment of the 1958 National Defense Education Act, the installation of language laboratories and other electro- mechanical devices has mushroomed…all over the United States". Secondly, audiolingualism became the language learning theory of the time. Anderson (1964; as cited in Salaberry, 2001:43) states that:

> *"…a main objective of the language laboratory is to afford a type of learning experience that will produce unhesitating, automatic oral responses with little or no reliance upon analytical crutches".*

However, towards the 1980s, some L2 teachers developed negative attitudes towards the use of language labs. One reason for it was the overemphasis on structural drilling whereas the lack of meaningfulness principle. Another thing was the fact that pre-selected materials were sometimes of no interest for the learners because of their topics. Besides, language labs were not capable of offering programs for advanced learners. Due to all these negatives, there appeared a new path for a new technology-assisted learning which was computer-assisted instruction (CAI).

According to Adams, Morrison, and Reedy (1968), CAI had the potential in its capability to supervise student performance and to monitor, record, analyze, and summarize data about that performance (as cited in Salaberry, 2001: 44). The early CAI programs were implemented by a central computer system called Programmed Logic for Automatic Teaching Operations (PLATO). The activities offered in this system were again based on computer drilling. The system mainly works by providing the students with questions or options and giving feedback to students' response or helping the students until they arrive at the correct answer. However, there was again widespread skepticism about the teaching effectiveness of CAI since there were mostly drill-practice type activities. The dissatisfaction with the CAI programs of the 1980s led researchers to look for alternative answers, which came out to be Computer-Assisted Language Learning (CALL). In the 1980s, the technology used in language teaching included films, radio, TV, language labs with audio and videotapes, computers and interactive videos. The activities offered to language learners by the technology of that time were in line with the language teaching methods of the period. That is to say, language teaching with technology has witnessed a shift from a structural approach which grounds on drill-and-practice exercises towards a more communicative and interactive one.

1.1.3. CALL in Language Teaching

1.1.3.1. Brief History of CALL

CALL can be defined as any language learning and teaching practices supported by computer technology. Computers have been used for language teaching since the 1960s. The history of CALL can be roughly divided into three main categories: Structural/Behavoristic CALL, Communicative CALL, and Integrative CALL (Warschauer, 2000). Table 2 below shows the three stages of CALL.

Stage	1970s-1980s: Structural/Behavioristic CALL	1980s-1990s: Communicative CALL	21st Century: Integrative CALL
Technology	Mainframe	PCs	Multimedia and Internet
English Teaching Paradigm	Grammar-Translation & Audio-Lingual	Communicative Language Teaching	Content-Based, ESP/EAP
View of Language	Structural (a formal structural system)	Cognitive (a mentally-constructed system)	Socio-cognitive (developed in social interaction)
Principal Use of Computers	Drill and Practice	Communicative Exercises	Authentic Discourse
Principal Objective	Accuracy	And fluency	And agency

Table 2: The Three Stages of CALL

Structural/behavioristic CALL was conceived in the 1950s and the first applications of computer technology in foreign language (FL) teaching field were implemented in the 1960s and 1970s. Within the Skinnerian behaviorist framework, this mode of CALL featured repetitive language drills as due to the pedagogical

approach of the period, learning a language was understood as continuous drilling, chunk memorization and rote learning. In this regard, language teaching was viewed as a type of conditioning, getting students to produce a series of responses in reaction to particular stimuli (i.e., stimulus/response theory)(Blake, 2008:49). The first computer language programs developed at Stanford University, Dartmouth College, and the University of Essex were particularly concerned with Russian language instruction (Beatty, 2003; as cited in Blake, 2008:49). Yet, these programs replicated and were linear in nature the activities in the language coursebooks. Therefore, this approach is also named as Computer Assisted Language Instruction (CALI). CALI is different from CALL in that the latter puts emphasis on communicative competence while the former is based on behaviorist approach which mainly includes drill-and-kill type of practices which were repetitive and dull in nature. At the time of Behaviouristic CALL, the only difference was that learners were doing the activities on computer screens, rather than on papers. All the activities offered to students on computer screens were controlled drill practices in which computer-as-tutor model was applied. Rather than working on paper worksheets, students were dealing with exactly the same grammar practices with the help of computers. Later in the same decade, University of Illinois launched the best-known tutorial system, PLATO. It also featured extensive drills, grammatical explanations, and translation tests at various intervals. This program just like the other ones developed at that time was designed to provide immediate positive or negative feedback to learners on their accuracy of their answers. This was consistent with the structuralist approach which highlighted the importance of repeated drilling on the same materials for effective learning.

In the late 1970s and early 1980s, communicative CALL emerged. At that time, behavioristic approaches to language teaching were being rejected both at the theoretical and pedagogical level. It was also the time when new personal computers were creating greater possibilities for individual work. Communicative CALL stressed that computer-based activities should focus more on using forms than on the forms themselves, teach grammar implicitly rather than explicitly, allow and encourage students to generate original utterances rather than just manipulate

prefabricated language, and use the target language predominantly and even exclusively (Yang, 2010: 909). In 1984, Macintosh which was a new platform with its graphical user interface was released. Its HyperCard application introduced the concept of hypertext which is a nonlinear way of organizing multimedia materials, information, and activities. Popular CALL software developed in this period included text construction programs, which allowed students working alone or in groups to rearrange words and texts to discover patterns of language and meaning and simulations, which stimulated discussion among students working in pairs or groups.

The last phase called integrative CALL seeks to integrate all the language skills and technology into the language learning process. In integrative CALL, students utilize a variety of technological tools as an ongoing process of language learning and use, rather than visiting the computer lab on a once-a-week basis for isolated exercises. The basis for this new stage of CALL lies in both theoretical and technological developments. Theoretically, there has been broader emphasis on meaningful interaction in authentic discourse communities. Technologically, there has been the development of computer networking, which allows the computer to be used as a vehicle for interactive human communication. This latest phase enables learners to practice the skills they have learnt at school in virtual environment with authentic materials and real people and even native speakers of the language they have been studying.

Although the history of the use of computers in foreign language classes does not go back a long way, the ways how they are used have frequently changed since they entered language classes. The path of computer assisted language learning is quite similar to what language teaching itself has followed to the present day (Akçaoğlu, 2008: 13). Although the three stages of CALL introduced by Warschauer Healey (2000) are widely accepted among educationalists and ELT professionals, there is also some criticism on the features of the different stages of CALL. Regarding this, Bax (2003:16) states that "…of the three categories, the first, Behavioristic CALL is perhaps the most plausible and would accept most agreement,

but the other two categories are far less satisfactory". First of all, Bax (2003) suggests that language teaching still operates today very much within a communicative framework in many teaching contexts. He maintains that it is confusing for teachers to hear that 'communicative CALL' is no longer with us. That's why, he finds using the term 'communicative' for the second phase of CALL ineffective and useless. He also states that while Warschauer refers to Underwood (1984) for his definition of 'communicative CALL', it is surprising to see that in Underwood's list, there is no mention of communication at all, which is certainly central to communicative language teaching. Additionally, in the programs developed in the second phase of CALL, the computer remains the "knower-of-the-right-answer" and according to Bax (2003), this represents an extension of computer-as-tutor model. Secondly, Bax (2003) also approaches the third category "Integrative CALL" doubtfully as he claims that the use of language in authentic social contexts had already been stressed from the very beginnings of CLT. Thus, in terms of attitude to language and language teaching, it has not been clearly distinguished from communicative approaches. Due to the uncertainties and dilemmas he has found in this analysis, Bax (2003:21) came up with a new outline for the history of CALL (see Table 3).

Content	Type of task	Type of student activity	Type of feedback	Teacher roles	Teacher attitudes	Position in curriculum	Position in lesson	Physical position computer
Restricted CALL Language system	Closed drills, quizzes	Text reconstruction, answering closed questions, minimal interaction with other students	Correct / incorrect	Monitor	Exaggerated fear and / or awe	Not integrated into syllabus-optional extra	Whole CALL lesson	Separate computer lab
Open CALL System ad skills	Simulations, games, CMC	Interacting with the computer, occasional interaction with other students	Focus of linguistic skills development Open, flexible	Monitor facilitator	Exaggerated fear and / or awe	Toy Not integrated into syllabus – optional extra Technology precedes syllabus and learners needs	Whole CALL lesson	Separate lab – perhaps devoted to languages
Integrated CALL Integrated language skills work Mixed skills and system	CMC, WP, email	Frequent interaction with other students Some interaction with computer through lesson	Interpreting, evaluating, commenting, stimulating thought	Facilitator Manager	Normal part of teaching - normalized	Tool for learning Normalized Integrated into syllabus, adapted to learners' needs and context precedes decisions about technology	Smaller part of every lesson	In every classroom, on every desk, in every bag

Table 3: Restricted, Open and Integrated CALL: an outline

Instead of “Behaviorist CALL”, he uses the term “Restricted CALL”. He justifies his preference for this term as the term allows us to refer not only to a supposed underlying theory of learning but also to the actual software and activity types in use at the time, to the teachers’ role, to the feedback offered to students and to other dimensions – all were relatively restricted, but not all were behaviorist. The ways in which Restricted CALL fits all the key dimensions given in the first row can be seen in row two. For instance, teacher’s role is restricted to monitoring and feedback is restricted to closed responses and so on. For the second approach, “Open CALL” is used since it is relatively open in all dimensions from the feedback given to students to the software types and role of the teacher. For the final stage, “Integrated CALL” is used instead of “Integrative CALL” as the writer believes it represents an aim towards which we should be working.

In short, Bax (2003) suggests that while his three approaches coincide with general historical periods of CALL, his terminology prevents conceptual confusions with behaviorist and communicative approaches to learning and teaching. He also claims that his classification is more accurate as a description of what happened in the past and is happening now.

1.1.3.2. The Advantages of CALL

When planned carefully, computer-assisted language learning and teaching has the potential to provide an easier and better understanding for language learners. Kung (2002) suggests that using computer technology and its attached language learning programs help create independent and collaborative learning environments. As for the reasons why to use CALL, Lee (2000) lists some as follows:

(a) chances for experiential learning,

(b) increased motivation,

(c) enhance student achievement,

(d) authentic materials for study,

(e) greater interaction,

(f) individualization,

(g) independence from a single source of information,

(h) global understanding

As CALL is generally associated with fun activities and games, student motivation increases with the integration of CALL into learning. They can access various authentic resources while studying a new language. Their learning is individualized as they go at their own pace. While studying with a CALL tool, shy or inhibited students can benefit most from this individualized and student-centered learning while high fliers can also realize their full potential without preventing their peers from working at their own pace (Lee, 2000). New opportunities to foster language development by improving reading, writing, speaking, listening, grammar and vocabulary knowledge are also regarded as the advantages of the of CALL tools used either in or out of the classes. Moreover, computer-assisted language learning tools provide multisensory input for learners with infinite audio and visual materials. Some well-designed CALL programs support the Multiple Intelligences Theory of Gardner (1999). According to Gardner's theory, individuals possess eight or more relatively autonomous intelligences which include linguistic intelligence, logical-mathematical intelligence, spatial intelligence, musical intelligence, bodily-kinesthetic intelligence, naturalistic intelligence, interpersonal intelligence, and intrapersonal intelligence. Some CALL tools which take learning differences into consideration and serve for different intelligences have the potential to compensate for the deficiencies in class practices regarding this important aspect of learning. Another advantage of CALL suggested by Healey (2002) is that computers are beneficial in developing certain reading skills such as skimming, scanning, recognizing details, main ideas, topic sentences and predicting what will come next. In addition to this, they can help language learners build self-instruction strategies and self-confidence.

CALL programs are also useful in terms of providing feedback to the teachers about the students' progress. Undoubtedly, so as to help students better in the language learning process, it is crucial to observe and check their learning progress. When teachers attempt to assess students' learning progress, they can get the essential information from a well-designed computer language learning programs and then offer feedback tailored to students' learning needs (Taylor & Gitsaki, 2003, as cited in Lai & Kritsonis, 2006).

Among the advantages and benefits of integrating a computer into language learning and teaching, Dina and Ciornei (2013: 251) list the following:

a. Computer can promote language interaction between teacher and learners;
b. It offers the possibility to simulate some processes and phenomena in motion through animation, and thus some experimental demos;
c. Methods and manners of organizing efficiently and modern the educational / learning process;
d. Getting used to computer technology from an early age influences students' intellectual development;
e. It offers the possibility of realizing a string of didactic operations which are very important for evaluation, and also for developing students' creativity.

CALL tools are powerful in the sense that they give the students control over their learning, individualizing their needs accordingly, promoting learner independence and development of learning strategies. CALL tools are beneficial even for the repetitive, drill-and-kill type, grammar exercises. Tuncok (2010:47) states that "…for grammar and vocabulary development, CALL makes mechanical exercises and drills more interesting and effective than the traditional instruction in the classroom". Moreover, instant feedback learners can get from the programs are quite motivating for them.

CALL provides a less threatening and stress-free environment. It is very well known that in a less-threatening environment where the affective filter is low,

learners can learn better. Shy or inhibited learners can be greatly benefited through the individualized technology-learning environment, and studious learners can also proceed at their own pace to achieve higher levels. A relaxed and comfortable atmosphere motivates them, and therefore they perform better. They are motivating tools as they can provide access to a lot of funny games and communicative activities, thus reducing learning stress and anxiety, as they provide repeated lessons as often as necessary (Dina & Ciornei, 2013:252). By means of various communicative and interactive activities, computer technology can help second language learners strengthen their linguistic skills, affect their learning attitude, and build their self-instruction strategies and self-confidence (Lai & Kritsonis, 2006).

Additionally, many concepts and cognitions are abstract and difficult to express through language. At this point, computers make up for this shortage by showing the image on the screen.

In a nutshell, computer technology and its attached language learning programs offer infinite benefits for learners. These benefits have been roughly explained in this section. Three among these advantages stand out and in the following section, they will be elaborated thoroughly.

1.1.3.2.1 CALL and Autonomous Learners

Holec (1981:3) defines autonomy as "the ability to take charge of one's own learning". Another more comprehensive definition of autonomy is given by Boulton, Chateau, Pereiro and Azzam-Hannachi (2008) as follows:

> *"…learners should be able to take all the decisions concerning their learning: determining targets and objectives, choosing contents and materials, selecting methods and techniques, organizing their learning, and assessing their progress."*

In the same vein, Healey (2002) points out that a good language learner is the one who sets his or her own direction and takes responsibility for his or her own learning. It is a well-known fact that when learners take responsibility for their own

learning, the quality of learning enhances, however, it is not always that easy to foster learner autonomy within the normal context of language classes considering the common expectations of language learners about both learner and teacher roles in class. That is, teacher imparts the knowledge to the learners and learners memorize what is presented to them by the teacher. However, considering the nature of it, ICT has the potential to foster autonomy as it is claimed to provide greater freedom and flexibility for learners to learn at their own pace. Therefore, with the integration of the Internet-based tools into the language teaching and learning practices, learners are better able to gain autonomy and feel more responsible for their own learning and thus they feel more motivated to learn (Liu, Moore, Graham & Lee, 2002; Yang, 2001; Young, 2003). If an example should be given, different from teachers, computers can repeat the same instruction as many times as learners want. In this way, they can go at their own pace without feeling the pressure by the teacher and the other learners. According to Braul (2006), this kind of working, namely working at their own pace, has an anxiety-reducing effect.

Being an autonomous learner is not an easy thing. To put it simply, it requires certain skills such as being able to track one's own progress or being aware of one's own learning styles. With its countless features and applications, the Internet and CALL is an invaluable platform to foster independent learning. A plethora of both authentic and inauthentic materials that can be used to practice and advance the language by independent learners or multimedia feature of new technologies that help learners to study the materials which fit their learning styles can be given as examples.

Being autonomous is also linked to critical thinking. The use of CALL programs helps learners develop critical thinking skills by making them more active participants in the learning process rather than being passive receivers of knowledge transmitted by the knowledgeable teacher. When the teacher acts as a facilitator, not as a knowledge provider, learners who get proper guidance from the teacher work on their own and develop the habit of critical thinking (McGrail, 2005). While working on their own and getting the proper guidance, learners feel more motivated to learn

as this self-paced experience forces the learners take responsibility for their own learning.

To sum up, CALL and ICT are acknowledged to augment learner autonomy by providing the learners with freedom to decide on their learning priorities and to learn at their own pace.

1.1.3.2.2. CALL and Motivation

It is a well-known fact that any type of technology integration into the language classes functions as a good learner motivator. A great deal of research has been conducted to understand the relation between motivation and technology integration in language classes. Those studies have revealed that the use of the computer technology and its attached language learning programs as a teaching tool increases student motivation on a great scale by engaging them in a more meaningful and authentic tasks. Houcine (2011) points out that ICT increases learners' motivation and thus enhances personal commitment and engagement. On the same issue, Ellinger et al (2001) point out in their study that CALL, as an important tool, encourages students, increases autonomous learning potential and brings enthusiasm into the classroom. The multimedia features of computers facilitating the understanding of reading texts and vocabulary, therefore creating a better platform to foster learning can be regarded as the main source of motivation for learners in the context of CALL.

Experimenting with a CALL program to improve language skills can be quite attractive for learners since alternative resources and practices, provided that they meet the needs and the interests of the learners, have always triggered excitement and motivation. According to Young (2003), the charm of the virtual environment might be one of the main reasons for the observed increase in motivation by students. Young (2003) also notes that "the integration of communication technology on the Internet with English facilitated the creation of a virtual environment that

transformed learning from a traditional passive experience to one of discovery, exploration, and excitement in a less stressful setting".

In the teaching of four main language skills, namely; speaking, listening, writing and reading, ICT plays a significant role in increasing the motivation levels of learners by engaging them fully with online activities. According to Teeler and Gray (2000), the real motivating factor in using the Internet for speaking skill can be video-conferencing and cross-curricular projects. As for the writing skill, Krajka (2000) stresses that with the help of websites and online applications, writing can be more interesting, appealing and motivating for learners. For the reading skill, it is said that computer-based reading texts are more authentic, effective and motivating for every language learner.

1.1.3.2.3. CALL and Authenticity

Authenticity has always occupied a significant place in the ELT world, and therefore the use of authentic materials in foreign language learning has a long history. Gilmore (2015: 98) defines authenticity as follows:

> *"An authentic text is stretch of real language, produced by a real speaker or writer for a real audience and designed to convey a real message of some sort."*

Language teachers have gone through the days when the flyers, museum tickets, brochures, newspapers, magazines were invaluable pieces just because they were the real things that real people used in the real world. The lack of easy and up-to-date access to such materials limited their use and effectiveness. Leaving those days behind, language teachers today enjoy the wide variety of authentic materials readily available just by a mouse click. The development of the Internet has led to a previously unimaginable, immediate resource for language learners (Mitchell, 2009:32). The vast availability of original, authentic texts, and also audio and video files on the Internet can provide instant contact and stimulus for the language learners. Thanks to the Internet, language teachers can have access to various

authentic materials ranging from online newspapers to concert flyers with the help of which more meaningful and engaging tasks can be created easily.

Braul (2006: 28) claims that "audio and video clips accessed through a CALL program allow students to listen and watch native speakers in realistic, meaningful, natural and culturally appropriate situations". That is to say, learners are not only exposed to authentic language but they are also exposed to authentic culture. Being aware of cultural conventions can foster intercultural communication which ultimately leads to better exchange of ideas in an intercultural context. According to Warschauer and Meskill (2000:307), one of the biggest advantages of authentic documents is that

> *..[the authentic documents] immerse students in discourses that extend well beyond the classroom, their immediate communities, and their language textbook. This is particularly critical for foreign language students who otherwise see the target culture only through their instructor and select curricula.*

When learners hear authentic speech in such video or audio clips, language teachers that are often non-native speakers of the language being studied are no longer the only source that the learners model.

Readily available up-to-date realia helps students gain a level of cultural awareness which can otherwise be acquired only through experience abroad. Moeller (1997) underlines that when the learners deal with a text of a contemporary topic, they become motivated to read and learn more. That means, the Internet not only supplies the learners with culturally authentic materials but also fosters learner motivation due to its authenticity.

In addition to written authentic materials, the Internet is also a platform where learners of any language can engage in authentic communication with the speakers of that language. Braul (2006) and Warshauer &Meskill (2000) point out that one unique opportunity the Internet provides is the authentic communication with native speakers of English with the help of synchronous or asynchronous communication channels.

All in all, ICT and CALL programs give learners a plethora of opportunities to learn a foreign language in authentic contexts. Having an authentic purpose while reading or writing, communicating with a real audience and watching a movie clip designed to convey a real message are just some of the things CALL and ICT can offer to language learners, which actually makes learning experiences more meaningful and realistic.

1.1.3.3. Limitations of CALL

Although the application of computer technology has become a new trend in foreign language teaching and learning with the ever-developing modern technology, it still has some limitations and weaknesses. The disadvantages are related to financial problems, hardware and software problems, internet connection problems, problems resulting from limited technology knowledge or lack of training.

The main problem seems to be about the financial aspect. Gips, DiMattia and Gips (2004) highlight that increased educational costs and unequal education opportunities are the first disadvantage of computer and its assisted language learning programs. When computers become a new basic requirement for education, low-budget schools and low-income students cannot afford to purchase a computer or its attached programs. CALL requires computers, software and other equipment which are all expensive. Once computer laboratories are established, it is difficult to re-equip them for several years. The upgraded versions of computers, hardware and software are replacing the previous ones rapidly and the latest versions are becoming obsolete very fast. Hence, the institutions that cannot keep up with these rapid changes due to their low or restricted income become disadvantaged and this leads to unfair educational conditions for poor schools and students.

Secondly, lack of basic technology knowledge or insufficient knowledge about how to integrate this technology into teaching practices in order to assist learners in this process can be another barrier to get maximum benefit from CALL. It would not be realistic to expect success from CALL provided that both the students

and the teachers lack training in the uses of computer technology. In order to obtain success from a CALL program, it goes without saying that both the teachers and students should be competent in utilizing computers to a certain extent. Therefore, both teachers and students need training in order to acquire ICT basic competencies that let them to utilize computers, otherwise students may become frustrated instead of being motivated to learn and teachers may refuse to use a technology which they are not good at. It is also worth mentioning that insufficient competence of computers may lead to negative attitudes toward the computers and language as well.

The third shortcoming of the application of computer technology in language learning is the fact that the software today is still imperfect. Current computer technology mainly deals with writing, reading and listening. Although there are some speaking programs developed recently, their functions are limited. Warschauer (1996) pointed out that a program should ideally be able to understand a user's "spoken" input and evaluate it not just for correctness but also for "appropriateness". An ideal program should be capable of detecting learners' problems with pronunciation, syntax, or usage and then intelligently decide among a range of options.

Fourth, computers cannot cope with unanticipated problems or complex language input. Because of the limitations of computer's artificial intelligence, computer technology is not capable of handling learners' unforeseen learning problems and responding to learners' question immediately as teachers do. They cannot communicate meaningfully with the users because they do not recognize natural language fully. In this case, teachers may feel the need to adapt, improve and compensate for shortcomings in the software. This will only bring an extra burden on teachers' shoulders as it can take longer for the teacher to learn a piece of CALL software than handle a textbook. Moreover, if the program used is not suitable to the students' level, the activity cannot be prevented from becoming a chaos of uncertainty (Higgings, 1988). Thus, it can be claimed that today's computer technology and its attached language learning programs are not yet intelligent enough to be truly interactive.

Computers may also have technical problems which may result in breakdowns though it does not happen frequently. However, a breakdown in the middle of a whole-class teaching activity may leave the teachers embarrassed, and waste a lot of time. A breakdown during students' individual, autonomous learning may result in a loss of data and works, and students would have to do some exercises from the beginning again. This is a big challenge for students who are not very skillful with computers.

Some further disadvantages of CALL are listed by AbuSeileek and AbuSa'aleek (2012:32) as follows:

a. Learners who do not have prior experience in using the keyboard may waste a lot of valuable time identifying in order to print their responses;
b. Working with computers normally means that the learners work in isolation. This obviously does not help in developing normal communication among the learners, which is a crucial aim in any language lesson. Suggestion about organizing pair work around the computer have been impressive only in theory, but in practice learners tend, for convenience, to revert to their mother tongue in discussing their strategies and responses;
c. Computers are not suitable to all the activities that go on in the classroom;
d. Computers cannot cope with unexpected happenings and ambiguity;
e. Computers cannot conduct open ended dialogues and cannot give feedback to open ended questions;
f. The time and effort required to develop CALL programs could be considerable, and thus their cost and effectiveness becomes questionable. It requires competence in the target subject area, pedagogical skills and computing experience;
g. It is more tiring to read from a screen than from a printed text; or to scroll the screen than turn over the page.

Dina and Ciornei (2013:251) mention some other disadvantages that may alter the educational process in general and language learning process as well. These drawbacks are as follows:

a. Deterioration of the teacher role in the learning process;
b. Division in small sections and well delimited of content leads shortening the matter, favouring those students with analytic thinking, but not those with synthetic thinking;
c. Controlling step by step students mental activity by the teacher stops them from developing creative abilities and entrepreneur spirit and initiative;
d. Excessive individualization of learning can lead to denial of the teacher – student dialogue and leads to the isolation of the learning process from its psycho – social context.

In a nutshell, despite the fact that integrating computer technologies into education, in particular second and / or foreign language teaching provides countless benefits both for the teachers and students, it is not free from shortcomings. However, computer technology integration into education is part of a daring endeavour to develop a successful educational system and so as to get maximum benefit from it, more effort, time, money and dedication is required.

CHAPTER II: TEACHING VOCABULARY

2.1. The Role of Vocabulary in Learning a Foreign Language

Vocabulary occupies a prominent place in any language. As Wilkins states "without grammar very little can be conveyed, without vocabulary nothing can be conveyed." (as cited in Thornburry, 2002:13). Vocabulary is at the very core of any language since words are the transmitters of messages. In the process of foreign language learning or teaching, vocabulary has always played a significant role as words are considered to be the basic building blocks of language, the units of meaning from which larger structures such as sentences, paragraphs and whole texts are formed (Read, 2000). To this respect, it is commonly believed that the larger one's vocabulary size is, the better he is in comprehending the written or spoken language since vocabulary is the cornerstone of each of the four aspects of a language. In order to listen, write, speak or read in any language one must have a basic knowledge of at least some of the words in the target language. This is basically the underlying reason why too much pressure is put on the language learners by their parents or teachers to learn lists of vocabulary items by heart. Regarding this, Nation (2006) highlights the importance of understanding minimum of 8000 to 9000 English word-families for comprehension of written texts and about 6000 to 7000 for comprehension of spoken input. This clearly shows us that "a significant amount of vocabulary is essential for fluent and appropriate language use in various situations, including listening to academic lectures, communicating with others, reading books, and writing essays" (Joseph, Watanabe, Shiung, Choi &Robbins, 2009:134).

Second language learners are typically conscious of the extent to which limitations in their vocabulary knowledge hamper their ability to communicate effectively in the target language, since lexical items carry the basic information load of the meanings they wish to comprehend and express (Read, 2004). According to Nation (2001), "vocabulary knowledge is a prerequisite for successful

communication". Therefore, language learners sometimes experience problems in understanding a written text or someone talking to them just because of lack of enough lexical knowledge. In addition, insufficient vocabulary knowledge also hinders them from expressing themselves in the way they want to in daily spoken exchanges.

While highlighting the importance of vocabulary, Krashen (1989) states that most of the meaning in a language is carried by words. That is the reason why people take their dictionaries with them not their grammar books when going abroad. To able to survive in this new environment, they depend heavily on words to get their meaning across.

All in all, vocabulary in foreign language learning is viewed as an essential factor for successful communication and comprehension.

2.1.1. What is a word?

Broadly, vocabulary is defined as the knowledge of meanings of words. When it comes to the definition of vocabulary, the distinction made between receptive and productive vocabulary stands out.

Productive vocabulary is the set of words that an individual can use when writing or speaking. They are the words that are well-known, familiar and used frequently. On the other hand, receptive vocabulary is the set of words for which an individual can assign meanings when listening or reading. These are the words that are often less well-known to students and less frequently in use. In addition, these are the words that individuals do not use spontaneously. However, when individuals encounter these words, they recognize them, even if imperfectly. In general, recognition or in other words receptive vocabulary is larger than productive vocabulary. Knowing a word involves being able to recognize it when it is seen or heard. Receptive knowledge of a word also involves having an expectation of what grammatical pattern the word will occur in. To illustrate, knowing the verb 'suggest' involves the expectation of an object followed by it. Productive knowledge of a word

includes receptive knowledge and extends it. It involves the correct pronunciation and spelling of the word together with the correct grammatical patterns with which the word usually collocates.

2.2. Approaches to Vocabulary Learning

Disagreements among language teachers about the most effective ways for language learners to learn the target vocabulary brought about the distinction between direct and indirect or intentional and incidental vocabulary learning which has been found useful in vocabulary studies.

Intentional vs. Incidental vocabulary learning

Intentional vocabulary learning adopts a rather systematic approach to learning new words including lists of targeted words with their equivalents in the learner's native language, use of dictionaries, more teacher support and various vocabulary exercises and games. In intentional vocabulary learning, learners engage in exercises and activities that focus their attention on vocabulary. Learning words from a list where learners associate L2 words with their L1 equivalents is an example of intentional vocabulary learning.

Incidental vocabulary learning, however, refers to a process in which learners acquire knowledge of new words incrementally as they encounter them in context through their reading and listening activities (Read, 2000). It occurs, particularly through extensive reading in input-rich environments, but at a rather slow speed. Learning words as the by-product of activities which do not aim at vocabulary development is an example of incidental vocabulary learning.

According to Nation (1990), in incidental vocabulary learning, learners' attention is focused usually on the message that is conveyed by a speaker or writer. If the amount of unknown vocabulary is low in such messages, considerable vocabulary learning can occur even though the learners' attention is not directed toward vocabulary learning. The same view is held by Krashen (1989) and defined in

his Input Theory of Language Learning. He believes that in order for language learning to happen, the written or spoken input should contain some items which are outside the learners' current level of achievement, but still understandable from the context. In this way, learners can acquire new words incidentally and thus more naturally by guessing the meanings of these words from the context. Krashen (1989) also emphasizes that with explicit presentation of vocabulary, in other words, intentional vocabulary teaching limited linguistic competence can be achieved in terms of quantity, usability, and quality of learned vocabulary as it is believed that inferring meaning from context requires more active mental processing from the learners and therefore leads to more memorable learning.

It is argued by some scholars (Hulstijn, Hollander, Greidanus 1996; Wesche, Pribakht 2000) that intentional and incidental vocabulary learning should be used together as they complement each other in the process of learning vocabulary. Hulstijn (1993) argues that overemphasis on incidental vocabulary learning may prevent learners from checking the correctness of their inferred meanings of the words. So as to prevent learning words incorrectly after meaning is inferred from a spoken or written input, there should be some kind of consolidation work through various exercises such as definition matching, dictionary checking or negotiating meaning with peers. Another drawback of overemphasis on incidental vocabulary learning is that learners may tend to ignore some of the unknown words in a text and consequently may not gain a lot (Hulstijn, Hollander, Greidanus 1996).

Based on the findings of the aforementioned researchers in this section, each approach has its own benefits and difficulties for language learners. Therefore, in the classroom context, incidental and intentional learning should be seen as complementary activities.

2.3. Learning Vocabulary in Context

It has been widely supported by both language teachers and academia that knowing an L2 word involves not just the ability to recognize the word or to translate it to L1, it also involves the ability to use it communicatively in any of the four main

language skills. At this point, the importance of learning words in context arises as contextualized vocabulary learning is thought to be more effective than learning words out of context, or in other words in isolation. Kolich (1991) found out that word meaning when only associated with a definition or synonym does not help learners to acquire the in-depth knowledge that is necessary to recognize the word in other contexts. According to Nikolova (2002), context plays a significant role in the acquisition of target vocabulary as it supplies the necessary input. One can find various clues that provide information to help guessing in a contextualized vocabulary learning or teaching. For better and more successful retention, repetition is the key, but provided that the words are presented in context, retention is much better (Baturay, 2007). In their study, Jenkins, Stein and Wysocki (1984) found that vocabulary gains increased as the number of times learners met words in context increased. As Oxford and Scarcella (1994) stated, decontexutalized vocabulary learning may help students memorize vocabulary for tests; however, they are likely to forget these words learnt in isolated word-lists more rapidly. Regarding the same issue, Groot (2000) states that learning words in lists which is mostly preferred by the learners does not lead to deep processing and successful retention. On the other hand, McCarthy (1990) emphasizes that a word that is learned in a meaningful context is remembered and used more easily. Regarding the same issue, Laufer and Shmueli (1997, as cited in Nation, 2001) state that lack of context makes vocabulary difficult and the words taught in isolation are generally not remembered or easily forgotten; however, contextual presentation is more effective for language learning and retention.

2.4. Vocabulary Learning Techniques

Oxford and Crookall (1990) categorizes vocabulary learning techniques as follows:

2.4.1. Decontextualizing Techniques

2.4.1.2. Word Lists

One of the most widespread ways of learning vocabulary is the use of word lists which do not require direct teacher instruction at all. Although in general those lists have been removed from any communicative content, they are still commonly used in language teaching contexts. Underlying assumption in this technique is that context is not very much needed for vocabulary acquisition and just rote learning is adequate. Word lists can be divided into two as paired and unpaired word-lists. In paired lists, target vocabulary is given with their L1 equivalents or L2 definitions. Unpaired lists, on the other hand, present only the target vocabulary which is expected to be learnt by heart by the learners. Learning vocabulary in isolation with such word-lists has been proved to be inadequate for effective learning (Carrell, 1984; Hudson, 1982; Swaffar, 1988).

2.4.1.3. Flashcards

The flashcard technique involves at least three components: copying the L2 word on the front of a card, writing the word's L1 meaning on the back, and using the card to become familiar with the new word and its meaning (Oxford & Crookall (1990: 12). Although they fall into decontextualized learning, they are quite popular among language learners especially for self-testing. In their research using learning journals, Oxford and Crookall (1990) found that flashcards are among the most widely used vocabulary learning techniques.

2.4.1.4. Dictionary Use

Initial use of dictionaries in language learning was very similar to learning pages of words in isolation from wordlists. Regarding looking up words while reading, there are two opposing views. One group suggests that looking up words while reading promotes increase in one's vocabulary together with reading skills (Oxford&Crookall, 1990). However, the other group claims that this kind of use of

dictionaries leads to a failure in vocabulary growth as learners tend to look up every single word they do not know (Swaffar, 1988; Hague, 1987).

In the initial stages of language learning, bilingual dictionaries (L1-L2) are more commonly used by learners. However, prolonged dependence on bilingual dictionaries retards development proficiency in the new language (Baxter, 1980) as this can hinder learners from thinking in the target language. Monolingual dictionaries were used at rather advanced levels in the past, but now new types of monolingual dictionaries designed for lower-level L2 learners are used by learners. These dictionaries also provide a bit of context by including a sample sentence.

2.4.2. Semi-Contextualizing Techniques

2.4.2.1. Word Grouping

As Oxford and Crookall (1990) state, this technique involves dividing a longer word list into new, shorter lists by classifying or reclassifying the target language terms according to one or more important attributes. In contrast to decontextualized wordlists, word grouping technique forms new groups under a specific theme or characteristic. Groups can be established according to type of word such as all adjectives, grammatical form such as all the irregular verbs, topic such as words about transportation, similarity and opposition etc.

2.4.2.2. Word or Concept Association

It involves making associations between the new word and the words already existing in learner's memory. In this way, it creates some kind of context for the learner. Word associations help learners to have more memorable and meaningful learning. Key word technique which is also known as mnemonic is one example of word association.

2.4.2.3. Visual Imagery

Visual imagery is a very useful semi-contextualizing technique for vocabulary learning as visual images make learning more effective. The pictorial-verbal combination involves many parts of the brain, thus providing greater cognitive power (Oxford & Crookall, 1990:17). While pictures, pictograms, diagrams, graphics, posters, demonstrations can create a context for learners to learn a new vocabulary item to some extent, learners can also benefit from mental imagery by visualizing the word.

2.4.2.4. Aural Imagery

Just like visual imagery, L2 words can be represented in memory by using aural imagery. The underlying idea for this technique is that aural imagery facilitates vocabulary gain by associating the new sounds with the already existing ones. With aural imagery, learners use phonological elements of words in the target language to remember them more easily.

2.4.2.5. Semantic Mapping

Semantic mapping has the features of three different techniques mentioned above which are word grouping, word association, and visual imagery. That's why, it can be called as the most sophisticated semi-contextualizing technique. This technique involves making a graphic arrangement of words in terms of their semantic relationships. The key concept is centralized, and it is linked to subsidiary concepts by means of arrows or lines.

2.4.2.6. Physical Response

It involves physically acting out a new L2 word. Underlying idea for this technique comes from Total Physical Response technique (see Asher, 1966) according to which words can be best learned when linked with a physical

movement. One limitation of this technique is that it cannot be used with abstract nouns.

2.4.3. Fully Contextualizing Techniques

2.4.3.1. Reading and Listening Practice

Learners can absorb a great number of vocabulary while doing reading practices. They encounter quite a lot of unknown words while reading, but some contextual clues help them to understand the meanings of these words. It is also the case in listening practices or in daily spoken exchanges. While listening to someone in a conversation, some clues such as gestures contribute to listener's understanding of that unknown word. However, as Carrell (1984) and Carter (1987) state, although receptive comprehension of a new word through reading or listening can be ensured with this technique, it does not guarantee the productive uses of the word by the learner.

2.4.3.2. Speaking and Writing Practice

Spoken vocabulary is often smaller than written vocabulary, which is in turn generally smaller than receptive (reading and listening) vocabulary (Oxford & Crookall, 1990). Hence, proficiency in speaking is more difficult than proficiency in writing, and proficiency in writing is more difficult than proficiency in reading and listening. For some foreign language teachers, one of the most effective ways to expand one's vocabulary is to practice it written or spoken. Without a doubt, learners need to be exposed to new vocabulary in meaning and communicative contexts so that effective, meaningful and memorable learning can take place. Therefore, providing ample opportunities for learners to use the new vocabulary productively helps them expand their vocabulary a lot

CHAPTER III: COMPUTER-ASSISTED VOCABULARY LEARNING

Computer Assisted Vocabulary Instruction (CAVI) or Computer Assisted Vocabulary Learning (CAVL) which is indeed a subfield of CALL has been considered to be one of the most common applications of CALL. In broad terms, it is the use of computers as an aid to facilitate vocabulary learning.

CAVL has become quite popular in foreign language learning and teaching contexts. Since the early history of CALL, learning and practising vocabulary by means of computers has always been at the forefront. Due to the limited class time for learners to learn and internalize sufficient amount of vocabulary, there has been a growing interest among second language acquisition researchers and teachers in how to better use technology for vocabulary learning purposes.

Despite the fact that CAVL has been a highly popular issue in language teaching over the last two decades, the number of studies carried out to investigate the effects of it is not very high. According to their results, these studies can be divided into two as the ones proving that CAVL group outperformed the control group and the ones revealing no significant difference between the experimental and control group.

First of all, Kocak (1997) conducted research to investigate how effective computer assisted vocabulary learning is. The result revealed that the students liked working with computers and the students in the experimental group learned more vocabulary than the ones in the control group. Another study to evaluate the effectiveness of CAVL was carried out by Ozdemir (2001). The results showed that the experimental group was better in terms of productive vocabulary gain. In a study by Bowles (2004) aiming to investigate the effects of computer versus traditional paper-and-pen glosses on L2 vocabulary development, the results indicated that there was no significant difference between the computer and paper-and-pen groups in

terms of acquisition of the targeted vocabulary, text comprehension and amount of reported noticing of targeted vocabulary. The study of Tozcu and Coady (2004) examined the effect of direct vocabulary learning using CALL on vocabulary knowledge, reading comprehension, and speed of word recognition. It was found that the students in the CALL group showed significantly greater gains than the students in the control group although the students in both groups showed increases in vocabulary gain, reading comprehension, and a decrease in reaction time for frequent word recognition. The study of Tokac (2005) compared the effectiveness of computer-assisted vocabulary instruction with teacher-led vocabulary instruction and it also explored how the computer group students perceived the computer-assisted vocabulary instruction classes and what they thought about the effectiveness of these classes. It was found that computer-assisted vocabulary instruction was as effective as teacher-led vocabulary instruction. Nakata (2008) aimed to find out which material leads to the most superior spaced learning by comparing vocabulary learning with word lists, word cards, and computers. The study demonstrated the superiority of computers over lists, the limited advantage of word cards over lists, and no statistically significant difference between computers and cards. The study of Yan (2010) investigating the effect of CALL on de-contextualized multimedia software vocabulary learning revealed that the de-contextualized multimedia vocabulary learning software program yielded better learning results than traditional classroom teaching. Kılıçkaya & Krajka (2010) compared the usefulness of online vocabulary teaching and the traditional methods such as practicing vocabulary items through vocabulary notebooks and cards. It was found that the learners in the experimental group outperformed the learners in the control group and that the experimental group students better remember the words studied online. Another study which intended to explore EFL students' perceptions of learning vocabulary collaboratively with computers was carried out by Lin, Chan & Hsiao (2011). The results of the study showed that students, learning collaboratively with computers, were not outperformed in vocabulary tests designed for individual study; however, they showed better retention, outperforming the others in the delayed posttest. The next study attempting to investigate whether a difference exists between learning vocabulary via animation and via traditional paper-based method was carried out at

Karadeniz Technical University by Kayaoglu, Akbas & Ozturk (2011). The findings reveal that although there is no statistically significant difference between post-tests of each group, there was an increase in the post-test scores of animation group compared to the pre-test scores. This increase suggests that using multimedia such as animations has a positive impact on students' vocabulary learning. In another study, Gorjian, Moosavinia, Kavari, Asgari & Hydarei (2011) examined the effects of asynchronous computer-assisted language learning approaches on high and low achievers' vocabulary retention and recall of English as foreign language learners. Their study revealed a significant difference between the two groups in terms of retaining vocabulary in immediate post-test and delayed post-test. However, while high achievers benefited from the CALL approach in both retention and recall stages, the low achievers benefited from it in only retention stage. In the study of Fehr, Davison, Graves, Sles, Seipel & Sekhran-Sharma (2012), the effects of individualized, online vocabulary program on picture vocabulary test scores were analyzed. Posttest scores on a picture vocabulary test indicated that students in the treatment group outperformed the students in the control group. Another study conducted by Basoz & Cubukcu (2014) to investigate the effectiveness of computer assisted instruction on students' vocabulary achievement revealed that no significant difference observed between the two groups though they both had some kind of vocabulary gains.

To sum up, most of the previous research in the field of CAVL has proven that learning vocabulary with computers facilitates and accelerates L2 vocabulary acquisition (Kocak, 1997; Ozdemir, 2001; Tozcu & Coady, 2004; Nakata, 2008; Cellat, 2008; Kılıckaya & Krajka, 2010; Yan, 2010; Lin et al., 2011; Kayaoglu et al., 2011; Gorjian et al., 2011; Fehr et al., 2012). However, there are also some other studies revealing no significant difference between the two groups (Bowles, 2004; Tokac, 2005; Basoz & Cubukcu, 2014).

3.1. Multimedia and Vocabulary Learning

Multimedia learning is the environment where pictures and words are used together to foster learning. Medium for this kind of learning can be both paper-based or computer-based. In case of a computer-based multimedia learning, learners' attention is drawn to interactive games or online lessons containing animations. According to Mayer (2005), the rationale behind the theory of multimedia learning is that people learn more deeply from words and pictures than from words alone. A fundamental hypothesis underlying research on multimedia learning is that multimedia instructional messages that are designed in light of how human mind works are more likely to lead to meaningful learning than those that are not.

Mayer's theory (2005) is based on Paivio's dual-coding theory (see Paivio, 1986), which claims that words that are coded dually in two modes would be learned better than those only coded by one of them. Regarding the same issue, Plass et al. (1998) found that students' recall is best with the words which are both visually and verbally annotated. Similarly, in another study by Al-Seghayer (2001), it was found that the dually coded words are learnt better than words with text only definitions. Furthermore, according to Baturay (2007) in a multimedia environment, learner has a chance to decide for different modes of information, thus, individual differences in learning preferences are not ignored. She also adds that multimedia learning provides the learner with information on different modes such as visual, auditory etc. The learner in a multimedia environment takes an active role in selecting and combining different modes of information to construct meaning, and, as a result of this active role, learning becomes better (Mayer, 1997).

For most of the learners, due to their multidimensional nature involving sound, video, picture and animation, multimedia applications are more attractive and enjoyable compared to traditional applications. Yang (1998) suggests that digital multimedia has superiority over traditional multimedia with respect to the precise control it provides the users, which finally results in intrinsic interactive and user friendly features and a big opportunity for powerful teaching tools. Another study by

the same researcher (2001) suggests that learning with web-based materials is more fun and more meaningful than learning in traditional ways.

Vocabulary knowledge is a prerequisite for successful communication in any language. Bearing this fact in mind, in foreign language classes, vocabulary learning and teaching practices have gained a different dimension together with the growing interest in computers in educational settings. As web-based applications facilitate learning in more authentic, meaningful, and multi-sensory environments, integration of web-based multimedia into foreign language learning activities has become a necessity. According to Baturay (2007), information provided by audio, video, pictures, animations and simulations could be integrated to create and authentic, dynamic, colorful, attractive and enjoyable language learning environment for the learners.

The results of a study conducted by Yang (2001) indicate that multimedia has the power to move the lesson beyond the traditional walls of the classroom. In another study by Yang (1998), it has been concluded that multimedia involves learners in the learning process by activating their different senses. According to Felix (1999), multimedia brings the necessary authenticity to language classes. In their research addressing to the effects of CALL on vocabulary learning, Tozcu and Coady (2004) emphasize that words can be learnt more effectively and in a more enjoyable way with computers.

All in all, it has been widely believed that learning vocabulary with computers is more effective due to the multidimensional nature of the tasks completed on computers.

3.2. Multimedia Annotations and Vocabulary Acquisition

The developments in the field of computer technology have brought countless opportunities for language teachers and researchers to integrate it in language learning and teaching. One of these noteworthy developments is related to multimedia applications. The accessibility, interactivity, the ability for combining different media, the efficiency and other potential benefits of multimedia have

encouraged designers to manipulate texts, sounds, images, and video clips (Mohsen & Balakumar, 2011).

A gloss or an annotation is an additional note giving explanations about a word. For glossing or annotating, the traditional method is to provide a list where readers can find the definition or the L1 equivalent of the word in L2. However, with the advances in education technology, glossing or annotating goes far beyond this old-fashioned method. With multimedia glosses, it is possible to provide a variety of annotations for words in the form of text, pictures, video, and sound (Chun & Plass, 1998). Multimedia glosses can provide learners with different modalities (textual, visual, and auditory) and modes (video, picture, and text). Verbal annotations in the reading text are usually accessed with hyperlinks. When the hyperlinked word is clicked, different forms of annotations appear at the end of the text, at the bottom of the screen, or in a pop-up window.

The studies on incidental vocabulary learning through reading without referring to annotations or a dictionary reveal that the vocabulary gain is not very high with only a reading text (Chun & Plass, 1996; Hulstijn et al., 1996). However, when the students use the annotations while reading, they can recall more words than the ones who use a paper dictionary or the ones who do not use any of these (Hulstjin et al., 1996). The annotations in multimedia are proven to facilitate language learning as they help learners to understand words more accurately by preventing misleading guessing avoiding interruption due to learner's checking dictionaries to find the unknown words (Nation, 2001; Ko, 2005). Besides, retention is easier when words are annotated with different types of media (Chun & Plass, 1996). In their study, Chun and Plass (1996) suggest that words annotated with text and picture are recalled better than ones which are annotated only with text. Regarding the benefits of multimedia glosses, Jacobs, Dufon and Fong (1994) highlight that they facilitate vocabulary acquisition, provide greater use of authentic texts, improve comprehension and cater for learners' preferences. "If the right modalities or combination of modalities are used for effective vocabulary learning, multimedia annotations have the potential to help students comprehend reading texts and learn

vocabulary effectively by providing alternative presentation modalities to match specific student styles" (Plass et al., 1998; as cited in Tokac, 2005). In addition, "online glosses can increase general comprehension, improve vocabulary retention, and save students' time and effort in reading L2 texts" (Gettys, Imhof & Kautz, 2001; as cited in Mohsen & Balakumar, 2011: 136). Multimedia environment also gives learners a sense of control over their own learning with the flexibility it provides for the pacing of activities, and this, in fact, helps learners reduce their anxiety levels (Chun & Plass, 1996).

Study	Issues	Help options	Data collection	No.	L2	Findings
Al-Seghayer (2001)	Comparing two gloss combinations	Visual annotations: video & static picture versus verbal annotations	Tracking system & interviews	30	ESL	The combination of definitions & video clips positively influenced the acquisition of lexical items.
Chun & Plass (1996)	Look-up behavior & effectiveness of two types of annotations	Visual annotations: pictures & video versus verbal annotations: definitions & explanations	Tracking system	161	German	Dynamic visual organizers aided in the comprehension of L2 texts. The combination of visual & verbal annotations helped more in the comprehension of L2 texts than verbal annotations only.
Yoshii (2006)	Effectiveness of glosses use	Annotations: translation & pictures; definitions & pictures	Tracking system	195	EFL	L1 (translations) & L2 (definitions) were effective for incidental vocabulary learning.
Yeh & Wang (2003)	Effectiveness of three types of multimedia glosses: text only; text & picture; & text, picture, & sound	Glossed words: text only; text & picture; & combination of text, sound, & picture	Tracking system	82	ESL	Students who accessed annotations with the combination of text & picture outperformed those who accessed text only & combination of text, audio, & picture annotations.
Yoshii & Flaitz (2002)	Effectiveness of different types of glosses	Glossed words: L2 definitions only, picture only, & the combination of L2 & pictures	Tracking systems	151	EFL	Students who had access to the combination of still pictures & translations outperformed other students in vocabulary acquisition measures.
Laufer & Hill (2000)	Relationship between look-up & word retention	Dictionary	Tracking system	72	EFL	The use of look-up seemed to reinforce retention of lexical items.
Chun (2001)	Relationship of look up behavior & proficiency level	Internal glossary versus external dictionary	Tracking system	23	German	Learners performed better on measure of comprehension when accessing internal & external dictionary
Peters (2007)	Effects of test announcement & word relevance in dictionary use & word retention	Dictionary	Tracking system	84	German	Manipulation of look-ups could be achieved by forewarning students of vocabulary tests. However, vocabulary test announcement had an effect on learner's noticing of a target word, but this noticing did not affect word retention.

Figure 1: Review of Studies on the Effectiveness of Annotations, Glosses and Dictionaries

The chart above prepared by Cardenas-Claros and Gruba (2009) proves that the use of dictionaries, annotations and glosses leads to better retention of lexical items. Particularly, the combination of different modalities such as video and definition leads to a better vocabulary acquisition and better understanding of texts.

3.3. The Use of Videos in Language Teaching

The practice of using videos in foreign language classes has grown enormously due to the widespread belief held by many educationalists that it fosters learning with its multisensory feature. Canning-Wilson (2000) defines video as the selection and sequence of messages in an audio–visual context. It is a well-known fact that videos are great audio-visual materials stimulating and facilitating the learning of a foreign language as long as they are used at the right time and in the right place.

Yolcu (2009) makes a distinction between authentic video materials and instructional video materials. While authentic video materials are the ones which are created for real audience, instructional ones are produced for teaching/ learning purposes. Films, advertisements, podcasts, documentaries are some examples of authentic video materials that can be utilized in language classes.

The use of videos in foreign language classes offers numerous valuable benefits for the learners. One of those advantages is that they provide authentic language input. Especially in cases where hearing the target language from a native speaker of it is limited or not very possible, videos fill an important gap to a great extent. Yuksel and Tanrıverdi (2009:49) summarize this invaluable benefit of videos as follows:

> *"Use of authentic videos and incorporating the target words into a context might be a way of facilitating vocabulary acquisition, and can be quite rewarding in a foreign language learning setting, considering the low frequency of instances that learners are exposed to target language outside the classroom."*

Besides, videos enable language learners to monitor native speakers in authentic settings using different accents, registers and paralinguistic cues such as gestures, which makes it possible for learners to hear the language in natural contexts. Regarding this, Yolcu (2009) emphasizes that "video is a motivating and meaningful teaching material which offers clues to the meaning and which can make learning in the classroom more like what occurs outside the classroom. According to Cakir (2006), contextualization facilitates the learning as it makes learners work out the meanings of unknown vocabulary from a context, so in that sense videos can provide appropriate context for language learning. He also maintains that non-native speakers of a language rely more heavily on visual clues to support their understanding and there is no doubt that video is an obvious medium for helping learners to interpret the visual clues effectively. Contexts provided in videos make up for the deficiencies in vocabulary and this helps to promote comprehension. Another great advantage is that videos motivate learners as they are interesting and stimulating to watch. Due to the fact that videos bring the real world into the classrooms, they are capable of diminishing the dullness and meaninglessness of controlled, repetitive and ordinary learning/teaching practices. Additionally, videos can increase awareness of other cultures. While watching a video, learners are exposed to the target culture as they receive input from many different representatives of that culture.

To conclude, videos particularly the authentic ones have a significant place in foreign language learning and teaching. The advantages mentioned above are summarized by Arthur (1999) as follows:

> *"Video can give students realistic models to imitate for role-play; can increase awareness of other cultures by teaching appropriateness and suitability; can strengthen audio/visual linguistic perceptions simultaneously; can widen the classroom repertoire and range of activities; can help utilize the latest technology to facilitate language learning; can teach direct observation of the paralinguistic features found in association with the target language; can be used to help when training students in ESP related scenarios and language; can offer a visual reinforcement of the target language and can lower anxiety when practicing the skill of listening."*

Due to all these positive sides, videos should be exploited in language learning as much as possible.

CHAPTER IV: METHODOLOGY

4.1. The Significance of the Study

Vocabulary has always been considered as the key element of learning a foreign language as one has to have a certain amount of vocabulary to be able to communicate with others both in written and in spoken modes. Without adequate vocabulary, it is not quite possible for an individual to express his or her ideas clearly and effectively. To that end, learning a wide range of vocabulary is seen as a must to be able to attain a proficiency in the language by some foreign language teachers, and therefore they put heavy emphasis on vocabulary in their classroom practices and in their teaching philosophy. However, the way each individual learner or teacher deals with vocabulary differs enormously. Every person has a unique way of learning and retaining vocabulary. While some individuals embellish their rooms with the purpose of learning vocabulary with colored post-its on which they can see new vocabulary whenever they look around, some prefer learning vocabulary from paired wordlists where they can find the L1 or L2 equivalent of the targeted words in isolation, but the question is to what extent the methods or techniques being used by language learners or teachers from past to present really meet the needs of today's ever-advancing society, and how vocabulary learning can be made more effective, permanent and memorable for the learners of this era.

Computers have already become an indispensable part of our lives. They also occupy a prominent place in education. They are accepted as powerful tools supporting teaching and learning not only in classroom settings but also in the comfort of our houses. Some research has been carried out to find the effects of computer integration into teaching and learning practices on EFL learners' vocabulary acquisition (Kocak, 1997; Ozdemir, 2001; Tozcu & Coady, 2004; Nakata, 2008; Cellat, 2008; Kılıckaya & Krajka, 2010; Yan, 2010; Lin et al., 2011; Kayaoglu et al., 2011; Gorjian et al., 2011; Fehr et al., 2012). They suggest that computer-assisted vocabulary learning facilitates L2 vocabulary acquisition by making learning more interactive, interesting, motivating, and meaningful. However,

in the context of Turkey, no study has been done to compare the effectiveness of computer-assisted vocabulary learning with traditional vocabulary learning through wordlists. Although wordlists are seen as old-fashioned tools to foster vocabulary acquisition by a great majority of teachers and researchers, they are still commonly in practice in many institutions. Wordlists are found practical by both language teachers and learners as it is believed that they save time and energy for both parties. However, learners studying vocabulary from a wordlist learn only limited vocabulary knowledge such as its synonym or antonym, its definition or its equivalent word in their mother tongue. Those lists are usually context-free which means that learners whose only source to learn vocabulary is wordlists cannot learn how, where and when to use those words as they learn only the word itself in isolation. In other words, they usually fail to use most of these words in appropriate contexts. Sometimes sample sentences are included to some of these word-lists, but since they are on sentence level, they are limited in terms of providing context. With this specific study, what is aimed is to compare the effectiveness of computer assisted vocabulary learning with traditional vocabulary learning by means of wordlists. With this question in mind, the study also aims to investigate the effects of multimedia annotations on vocabulary acquisition.

The results of this study will be helpful for English language teachers and learners considering the importance of vocabulary in language learning and teaching. The results are also expected to shed light on effective and permanent vocabulary acquisition for learners. Considering the number of vocabulary that each of the participants of this research is expected to learn, if the results prove that CAVL has a positive effect on vocabulary learning and that the learners in the experimental group outperform the ones in the control group, both institutions and teachers may feel themselves obliged to modify their vocabulary teaching practices, and thus learning vocabulary will no longer be an insurmountable experience for learners.

4.2. Research Questions

The present study will pursue the answer to the question of whether or not CALL enhances vocabulary learning in EFL. With this question as the main focus, the study will also explore how students at university prep classes regard the use of CALL to study vocabulary. It is also our assumption that the students in this study, with regard to their age and interest areas, will find CAVL fun and meaningful, and they will consider that studying vocabulary through CAVL is more effective than studying with a wordlist. Therefore, the present study aimed to find answers to the following questions.

1. Does computer-assisted vocabulary learning facilitate vocabulary learning?
2. To what extent does learning vocabulary via authentic videos affect the learners' retention of vocabulary?
3. Is computer-assisted vocabulary learning more effective/ memorable than learning vocabulary through wordlists?
4. Do students have a positive attitude towards the integration of computer assisted vocabulary learning in foreign language education?

4.3. Research Setting

This study was conducted at an English Preparatory School offered at a foundation (non-profit, private) university in Istanbul, Turkey. In this program, new students are assessed in a proficiency exam at the beginning of each academic year in order to determine whether or not their level of English is adequate enough for them to commence their studies in their respective departments. Those who score 60 and above (out of 100) in this exam directly pass to the undergraduate program at various disciplines. However, the ones who fail are given a placement test that allows the institution to place them in the appropriate level of remedial study at the preparatory school. The preparatory program aims at teaching English for Academic Purposes and lasts for one academic year, from September to July, providing students with A1, A2, B1, B2 and C1 proficiency levels of English defined by the Common European

Framework (CEFR/CEF). Each level lasts about 8 weeks (this period is referred to as a teaching module) and the students are further intermittently assessed via variety of exams and tasks throughout any given module. At the end of a module, the students sit an End of Module Exam (EOM) and their combined average in the exams, tasks and the EOM needs to be minimum 65 (out of 100) if they are to progress to subsequent levels of instruction . When students complete the B2 or C1 levels, they have the right to take another proficiency exam, which they are required to pass in order to finish the preparatory school.

4.4. Research Design

This study was conducted to randomly selected four A2 level classes. Two of the classes were assigned as experimental group (CAVL group) while the other two were assigned as the control group (Vocabulary Learning through Wordlists). The way both groups were treated was different; however, they received the same pre-, and post-test. As each single module in this institution lasts 8 weeks, the design of this research has been planned to fit this eight-week period. Since the last weeks of the modules are generally considered as revision and exam-preparation weeks, the research has been designed to be finalized before the last week of the module. The research design has been illustrated in Table 4 below.

	Pre-Test	Experiment	Post-Tests
Experimental Group (CAVL)	1st week	2 weeks for each theme	3rd, 5th,7th weeks
Control Group (Wordlists)	1st week	2 weeks for each theme	3rd, 5th,7th weeks

Table 4: The Research Design

4.5. Participants

The present study was conducted with eighty A2 level students studying in the Preparatory School of Bahcesehir University. The participants were taking intensive English language course before starting their undergraduate education. Their ages varied between 18 and 22. Except for fourteen students, all the participants graduated from a private high school. In the control group, there were 19 female and 21 male students whereas in the experimental group there were 23 female and 17 male students. The study participants were not informed that they were part of this research. Six of the students from both groups failed to take one or more of the post-tests or treatment. Due to this, their results were removed from the data pool. Statistical analyses were conducted with 74 participants who completed all of the phases of the study.

In the institution where this study has been conducted, newly registered students are given an in-house placement test by the Preparatory School at the beginning of each academic year and according to their scores they get in the placement exam, they are assigned into levels. The scores and related levels are given in Table 5.

Score	Level
1-15	A1
16-30	A2
31-45	B1
46 and above	B2

Table 5: The scores and related levels in the placement exam

Among twenty-six A2 level classes in the 1st module of the 2014-2015 academic year, four of them were randomly chosen for this study. Two of them were assigned as control and the others as experimental group. In terms of academic achievement, no significant difference was foreseen between the groups as they were grouped accordingly at the beginning of the module. The experimental group was led by the researcher since it was thought that guiding learners about how to use the program,

selecting the target videos and assigning them on the class page and monitoring whether they were doing the video tasks or not would be perceived as too much burden together with the administration of the pre- and post-tests by the class teachers. In that sense, the teachers of the experimental group and the control group were not the same. However, as the study aimed learners to do autonomous study outside the class, this difference was not expected to create any problems.

4.6. Instruments

For this present study, one pre and three post-tests were prepared by the researcher after having decided on the videos to be used with the experimental group on English Central which is the online vocabulary learning program used for this study. Three themes among seven academic topics provided by the program have been chosen by the researcher for this study. The seven themes are education, engineering, environment, health, politics, science and technology. Chosen themes which are environment, health and technology are preferred by the researcher since they are in line with the themes covered in classes. It is also believed by the researcher that in addition to being parallel to the themes covered in classes, these themes have the power to contribute to learners' vocabulary for daily use. Under the theme of environment, 6 videos; under the themes of health and technology, 5 videos for each have been selected. These sixteen videos aim to teach 74 words altogether.

For the control group, on the other hand, thematic wordlists were created by using the targeted vocabulary items presented in the selected videos after a comprehensive analysis of the content of each and every video so as to provide the students in the control group with the same meaning of the words. There was one wordlist for each theme. To clarify, there was one wordlist for the theme "Environment", one for "Health" and one for "Technology". The wordlists prepared by the researcher for this study resemble the wordlists used in each level in the Preparatory School of Bahcesehir University. The wordlists include the English definition of the words, parts of speech, and a sample sentence for each word as well as collocations of it if any. The only difference between the wordlists prepared by the

researcher and the ones prepared by the institution is that the synonyms or antonyms are not provided in these thematic wordlists. Excluding the synonyms and antonyms was done deliberately since the multimedia annotations in the online vocabulary learning program didn't present them.

At the end of the treatment, the experimental group was also given an attitude questionnaire prepared by the researcher. The questionnaire consists of three open-ended questions. The questions try to elicit how the learners perceive learning vocabulary with computers. All the questions require the students explain their answers briefly.

4.7. A Brief Overview of the CAVL Tool: English Central

Expanding one's vocabulary improves all the language skills such as listening, reading, writing and speaking, which eventually leads to a better production and proficiency in the target language. With this undeniable fact in mind, numerous computer-based or web-based vocabulary learning programs have been developed. English Central which makes use of authentic video clips to present vocabulary and which provides the learners with various options to practice the targeted vocabulary is one of the most commonly-used programs of that sort.

English Central is an online vocabulary learning tool which makes use of authentic videos to introduce new vocabulary in a contextualized way. When accessed to the website, users can see all the videos in any topic and in any difficulty level. However, the videos can be filtered according to their difficulty level and specific topics. Videos can be chosen by learners themselves or by teachers from a wide range of themes according to the learners' level. It is an effective and fun way to learn vocabulary and improve English as it combines autheticity, autonomy and visuality. With its different modalities, the program addresses to different senses, and therefore caters for individual differences and preferences.

Each video in EnglishCentral aims to teach 5 or 6 vocabulary items at a time. After the video is selected, there are four steps that should be followed by the

learners, and these are respectively “watch”, “learn”, “speak”, and “quiz” as shown in Figure 2.

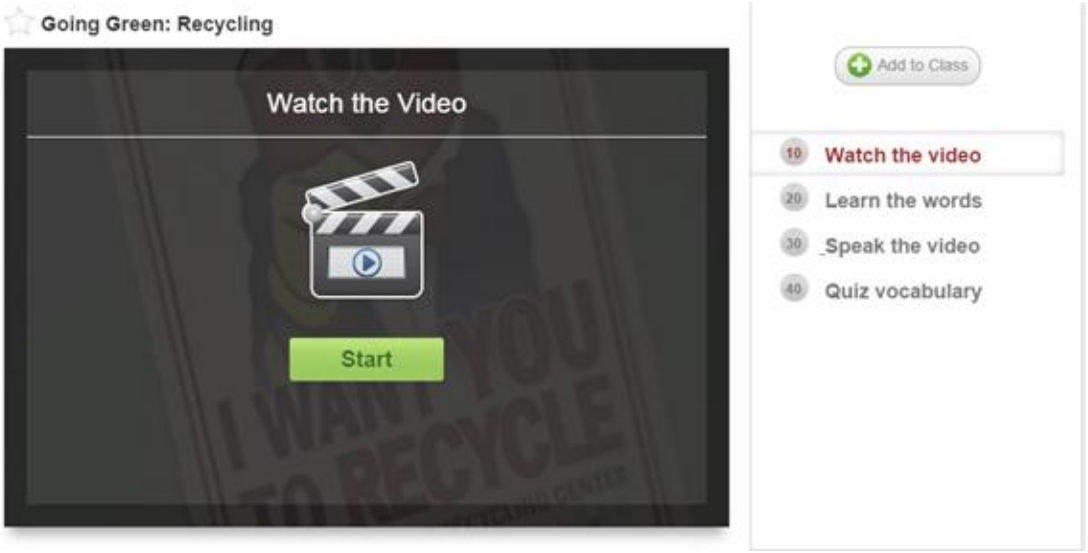

Figure 2: English Central Start Menu

In the first step, learners are exposed to the target vocabulary via authentic videos. There is the option of showing the subtitles in English to help learners follow and understand the video more easily. However, subtitles can be hidden if not necessary or preferred by unticking the subtitle box which appears when clicked on “CC” at the bottom right corner as shown in Figure 3.

Figure 3: English Central Subtitle Option

As the learners watch the video, they see some underlined words in the subtitles which are actually the targeted vocabulary.

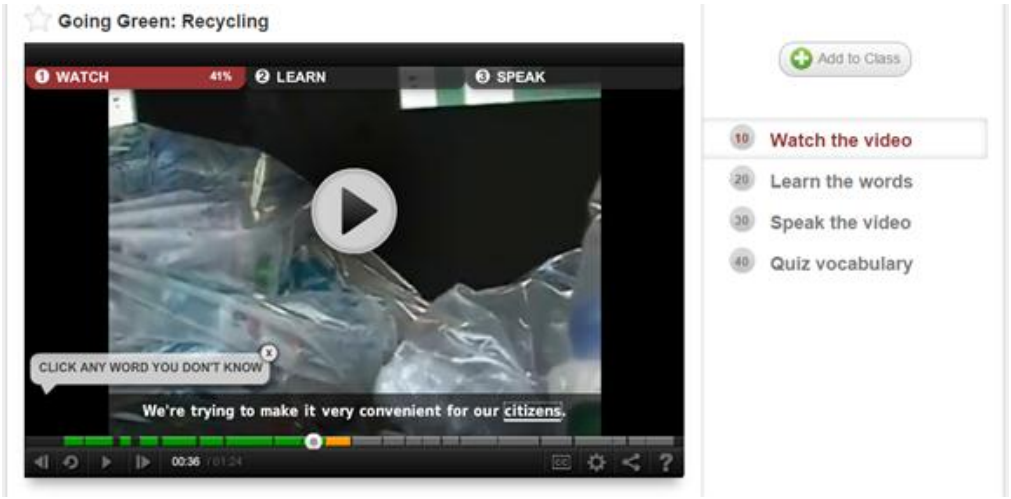

Figure 4: English Central Part 1 "Watch the Video"

If they click on the underlined word, a pop-up screen appears enabling access to the vocabulary glosses where learners can find the definition of the word, parts of speech, phonemic transcription and pronunciation of the word, and a sample sentence.

Figure 5: English Central Vocabulary Gloss

The tool gives learners the opportunity to hear the accurate pronunciation of the word as many times as they like. In addition to the annotations of the targeted vocabulary which are aimed at in each video, there are multimedia annotations for

each and every word they see in the subtitles. Users can have access to the glosses of any word they do not know just with a mouse click.

In the second step which is called “LEARN”, learners hear some parts of the video while the English subtitles appear at the bottom with some blanks. When the sentence finishes, learners are required to type in the correct word(s). Following this, they are provided with multimedia annotation of the word even if what has been typed by learners is correct (see Figure 6). The vocabulary annotations given by the system is presentation of the word via printed texts. In addition to the annotation, learners receive instant feedback for their replies. Two types of feedback given by the program are respectively “Correct!” and “Incorrect! Try again”. Users see this feedback and the gloss simultaneously. Therefore, they are given a second or more chance to fix their mistake after analyzing the gloss, which indeed aims to aid vocabulary acquisition of the learners.

Figure 6: English Central Feedback

In the third stage, the aim is to improve the pronunciation of the learners through practicing the lines after hearing the model. For this stage, users need a microphone to repeat the lines and get feedback for their pronunciation.

In the last stage, there is a quiz to test the knowledge of the learners' targeted vocabulary (see Figure 7). There is a variety in terms of question types in the quiz such as typing the missing word, selecting the correct word for the given definition, filling in the blanks, or choosing the correct definition of the word given in a sentence. For each vocabulary item, there are two questions in the quiz. Learners can do the quiz, watch the video, learn the words and speak the lines as many times as they want.

Figure 7: English Central Quiz

Various factors led the researcher utilize this program while carrying out this research. One of those factors is related to the integrated and contextualized teaching of multiple language skills while primarily teaching vocabulary. Regarding the pivotal role of integrated and contextual teaching, Hinkel (2006) points out that:

> *"In an age of globalization, pragmatic objectives of language learning place an increased value on integrated and dynamic multiskill instructional models with a focus on meaningful communication and development of learners' communicative competence" (p.113).*

Hinkel (2006) also maintains that "to make language learning as realistic as possible, integrated approach has to address a range of L2 skills simultaneously, all of which are requisite in communication". As a matter of fact, the ideas proposed by Hinkel (2006) do underpin the researcher's choice of this program. As illustrated with figures above, English Central integrates listening, speaking and to some extent

writing skills successfully with its wide range of exercises. English Central contextualizes its primary aim which is vocabulary teaching by means of authentic videos. Authenticity which is defined as the language produced by a real speaker/writer for a real audience, conveying a real message by Morrow 1977; Porter & Roberts 1981; Swaffar 1985; Nunan 1988/9; Benson & Voller 1997 (as cited in Gilmore, 2007) is one of the main components of English Central. Authentic materials are claimed to be a motivating force for language learners as they are inherently more interesting than contrived ones because of their intent to communicate a message rather than highlight target language (Freeman & Holden, 1986). Videos in the pool of English Central are all segments from real movies, news programs, talk shows and so on. In this sense, before anything else, these videos convey a real message while highlighting target vocabulary. Hence, it was thought that English Central would arouse great curiosity among Bahcesehir University Preparatory School students as they need English to use primarily for communicative and academic purposes in their departments.

In addition to contextualized and authentic content, the program also caters for different learning needs due to its multimedia nature. Multimedia technology facilitates better retention of vocabulary as it allows the design of annotations which contain images, sounds and videos together with the traditional annotation content such as definitions. Regarding this, Chun and Plass (1996) emphasize that due to various channels of information presentation such as picture, sound, and text, computerized format appears to be more effective than paper format. English Central contains something in itself for learners with different needs.

All in all, along with many other reasons, this program was chosen by the researcher due to its authentic and contextual nature. The way how it skillfully integrates various components expected from a competitive CAVL tool contributed to the researcher's decision to utilize English Central as part of this study.

4.8. Practice of English Central in the Context of BAU and in the Context of the Present Study

Since the 2012-2013 academic year, English Central has been used at Bahcesehir University Preparatory School for each level. At the beginning of each module, word-lists of each level are sent to English Central team and the customized content is prepared by their team. What is meant with the customized content is that from their large video pool, they find the level appropriate videos which contain most of the target words of each level. At the beginning of each module, after both teachers and learners are assigned to their classes on English Central, learners can start doing their weekly tasks and likewise, teachers can start following their students' progress. However, as the English Central was not included in our assessment when it first started to be used at BAU, students failed to use it efficiently, and therefore the administration and the instructors couldn't find what they initially expected.

So as to encourage the students to use the program more actively, and therefore to enhance the learners' benefit from this, the school launched a new practice concerning the integration of English Central to our assessment at the beginning of the 2013-2014 academic year. According to the new practice, learners can obtain bonus points according to how much they have worked on EnglishCentral (see the conversion chart below). For example, learners who complete the 80 % of all the tasks in English Central gain 5 bonus points which eventually may help them to pass the level or take the proficiency. To be more specific, if a student in B1 level collects a total score of 60 at the end of the module, he needs 5 more points to pass the current level since the passing grade in each level is 65 at Bahcesehir University Preparatory School. In this case, the English Central reports are analyzed and provided that the student has completed the 80 % of all his online tasks on a weekly basis throughout the module, he is rewarded 5 bonus point which makes him pass B1 level and become a B2 level student. Similarly, given that a student in B1 level has collected a total score of 75 at the end of the module, he needs 5 more points to be able to sit the proficiency exam as in B1 level, only the ones who have minimum of

80 points can take the proficiency exam. In this case, this student's weekly English Central reports are analyzed to decide whether he can take the proficiency or not.

0-9 %	0 bonus point
10-19 %	1 bonus point
20-39 %	2 bonus points
40-59 %	3 bonus points
60-79 %	4 bonus points
80 and above %	5 bonus points

Table 6: Bonus point conversion chart

For this study, weekly videos that students are supposed to study weekly throughout the module so as to earn bonus points weren't used as they contain words from the students' word-lists which are handled in a way in classes by the instructors to better prepare students for the weekly vocabulary quizzes. Hence, three themes among seven academic topics provided by the program have been chosen by the researcher for this study. The seven themes are education, engineering, environment, health, politics, science and technology. Chosen themes which are environment, health and technology are preferred by the researcher since they are in line with the themes covered in classes. It is also believed by the researcher that in addition to being parallel to the themes covered in classes, these themes have the power to contribute to learners' vocabulary for daily use. Under the theme of environment, 6 videos; under the themes of health and technology, 5 videos for each have been selected.

4.9. Data Collection

The research for the present study includes three components, and these are task preparation, pre/post tests and an attitude questionnaire.

In terms of task preparation, first of all, themes which will be covered as part of this research have been selected. As aforementioned, the selected themes are environment, health, and technology. Among all the other themes, those three were chosen deliberately as the same ones were covered in the coursebook. After this step,

the content of all level-appropriate videos was looked through so as to be able to choose the videos from which learners can benefit more in their classes in terms of vocabulary. The targeted vocabulary in each video was transferred to individual thematic wordlists. By using various online dictionaries, the definitions of the words were written on the lists with a sample sentence for each word.

After the content was finalized, both control and experimental groups were given a pre-test including all the words aimed to be learnt during the treatment. The pre-test was administered in order to see whether the learners know these words beforehand or not. Therefore, students were welcomed to write English meaning, Turkish meaning, synonym, antonym, sample sentence or any other thing proving that that knew the words. After the pre-test was conducted in the 1st week, the students were assigned their first task at the beginning of the 2nd week. While the control group was given the related wordlist to study the words in two weeks period, the experimental group was assigned the related videos. When the deadline arrived, both groups were given a post-test which was actually in the same format with the pre-test. The same procedure was followed for the other two themes.

As the last component of the study, an attitude questionnaire was carried out in experimental group. The aim was to understand how the learners engaging in computer assisted vocabulary learning perceived this means of vocabulary learning and what they thought of it.

CHAPTER V: RESULTS AND FINDINGS

5.1. The Results of the Pre-test

As mentioned before, students in both experimental and control groups were given a pre-test in the first phase of the treatment so as to see whether there were any significant differences between their vocabulary knowledge of the targeted words. The pre-test results for each group are given in Table 7. When the results are analyzed, total average scores show that the control group did slightly better than the experimental group in the pre-test. Basic frequency statistics were used for the analysis of the results.

	Number of words	**Number of the students**	**Correct answers**	**Averages**
Pretest results	74	Exp: 39	Exp: 246	Exp: 6.3
		Cont:35	Cont: 287	Cont: 8.2

Table 7: The Results of the Pre-test

5.2. The Results of the Post-Tests

In order to see if there was a difference between the scores of the experimental and control groups after the treatment, students were given post-tests. The results of the post-tests are shown below in Table 8. In contrast to the results of the pre-test, the results of the post-tests reveal that after the treatment, the experimental group performed better than the control group.

	Number of words	Number of the students	Correct answers	Averages
Posttest results (Environment)	28	Exp: 39	Exp: 556	Exp: 14.25
		Cont: 35	Cont: 486	Cont: 13.88
Posttest results (Health)	23	Exp: 39	Exp: 576	Exp: 14.76
		Cont: 35	Cont: 357	Cont: 10.2
Posttest results (Technology)	23	Exp: 39	Exp: 506	Exp: 12.97
		Cont: 35	Cont: 323	Cont: 9.22
Total	74	Exp: 39	Exp: 1638	Exp: 42
		Cont: 35	Cont: 1166	Cont: 33.31

Table 8: Averages of Post-test Results for Both Experimental and Control Groups

5.3. The Results of the Attitude questionnaire

In order to see how the participants in the experimental group felt about the use of a CAVL tool to study vocabulary, an attitude questionnaire was applied to them. The results of the attitude questionnaire given to the students only in the experimental group will be presented on question basis.

Question	**Number of students giving a positive response to the question (out of 39)**	**Number of students giving a negative response to the question (out of 39)**
Q1. Did you have fun while studying vocabulary via English Central? Please explain briefly.	36	3

Table 9: The results of the 1st question in the Attittude Questionnaire

The results of the 1st question of the attitude questionnaire were given in Table 9. The results indicate that a great majority of the students had fun while studying vocabulary by means of a CAVL tool. Three students out of thirty-nine stated that they didn't have fun while studying vocabulary via English Central. Two of those three participants expressed their feelings by describing studying vocabulary via English Central as "boring"; however, they didn't explain why they thought so. On the other hand, one participant made it clear that as she didn't like studying on the computer, she didn't have much fun while doing it. The rest, however, found it quite fun and engaging. However, not many of them answered the second part of the question which was giving a brief explanation why they thought so. Among the minority group explaining their reasons briefly, one participant mentioned that recycling made the learning more memorable for him while another one used the word "educational" to describe the practice of using English Central for vocabulary learning. Another user stated that he found learning vocabulary from videos "different" and "effective". Another comment was about the authenticity of the videos. While giving his reason, one student explained that he had a lot of fun while watching "real" videos.

Question	**Number of students finding word-lists more effective (out of 39)**	**Number of students finding English Central more effective (out of 39)**
Q2. Which one is more effective: studying vocabulary from a word-list or by English Central? Why?	6	33

Table 10: The Results of the 2nd question in the Attitude Questionnaire

According to the results of the second question, most of the students found studying vocabulary by English Central more effective. Not many students gave reasons for their preference similar to the situation in the 1st question. While explaining their reasons, some highlighted that the visuals made the learning easier and more memorable. Some others stated that thanks to the authentic videos, they

had the opportunity to learn some daily expressions and to see how the words were used in real situations. Also, some students said that compared to wordlists, studying vocabulary by English Central was more enjoyable, which made it easy to recall the words later.

On the other hand, among those who found word-lists more effective, just two students gave a reason for their preferences. One of them said that he did not feel like he was studying or learning something while doing the CAVL tasks and that he felt safer with a word-list in his hand. When it comes to the second student finding word-lists more effective, surprisingly, the reason he gave is very similar to the previous student's reason. He also claimed that CAVL tasks were no different than online games. He maintained that he didn't find an educational value in game-like activities.

Question	**Number of students saying "yes" (out of 39)**	**Number of students saying "no" (out of 39)**
Q3. Would you like to use English Central to study vocabulary in the following levels?	36	3

Table 11: The Results of the 3rd question in the Attitude Questionnaire

Only three students said "No" to the question asking whether or not they would like to use English Central to study vocabulary in the following levels, and the majority of them said "Yes". Among those three students, one emphasized that she wouldn't like to use it since she was not always able to have a good internet connection. Another student who didn't want to use English Central in the following levels complained that they were doing it in vain as it was not part of the assessment. The third student explained that she would prefer to take notes and underline some important parts on her wordlist. Therefore, she wouldn't like to use English Central in her following studies.

5.4. Discussion of the Results

This study has explored the effectiveness of the integration of CALL in vocabulary learning in English as a Foreign Language in a private university at preparatory class.

The pre-test given to both the control group and the experimental group before the treatment revealed that the students in the control group got slightly better scores than the students in the experimental group.

The post-test results, on the other hand, indicated that the experimental group scored better than the control group. However, it should also be noted here that although both groups showed some improvement in target vocabulary knowledge, when the pre-test results are compared to the post-test results, it is obvious that the target vocabulary gain in both groups is below the expectations.

When the pre-test and post-test scores are analyzed, it can be clearly seen that studying vocabulary through a CAVL tool facilitates vocabulary learning process to some extent. The comparison of the pre and post test results reveals that integration of technology has significant effects on the vocabulary development of pre-intermediate EFL learners. Despite the fact that the control group did better in the pre test, the students' improvement in the control group was not remarkable unlike the students in the experimental group. In this way, the post-test results proved the positive impact of the use of CALL on vocabulary development. There can be a number of reasons for this.

One reason could be the fact that during the treatment, the students in the experimental group were exposed to the targeted vocabulary in more than one authentic context as the CAVL program used in this study gives learners a chance to watch other videos containing the same vocabulary. In other words, the students in the experimental group had the opportunity to encounter the same words several times in different contexts. In several studies summarized by Nation (1990: 43-45), it is highlighted that repetition is an important factor in vocabulary learning. According

to one of these studies which was conducted by Kachroo (1962, as cited in Nation, 1990), words occurring seven or more times in the coursebook were known by most of the learners. On the other hand, over half of the words occurring only once or twice in the books were not known by most of the class. In the same summary, Nation (1990) emphasized that according to Salling (1959), at least 5 repetitions were needed to ensure learning while Crothers and Suppes (1967) found in their experiments that 6 or 7 repetitions were necessary. Regarding the same issue, Jenkins, Stein & Wysocki (1984) found that vocabulary gains increased as the number of times learners met words in context increased. All the studies above indicating the necessity of repeated exposure to a word to learn it fully justify the better performance of the experimental group in this study due to the fact that the students in this group had more chances to familiarize themselves with the same word in different contexts. Hence, the results of the post-test indicate that repeated exposure to the targeted words in different contexts and with different types of activities made learning more memorable for the students in the experimental group.

For the control group, however, lack of context was the case. The students in this group were provided with a very limited context which was just a sentence. With the widespread use of communicative language teaching, intentional vocabulary learning such as wordlists has started to be seen as relic of the old-fashioned behaviorist learning model. Therefore, they have been considerably unpopular among the ELT professionals. However, on the other side of the coin, there are some studies finding list learning more effective and resistant to decay than contextual vocabulary acquisition (Nakata, 2008; Hulstijn, 2001). Nonetheless, in the specific context of this study, list-learning did not prove to be more effective than contextual vocabulary learning. As Groot (2000) suggests contextual presentation of a word is more effective for retention. For the students in the control group, the only source to study the target vocabulary was the wordlists which had the definitions of the target words and sample sentences. Therefore, the negative effect of lack of context on vocabulary development can be once again proven with the results of this study. As Laufer and Shmueli (1997, as cited in Baturay,2007) state that lack of context is thought to make vocabulary learning difficult and the words taught in isolation are

generally not remembered and/or easily forgotten, retention of the target vocabulary in the experimental group could be higher thanks to the videos presenting the vocabulary in various, authentic contexts.

Another reason which might have contributed to the superior retention in the experimental group is the visuals and videos. Akbulut (2007) found that "combining text with visuals is more effective in facilitating vocabulary learning than providing only definitions of words" (as cited in Yuksel & Tanrıverdi, 2009). Cakir (2006) suggests that "…in language learning and teaching process, learner use his eyes as well as his ears, but his eyes are basic in learning". As videos or any kind of visuals help promote comprehension, they are usually liked by learners. The abundance of visual clues to rely on makes visuals and videos valuable tools to improve comprehension. Besides, our world is becoming more and more visual, with visual communication becoming more dominant than print communication (Bazeli & Olle, 1995:372). When this is the case, it goes without saying that the teaching and learning practices should be in line with these changes in the society. Moreover, Chun and Plass (1996: 183) point out that "words or phrases are presented with different types of media, retention is easier". When all this information and the post-test results of this specific study are taken into account, it can be concluded that the CAVL program's successful integration of text, sound and visuals resulted in better vocabulary gains in the experimental group.

Despite the fact that the results demonstrate some improvement in the target vocabulary knowledge in both groups, this improvement is not striking or to put in another way, it is not as high as expected by the researcher. Considering the number of vocabulary items, the time allocated and all the facilities provided for the studying of these items, considerably higher vocabulary gains were initially anticipated by the researcher. Yet, when the averages of pre and post test results are taken into account, it can be easily noticed that the vocabulary gain at the end of the treatment in the experimental group was only about two times higher than the vocabulary knowledge the students had at the beginning of the treatment. In addition, this rate was much lower in the control group. A number of reasons can underlie this low rate of

vocabulary gain which is far below the expectations. Extrinsic motivation can be given as one reason for this result. As the students knew that the vocabulary they were given to study in the scope of this research would not be included in the assessment of their school and that they would not be graded for the post-tests, they might not have taken it very seriously. Therefore, their overall gain in terms of target vocabulary knowledge was not very high. The enforcement of the teacher of the control group can be considered as another reason for the relatively low rate of vocabulary gain in the control group. That is to say, since the teacher of the control group was different than the teacher of the experimental group that was indeed the researcher herself, the teacher might not have sufficiently encouraged, motivated or guided them to do this extra vocabulary study which would not be tested in school's assessment.

Finally, the attitude questionnaire carried out with the experimental group showed that, in general, the students had positive attitudes towards using a CALL tool for vocabulary learning. The results also demonstrated that they, in general, agreed to the idea that CAVL makes vocabulary learning more memorable and fun as most of the students found using CALL to learn vocabulary fun and effective. The results of the attitude questionnaire in the present study are congruent with most of the research conducted to find out learners' attitudes to and feelings about the use of computers to learn a foreign language. In his study exploring the relationship between learners' attitudes towards foreign language learning and computer assisted language learning among 128 undergraduate freshman students, Oz (2015) found that 60% of the participants expressed positive attitudes towards the overall impact of CALL on language learning. It was also found in the study that 58% of the participants expressed positive attitudes towards the effectiveness of CALL. According to the results given to the 2nd question of the attitude questionnaire in the present study, 84.6% of 39 participants found studying vocabulary by a CAVL tool more effective. Similarly, in her study, Tuncok (2010) highlights that 71.6% of the participants think they improve their vocabulary knowledge by CALL and they feel more comfortable in front of computers than they do in face-to-face communication.

It is highly important to note that students' positive attitudes towards CALL help them gain more from the technology-based learning (Smith, 2000).

Even though a vast majority of the participants have a general positive attitude toward CALL for vocabulary learning, there also seems to be some resistance to the practice of CAVL. 7.6% of the participants in the present study stated that they did not have fun while studying vocabulary via a CAVL tool. In 1985, student resistance to computer use in learning was associated with technology phobia (Bloom, 1985). Although today it is a highly controversial issue whether this resistance can be related to computer phobia, it is a crystal clear fact that there is a natural tendency for some people to resist change (Lee, 2000). Some people may resist technology integration into their learning or teaching as it requires more time and commitment or some people, simply, have some misconceptions about the computer usage in learning. Some others are worried about the integration of CALL as they do not know how to integrate it into their learning or teaching. As the participants in this study did not give any concrete or specific reasons why they did not have fun or they did not find CAVL effective, the present situation can be explained by the natural tendency of some people to resist change.

As a conclusion, based on the results of this study and the support gained from literature, it can be claimed that integration of CALL has an important role in language teaching or learning contexts. While technology-based learning is gaining more and more momentum in all walks of education, more specifically in second and foreign language learning, CALL should be exploited fully for vocabulary learning and teaching, which is usually overshadowed by more emphasis and effort put and more class time dedicated to other language skills. A plethora of studies including this one have found out that students express positive attitudes toward the use of CALL for language learning. Taking this into consideration, it can be stated that language teachers and institutions should find ways to exploit CALL for vocabulary learning.

CHAPTER VI: CONCLUSION

Over the last two decades, radical innovations in technology have affected almost every aspect of life. Undeniably, those innovations have had profound impacts on education. The latest advances in computers and the Internet have enabled both teachers and students, specifically foreign and / or second language learners and teachers to utilize numerous new resources for various purposes such as compensating for the aspects that are missing in traditional classroom settings, opening a path for learners to become more autonomous, making learning more fun and memorable, meeting the needs of digital natives more efficiently, saving class time as well as energy, and bringing a sense of authenticity into what is being done in class. It goes without saying that just like the other fields of education, foreign language teaching has gotten its share considerably from this high-tech period which has required many modifications concerning teaching methods, approaches, techniques, and tools. One way to integrate information technology into language classes is through the use of computer-assisted language learning (CALL).

CALL can be defined as any language learning and teaching practices supported by computer technology. The first applications of computer technology in foreign language teaching field were implemented in the 1960s, and there has been a growing popularity of and interest in CALL with the drastic changes in the way it has been implemented in foreign language classes since then. Computer technology and its attached language learning programs are occupying more and more place in foreign language classes due to its countless advantages for language learners and teachers. Firstly, CALL tools provide autonomy for learners. With the integration of Internet-based tools into the language teaching and learning practices, learners are better able to gain autonomy and feel more responsible for their own learning and thus they feel more motivated to learn (Liu, Moore, Graham & Lee, 2002; Yang, 2001; Young, 2003). Secondly, computer technology and its attached language learning programs are a motivation source for learners. The multimedia features of computers facilitating the understanding of reading texts and vocabulary, therefore

creating a better platform to foster learning can be regarded as the main source of motivation for learners in the context of CALL. Young (2003) notes that "the integration of communication technology on the Internet with English facilitated the creation of a virtual environment that transformed learning from a traditional passive experience to one of discovery, exploration, and excitement in a less stressful setting". Third, integrative CALL with its internet applications is a source of written and spoken authentic materials. While enabling access to written authentic materials, integrative CALL also helps learners engage in authentic communication with the speakers of the target language. In addition to these three remarkable benefits, CALL programs are also useful in terms of providing feedback to the teachers about the students' progress. By means of various communicative and interactive activities, computer technology can help second language learners strengthen their linguistic skills, affect their learning attitude, and build their self-instruction strategies and self-confidence (Lai & Kritsonis, 2006).

The gradual adoption of CALL and the recognition of its benefits have given rise to different applications of it. Computer Assisted Vocabulary Learning or Computer Assisted Vocabulary Instruction is considered to be one of the most common applications of CALL. In the process of foreign language learning or teaching, vocabulary has always played a significant role as words are considered to be the basic building blocks of language, the units of meaning from which larger structures such as sentences, paragraphs and whole texts are formed (Read, 2000). To this respect, it is commonly believed that the larger one's vocabulary size is, the better he is in comprehending the written or spoken language since vocabulary is the cornerstone of each of the four aspects of a language. In order to listen, write, speak or read in any language one must have a basic knowledge of at least some of the words in the target language. More simply, vocabulary knowledge is a prerequisite for successful communication. Therefore, since the early history of CALL, learning and practising vocabulary by means of computers has always been at the position of prominence. Due to the limited class time for learners to learn and internalize sufficient amount of vocabulary and for teachers to allocate enough time to teach vocabulary, CAVL is recognized as a powerful alternative.

Despite the fact that CAVL has been a highly popular issue in language teaching over the last two decades, the number of studies carried out to investigate the effects of it is not very high. Most of the previous research in the field of CAVL has proven that learning vocabulary with computers facilitates and accelerates L2 vocabulary acquisition (Kocak, 1997; Ozdemir, 2001; Tozcu & Coady, 2004; Nakata, 2008; Cellat, 2008; Kılıckaya & Krajka, 2010; Yan, 2010; Lin et al., 2011; Kayaoglu et al., 2011; Gorjian et al., 2011; Fehr et al., 2012). However, there are also some other studies revealing no significant difference between the two groups (Bowles, 2004; Tokac, 2005; Basoz & Cubukcu, 2014).

This study is mainly designed to explore the effectiveness of the integration of CALL in vocabulary learning by comparing vocabulary learning via a CAVL tool and vocabulary learning with a word-list. The study gets its starting point from the importance of vocabulary knowledge in a foreign language acquisition and its being essential for performing in the target language. CAVL tools are assumed to make vocabulary learning more meaningful and memorable by increasing motivation, improving contextual understanding because of the caption along with the animation, helping in the retention of concepts and lowering anxiety levels.

In the literature review, the first part consists of the analysis of technology integration into teaching, educational technology in Turkey, and instructional technologies in ELT. In the same part, the history and significance of computer and its attached language programs have been explained. It has been clarified that CALL has several advantages for language learners. The most outstanding three advantages which are related to authenticity, learner autonomy and motivation have been explained more thoroughly. It has also been made clear that CALL is not free from limitations. Therefore, the disadvantages of CALL have also been highlighted.

The following part is about vocabulary teaching. After the importance of knowledge of vocabulary in any language learning process has been discussed, approaches to vocabulary learning and vocabulary learning techniques used in ELT have been examined, and it has been found that they are mainly divided into three: decontextualizing, semi-contextualizing and fully-contextualizing techniques. It has

been figured out that contextualized vocabulary learning facilitates understanding and retention and recall of newly learnt vocabulary.

The last part before the research looks into the use of CAVL which is a sub-field of CALL. Important CAVL studies conducted and their results have been investigated. It has been found that according to their results, they can be divided into two: the ones yielding positive results for the integration of CALL in vocabulary teaching or learning and the ones which do not prove any significance difference between the CAVL groups and non-CAVL groups.

To pursue the focus question of the thesis, an eight-week study has been conducted at a university level preparatory school setting with two groups. With the experimental group a CAVL tool is made use of to learn vocabulary whereas wordlists, which is a more direct and decontextualized method of vocabulary learning, have been utilized with the control group. The duration has been decided according to the length of the module at school. It would not be possible to conduct the study longer to see the long-term effects of the study because once the module is over, each student moves to different classes. Therefore, it would not be possible to bring the students all together in the same classroom environment.

To see the effect of CALL integration in vocabulary learning, the students have been given pre-test and post-test. The results of the pre-test revealed that the students in the control group got slightly better scores than the students in the experimental group. The post-test results, on the other hand, indicated that the experimental group scored better than the control group. In this way, the post-test results proved the positive impact of the use of CALL on vocabulary development.

The results of the attitude questionnaire given to the experimental group at the end of the treatment suggest that students believe in the efficiency of learning vocabulary through a computer and its attached language learning programs. They also find learning vocabulary with a CAVL tool fun and memorable.

Taking into account all the research conducted about the integration of CALL into vocabulary learning and/or teaching practices as well as the results obtained

from this specific study, it can be claimed that vocabulary learning is enhanced when computer and its attached language learning programs are utilized in the process of vocabulary learning. CAVL tools are powerful learning tools in the sense that they promote learner autonomy. While working on a CAVL tool, learners take the initiative to do the same task several times until they are satisfied with their own performance. Unlike dull and repetitive pen-and-paper vocabulary practices done in class, CAVL activities are more fun, motivating and engaging for learners. Language teachers, unfortunately, sometimes find themselves subconsciously overemphasizing certain skills and aspects of language learning such as reading, writing and grammar while undervaluing some others such as vocabulary, speaking and listening, which are indeed equally important to be competent in any language. However, due to the policies of the institutions highlighting certain skills more than the others, or simply because of time constraints, vocabulary is usually ignored or it is not given the value it deserves. Bearing this fact in mind, vocabulary learning or teaching by means of CALL tools can be a powerful alternative.

To conclude, for further studies, a longer period of time can be allocated for the study of new vocabulary in both groups. This was not possible in this researcher's context as the modular system applied in the institution requires students to study one level in an eight-week period. Because of the students' overloaded programme at school with 2 writing tasks, 2 speaking tasks, 6 vocabulary checks and a midterm to take in this very limited time, the students could not spend as much time on target vocabulary as needed. Moreover, in further research, a longitudinal study can be structured in order to collect more reliable data about not only the learners' but also the teachers' and the school administrators' views on the integration of CALL in vocabulary teaching and/or learning process. It should also be taken into account that this research was only conducted among the students of A2 level in the preparatory program of a foundation (non-profit, private) university. Different results might arise in different language learning settings. Further research could also be replicated to see the results of other lower or higher proficiency levels like A1 or B2 and C1.

REFERENCES

AbuSeileek, A.F., AbuSa'aleek, A.O.: 2012 — "Computer Assisted Language Learning: Merits and Demerits", **Language in India**, Vol: 12(4). Retrieved from www.languageinindia.com/april2012/atefcallfinal.pdf

Akbulut, Y.: 2007 — "Variables predicting foreign language reading comprehension and vocabulary acquisition in a linear hypermedia environment", **The Turkish Online Journal of Educational Technology (TOJET)**, 6(1), Retrieved from http://files.eric.ed.gov/fulltext/ED500074.pdf

Akcaoglu, M.: 2008 — **Exploring Technology Integration Approaches and Practices of Pre-Service and In-Service English Language Teachers**, Master's Thesis, Middle East Technical University, Ankara.

Akkoyunlu, B., Orhan, F.: 2001 — "The Use of Computers in K-12 Schools in Turkey", **TechTrends**, 5(6), 29-31.

Alkan, C.: 1998 — **Eğitim Teknolojisi (Educational Technology)**, Ankara, Ani Yayincilik.

Al-Seghayer, K.: 2001 — "The Effect of Multimedia Annotation Modes on L2 Vocabulary Acquisition: A Comparative Study", **Language Learning & Technology,** 5(1): 202-232.

Arthur, P.: 1999 — "Why use video? A teacher's perspective", **Visual Support in English Language Teaching (VSELT),** 2(4): 4-16.

Barkan, M., Demiray, U.: 1990 — **New Dimensions System with Advanced Distance Education Support, Never Too Far,** STOU University Press, 14, 3-6. Bangkok, Thailand.

Basoz, T., Cubukcu, F.: 2014 — "The Effectiveness of Computer Assisted Instruction on Vocabulary Achievement", **Mevlana International Journal of Education**, 4(1): 44-54.

Baturay, M.H.: 2007 — **Effects of Web-Based Multimedia Annotated Vocabulary Learning in Context Model on Foreign Language Vocabulary Retention of Intermediate Level English Language Learners,** A Doctoral

Dissertation, Middle East Technical University, Ankara.

Bax, S.: 2003 "CALL-past, present and future", **System**, 31, 13-28.

Bazeli, M.J., Olle, R.E.: 1995 "**Using Visuals to Develop Reading Vocabulary**", ERIC Document Reproduction Service No. ED391519.

Blake, R. J.: 2008 **Brave New Digital Classroom: Technology and Foreign Language Learning.** Washington D.C, Georgetown University Press.

Boulton, A.,Chateau, A., Pereiro, M., Azzam-Hannachi, R.: 2008 "Learning to Learn Languages with ICT- But How?", **CALL-EJ Online**, 9(2). Retrieved from http://callej.org/journal/9-2/boulton.html

Bloom, A.: 1985 "An anxiety management approach to computerphobia", **Training and Development Journal,** 39(1): 90-94.

Bowles, M. A.: 2004 "L2 Glossing: To CALL or not to CALL", **Hispania**, 87(3): 541-552.

Braul, B.: 2006 **ESL teacher perceptions and attitudes toward using computer-assisted language learning (CALL): Recommendations for effective CALL practice,** Unpublished Master's Thesis, University of Albarta.

Cakir, I.: 2006 "The Use of Video as an Audio-Visual Material in Foreign Language Teaching Classroom", **The Turkish Online Journal of Educational Technology (TOJET),** 5(4): 67-72.

Cambre, M., Hawkes, M.: 2004 **Toys, tools and teachers: the challenges of technology,** Maryland: Scarecrow Education.

Canning-Wilson, C.: 2000 "Practical Aspects of Using Video in the Foreign Language Classroom", **The Internet TESL Journal**, Vol.VI, No:11.

Cardenas-Claros, M.S., Gruba, P.A.: 2009 "Help Options in CALL: A Systematic Review", **CALICO Journal**, 27(1): 69-90.

Cellat,S.: 2008 **Computer Assisted Vocabulary Learning: A Study with Turkish 4th Grade EFL Learners,** Unpublished master's thesis, Anadolu University, Eskisehir.

Chun, D.M., Plass, J.L.: 1996	"Effects of Multimedia Annotations on Vocabulary Acquisition", **The Modern Language Journal**, 80(2): 183-198.
Dina, A.T., Ciornei, S.I.: 2013	"The Advantages and Disadvantages of Computer Assisted Language Learning and Teaching for Foreign Languages", **Procedia-Social and Behavioral Sciences**, 76, 248-252.
Ellinger, B., Sandler, S., Chayen, D., Goldfrad, K., Yarosky, J.: 2001	"Weaving the web into an EAP reading program", **English Teaching Forum Online**, 39(2). Retrieved from **http://americanenglish.state.gov/files/ae/resource_files/01-39-2-f.pdf**
Fehr, C.N., Davison, M.L., Graves, M.F., Sales, G.C., Seipel, B., Sekhran-Sharma, S.: 2012	"The effects of individualized, online vocabulary instruction on picture vocabulary scores: An efficacy study", **Computer Assisted Language Learning,** 25(1): 87-102.
Felix, U.: 1999	"Web-based language learning: A window to the authentic world", in Debski, R. and Levy, M. (eds) **WorldCALL: Global Perspectives on Computer-Assisted Language Learning**, Lisse: Swets & Zeitlinger, 85-98.
Freeman, D., S. Holden: 1986	"Authentic listening materials", In S. Holden (ed.), **Techniques of Teaching**, London: Modern English Publications, 67–69.
Gardner, H.: 1999	**The disciplined mind : What all students should understand,** New York: Simon & Schuster.
Gips, A., DiMattia, P., Gips, J.: 2004	"The effect of assistive technology on educational costs: Two case studies", In K. Mieseenberger, J. Klaus, W. Zagler, D. Burger (eds.), **Computers Helping People with Special Needs**, Springer, 2004, pp. 206-213. Retrieved from http://www.comp.dit.ie/dgordon/Courses/CaseStudies/CaseStudy4.pdf
Gorjian, B.; Moosavinia, S.R.; Kavaria, K.E.; Asgaric, P.; Hydareic, A.: 2011	"The impact of asynchronous computer-assisted language learning approaches on English as a foreign language high and low achievers' vocabulary retention and recall", **Computer Assisted Language Learning**,

24(5): 383-391.

Groot, P.: 2000 "Computer assisted second language vocabulary acquisition", **Language Learning & Technology**, 4(1): 60-81.

Healey, D.: 2002 **Learner Autonomy with Technology: What do language learners need to be successful?,** English Language Institute, Oregon State University

Higgings, J.: 1988 **Language, learners and computers,** Longman Group UK Limited.

Holec, H.: 1981 **Autonomy in Foreign Language Learning**, Oxford: Oxford University Press.

Houcine, S.: 2011 **"The effects of ICT on learning/teaching in a foreign language",** Retrieved from http://conference.pixel-online.net/ICT4LL2011/common/download/Paper_pdf/IBL69-437-FP-Houcine-ICT4LL2011.pdf

Hulstijn, J.H.: 2001 "Intentional and Incidental Second Language Vocabulary Learning. A Reappraisal of Elaboration, Rehearsal and Automaticity", In P.Robinson (Ed.), **Cognition and Second Language Instruction**, 258-286, Cambridge: Cambridge University Press.

Hulstijn, J.H., Hollander, M., Greidanus, T.: 1996 "Incidental vocabulary learning by advanced foreign language students: The influence of marginal glosses, dictionary use, and re-occurrence of unknown words", **The Modern Language Journal**, 80: 327-339.

Jacobs, G.M., Dufon, P., Fong, C.H.: 1994 "L1 and L2 Vocabulary Glosses in L2 Reading Passages: Their Effectiveness for Increasing Comprehension and Vocabulary Knowledge", **Journal of Research in Reading**, 17(1): 19-28.

Jenkins, J. R., Stein, M. L., Wysocki K.: 1984 "Learning vocabulary through reading", **American Educational Research Journal**, 21, 767–87.

Joseph, S.R.H.; Watanabe, Y.; Shiung, Y.J.; Choi, B.; Robbins, C.: 2009 "Key Aspects of Computer Assisted Vocabulary Learning (CAVL).Combined Effects of Media, Sequencing and Task Type", **Research and Practice in Technology Enhanced Learning**, 4(2): 133-168.

Kayaoglu, M.N., "A small scale experimental study: Using animations

Akbas, R.D., Ozturk, Z.: 2011	to learn vocabulary", **The Turkish Online Journal of Educational Technology (TOJET),** 10(2): 24-30.
Kennedy, A. W.: 2007	**Laying the cornerstone, building the foundation: an analysis of a computer assisted vocabulary learning program as a tool for productive and receptive vocabulary learning in the foreign language classroom**, Doctoral dissertation, The University of Alabama, USA.
Kılıckaya, F., Krajka, J.: 2010	"Comparative Usefulness of Online and Traditional Vocabulary Learning", **The Turkish Online Journal of Educational Technology (TOJET)**, 9(2): 55-63.
Ko, M.: 2005	"Glosses, Comprehension and Strategy Use", **Reading in a Foreign Language**, 17(2): 125-143.
Kocak, N. Ç.: 1997	**The effectiveness of computer assisted language learning (CALL) in vocabulary instruction to Turkish EFL students,** Unpublished master's thesis, Bilkent University, Ankara.
Kolich, E.M.: 1991	"Effects of Computer-Assisted Vocabulary Training on word knowledge", **Journal of Educational Research**, 84(3), 177-182.
Krajka, J.: 2000	"Using the internet in ESL writing instruction", **The Internet TESL Journal**, 6(11). Retrieved from http://iteslj.org/Techniques/Krajka-WritingUsingNet.html
Krashen, S.: 1989	"We acquire vocabulary and spelling by reading: Additional evidence for the input hypothesis", **The Modern Language Journal**, 73: 440-464.
Kung, S. C.: 2002	"A framework for successful key-pal programs in language learning", **CALL-EJ Online,** 3 (2). Retrieved from http://callej.org/journal/3-2/sckung.html
Lai, C., Kritsonis, W.: 2006	"The Advantages and Disadvantages of Computer Technology in Second Language Acquisition", **Doctoral Forum National Journal for Publishing and Mentoring Doctoral Student Research**, Vol:3 (1). Retrieved from http://files.eric.ed.gov/fulltext/ED492159.pdf

Lee, K.: 2000 "English teachers' barriers to the use of computer-assisted language learning", **The Internet TESL Journal**, 6(12). Retrieved from http://iteslj.org/Articles/Lee-CALLbarriers.html

Lin, C.C., Chan, H.J., Hsiao, H.S.: 2011 "EFL students' perceptions of learning vocabulary in a computer supported collaborative environment", **The Turkish Online Journal of Educational Technology (TOJET)**, 10(2): 91-99.

Liu, M.; Moore, Z.; Graham, L., Lee, S.: 2002 "A look at the research on computer-based technology use in second language learning: A review of the literature from 1990 to 2000", **Journal of Research on Technology in Education**, 34(3): 250-274.

Mayer, R.E.: 1997 "Multimedia Learning: Are we asking the right questions?", **Educational Psychologist**, 32: 1-19.

McCarthy, M.J.: 1990 **Vocabulary,** Oxford: Oxford University Press.

McGrail, E.: 2005 "Teachers, technology, and change: English teachers' perspectives", **Journal of Technology and Teacher Education**, 13(1), 5-25.

McIsaac, M.S.: 1992 "Networks for Knowledge: The Turkish Electronic Classroom in the Twenty-first Century", **EMI,** 29(3), 3-8.

McIsaac, M.S., Murphy, K.L., Demiray, U.: 1988 "Examining Distance Education in Turkey", **Journal of Distance Education**, 9(1), 106-119.

Mitchell, I.: 2009 "The potential of the internet as a language learning tool", In Evans, M., **Foreign Language Learning with Digital Technology** (32- 60), London: Continuum.

Moeller, A. J.: 1997 "Moving from ınstruction to learning with technology: where's the content?", **CALICO Journal.** Vol:14 (2-4).

Mohsen, M.A., Balakumar, M.: 2011 "A Review of Multimedia Glosses and Their Effects on L2 Vocabulary Acquisition in CALL Literature", **ReCALL**, 23(2): 135-159.

Mutlu, E.: 1995 **Televizyonda Program Yapimi** (Production at Television). Ankara Universitesi IBF Yayinlari,

Ankara, Turkey.

Nakata, T.: 2008 "English vocabulary Learning with Word Lists, Word Cards and Computers: implications from cognitive psychology research for optimal spaced learning", **ReCALL**, 20(1): 3-20.

Nation, I.S.P.: 1990 **Teaching and Learning Vocabulary**, Boston, Heinle & Heinle Publishers.

Nation, I.S.P.: 2001 **Learning Vocabulary in Another Language,** Cambridge: Cambridge University Press.

Nation, I.S.P.: 2006 "How large a vocabulary is needed for reading and listening?", **Canadian Modern Language Review**, 63(1): 59-82.

Nikolova, O.: 2002 "Effects of students' participation in authoring of multimedia materials on student acquisition of vocabulary", **Language, Learning & Technology**, 6(1): 100-122.

Oxford, R., Crookall, D.: 1990 "Vocabulary Learning: A Critical Analysis of Techniques", **TESL Canada Journal**, 7(2): 9-30.

Oxford, R.L., Scarcella, R.C.:1994 "Second language vocabulary learning among adults: State of art in vocabulary instruction", **System**, 22(2): 231-243.

Oz, H.: 2015 "Investigating the relationship between foreign language learning and call attitudes among EFL freshman students", **Social and Behavioral Sciences**, 176: 1041-1049.

Ozdemir, S.: 2001 **Foreign Language Vocabulary Acquisition Through an Online Tool,** (Unpublished master's thesis) Middle East Technical University, Ankara.

Read, J.: 2000 **Assessing Vocabulary**. Cambridge: Cambridge University Press.

Read, J.: 2004 "Research in Teaching Vocabulary", **Annual Review of Applied Linguistics**, 24: 146-161.

Saglik, M., Ozturk, S.: 2001 "Television as an Educational Technology: Using Television at Open Educational Faculty, Anadolu University", **The Turkish Online Journal of Distance**

Education, Vol: 2(1), 74-82.

Salaberry, M.R.: 2001 "The use of technology for second language learning and teaching: A retrospective", **The Modern Language Journal,** 85(1): 39-56.

Teeler, D., Gray P.: 2000 **How to use the internet in ELT.** Longman.

Thornburry, S.: 2002 **How to teach vocabulary,** England: Longman.

Smith, M.: 2000 "Factors Influencing Successful Student Uptake of Socio-collaborative CALL", **Computer Assisted Language Learning,** 13(4-5): 397-415.

Tokac, A.: 2005 **A comparioson of Computer- Assisted Vocabulary Instruction and Teacher-Led Vocabulary Instruction**, (Unpublished master's thesis) Bilkent University, Ankara.

Tondeur, J., van Braak, J., Valcke, M.: 2007 "Towards a typology of computer use in primary education", **Journal of Computer Assisted Learning**, 23, 197-206.

Tozcu, A., Coady, J.: 2004 "Successful Learning of Frequent Vocabulary Through CALL Also Benefits Reading Comprehension and Speed", **Computer Assisted Language Learning**, 17(5): 473-495.

Tuncok, B.: 2010 **A case study: students' attitudes towards computer assisted learning, computer assisted language learning and foreign language learning.** Master's Thesis. METU, Ankara.

Turkmen, H., Pedersen, J.E.: 2005 "Examining the Technological History of Turkey: Impacts on Teaching Science", **Science Educational International**, Vol: 17 (2).pp:115-123.

Usun, S.: 2003 "Educational Uses of Internet in the World and Turkey (A Comparative Review)", **The Turkish Online Journal of Distance Education**, 4(3). Retrieved from http://tojde.anadolu.edu.tr/yonetim/icerik/makaleler/98-published.pdf

Warschauer, M., Kern, R.: 2000 **Network Based Language Teaching: Concepts and Practice,** Cambridge: Cambridge University Press.

Warschauer, M., Meskill, C.: 2000	"Technology and Second Language Learning", In J. Rosenthal (Ed.) **Handbook of Undergraduate Second Language Education**, New Jersey : Lawrence Erlbaum, 303-318.
Wescher, M.B., Paribakht, T.S.: 2000	"Reading-based exercises in second language vocabulary learning: An introspective study", **The Modern Language Learning Journal**, 84: 196-213.
Yang, P. J.: 1998	"Networked Multimedia and Foreign Language Education", **Calico Journal**,15,(1-3), 75-88.
Yang, S. C.: 2001	"Integrating Computer-Mediated Tools into the Language Curriculum", **Journal of Computer Assisted Learning**, 17, 85-93.
Yolcu, M.: 2009	**Comparison of computer adaptive individual video tutoring with whole class video lessons,** Master's Thesis, Gazi University, Ankara.
Young, S. S. C.: 2003	"Integrating ICT into second language education in a vocational high school", **Journal of Computer Assisted Learning**, 19: 447-461.
Yuksel, D., Tanriverdi, B.: 2009	"Effects of Watching Captioned Movie Clip on Vocabulary Development of EFL Learners", **The Turkish Online Journal of Educational Technology (TOJET)**, 8(2): 48-54.
Zengin, R.: 2005	**"İstanbul İli Anadolu Liseleri Temelinde İngilizce Öğretmenlerinin Araç-Gereç ve Teknoloji Kullanım Olanakları / Yeterlilikleri",** A Doctoral Dissertation, Istanbul University, Istanbul.