

**THE IMPACT OF COMPUTER-ASSISTED LANGUAGE LEARNING ON  
THE HEARING-IMPAIRED TURKISH STUDENTS' MOTIVATION AND  
THEIR VOCABULARY DEVELOPMENT IN ENGLISH**

**Aslin ARSLANOĞLU**

**JANUARY 2015**

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**Aslin ARSLANOĞLU**

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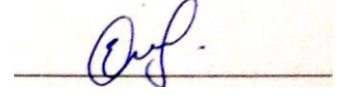
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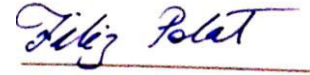
Assist. Prof. Sinem VATANARTIRAN  
Director

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



Assist. Prof. Enisa MEDE  
Coordinator

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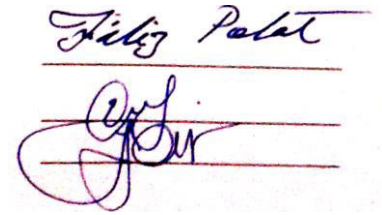
Prof. Dr. Filiz POLAT  
Supervisor

**Examining Committee Members**

Prof. Dr. Filiz POLAT (BAU, ECE)

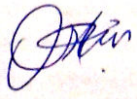
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## **ABSTRACT**

### **THE IMPACT OF COMPUTER-ASSISTED LANGUAGE LEARNING ON THE HEARING-IMPAIRED TURKISH STUDENTS' MOTIVATION AND THEIR VOCABULARY DEVELOPMENT IN ENGLISH**

Arslanoğlu, Aslin

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The present study investigated the impact of computer-assisted language learning on the hearing-impaired Turkish students' motivation and their vocabulary development in English. In order to examine this impact, it applied a mixed methods design which was more qualitative in nature.

The quantitative phase of the study consisted of the English exam scores of the learners, Likert-type scales administered to the family members and the students, and the observation checklist forms recorded by the English teacher and the researcher. The qualitative phase of the study consisted of the semi-structured interviews conducted with the teachers, the survey with open-ended questions that was administered to the family members and the detailed field notes taken by the researcher.

The exam scores did not reveal any significant improvement in the vocabulary learning outcomes of the learners. However, the survey that was administered to the family members at the beginning of the study summarized their positive views on the impact of computer-assisted language learning. The quantitative data obtained from the Likert-type scales that were administered to the family members towards the end of the study also revealed complementary results. The qualitative data gathered from the semi-structured interviews conducted with the teachers underlined the positive

impact of computer-assisted language learning on the learners' vocabulary development in English and their motivation. The observation results reported by the English teacher and the researcher, the survey taken by the students and also the researcher's field notes revealed similar results.

**Keywords:** Hearing-Impaired, Computer-Assisted Language Learning, Motivation, Vocabulary Development

## ÖZ

### BİLGİSAYAR DESTEKLİ DİL EĞİTİMİNİN İŞİTME ENGELLİ TÜRK ÖĞRENCİLERİN MOTİVASYONLARI VE ONLARIN İNGİLİZCE KELİME DAĞARCIĞI GELİŞİMİ ÜZERİNE ETKİSİ

Arslanoğlu, Aslin

Yüksek Lisans, İngiliz Dili Eğitimi Yüksek Lisans Programı

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Bu çalışma, bilgisayar destekli dil eğitiminin işitme engelli Türk öğrencilerin motivasyonları ve İngilizce kelime dağarcığı gelişimi üzerine etkisini araştırmıştır. Çalışma, bu etkiyi incelemek için daha çok nitel özellik taşımakta olan karma araştırma desenini kullanmıştır.

Çalışmasının nicel boyutu, öğrencilerin İngilizce sınav sonuçları, aile üyelerine ve öğrencilere uygulanan Likert tipi ölçekler ve İngilizce öğretmeni ve araştırmacı tarafından doldurulan gözlem formlarından oluşmaktadır. Çalışmanın nitel boyutu ise öğretmenlere uygulanan yarı yapılandırılmış görüşmeler, aile üyelerine uygulanan açık uçlu sorular içeren anket ve araştırmacının detaylı alan notlarından oluşmaktadır.

Sınav sonuçları, öğrencilerin kelime kazanımlarıyla ilgili önemli bir gelişme göstermemiştir. Ancak, çalışmanın başında aile üyelerine uygulanan anket, onların bilgisayar destekli dil eğitiminin etkisi ile ilgili olumlu görüşlerini özetlemiştir. Araştırmanın sonuna doğru aile üyelerine uygulanan Likert tipi ölçeklerden elde edilen nicel veriler ise açık uçlu anket verilerini bütünlüyci nitelikte sonuçlar ortaya çıkarmıştır. Öğretmenlere uygulanan yarı yapılandırılmış görüşmeler sonucunda elde edilen nitel veriler, bilgisayar destekli dil eğitiminin öğrencilerin İngilizce kelime dağarcığı gelişimi ve onların motivasyonları üzerine olumlu etkisinin altını çizmiştir.

İngilizce öğretmeni ve arařtırmacı tarafından bildirilen gözlem sonuçları, öğrenciler tarafından doldurulan anket ve arařtırmacının alan notları da benzer nitelikte sonuçlar ortaya koymuřtur.

Anahtar Kelimeler: İřitme Engelli, Bilgisayar Destekli Dil Eđitimi, Motivasyon, Kelime Dađarcıđı Geliřimi



To My Beloved Family

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## **LIST OF ABBREVIATIONS**

TİD	Türk İşaret Dili (Turkish Sign Language)
CALL	Computer-Assisted Language Learning

## **Chapter 1: Introduction**

### **1.1 Introduction**

This chapter will briefly review the background of the present research study, the problems that have led to the proposed study and the aims and the significance of the investigation. The operational definitions of the variables will be provided, and an overview of each chapter will be presented.

### **1.2 Background of the Study**

There is a well-known story written by Lauren Eiseley which is about a man who tries to pick up all the starfish on the shore since he wants to throw them into the ocean. An old man comes next to him and states that there are millions of starfish, and he thinks that it is impossible for that man to throw all the starfish into the ocean. However, the thrower looks at the starfish in his hand and states that it makes a difference to that one (Hopen, 2011).

The above-mentioned passage is a story of hope that underlines an inspirational message for teachers. The millions of starfish collected by the thrower symbolize learners, and the struggle of the thrower is the struggle of parents and teachers who try to give equal chance for every learner. The speaker in the story highlights the capability of making a difference in learners' lives by touching the needs of each learner so as to help them realize their potential as individuals. In order to provide quality education and to meet the needs of all students, educators should embrace a more holistic approach to education. According to ASCD (Association for Supervision and Curriculum Development), the "Whole-Child Approach" includes policies that "affect children's health to align and complement those that affect their social, emotional, and cognitive development. ... children's growth and development, including academic development, cannot be fully realized without providing a system of supports for their non-academic needs" (Slade & Griffith, 2013, p. 22). The education of deaf population in Turkey is divided into two main branches. The first branch expects deaf learners to attend schools specialized for them, and the second branch expects them to learn alongside their hearing peers in

mainstream schools. As a result, they are supposed to choose between these two alternatives, and both types of schools should embrace a holistic approach to answer both the academic and non-academic needs of learners with special needs.

Language education is a complicated process that requires careful and continued effort. There have been many innovative strategies in the field of foreign language education, and the impact of these strategies should be examined in the field of special education. According to Jin and Low (2011), using games for learning and teaching dates back to ancient China (4,000 years ago), for example:

*Go* [which was used to train military strategists] is probably the world's oldest board game that stimulates the conquest of territory by using black and white stones to make 'walled-in' (defensive) or capture (offensive) moves. The playing of *go* demands sophisticated skills and strategic thinking, yet the rules and accessories are very simple so that even children can play it. (p.396)

The development of computer-assisted language learning (CALL) tools has underlined the need for examining the impact of technology on vocabulary acquisition. The evidence from the literature has shown the positive impact of digital tools on learners' motivation and their foreign language learning outcomes (e.g., Strassman & O'Dell, 2012; Radovanovic, 2013). The integration of these tools to teach English as a foreign language may enhance hearing-impaired learners' performance and motivation. These tools may also contribute to their personal development by providing them with a wide range of academic and non-academic skills in life and by maximizing their chances for integration into the society they live in. In other words, students with special needs should be provided with quality education, and they should be considered as members of a linguistic and cultural community.

### **1.3 Statement of the Problem**

Foreign language education fosters learners' global vision which is an utmost need for today's world. However, there is almost no research study conducted on deaf and hard of hearing learners' foreign language education and the impact of

CALL on their foreign language acquisition process in Turkey. One of the most significant components of foreign language education is vocabulary development, and this research study will examine the impact of CALL on the hearing-impaired Turkish students' vocabulary development in English and their motivation to study English.

Vocabulary acquisition requires constant exposure to target words, and it is possible for language teachers to develop deaf and hard of hearing learners' vocabulary knowledge by integrating some learner-centered materials into their curricula. For instance, there is empirical evidence that digital games, which are also used for educational purposes, provide a novel way of introducing target language information. In other words, these games increase both the quality and the quantity of learners' vocabulary knowledge by affecting their motivation and performance in a positive way and by answering their personal and academic needs. A research study described by Ranalli (2008) analyzed the impact of a digital game called *Sims* which was used as an instructional tool to teach English words in 9 intermediate-level college students, and the research results reflected the positive impact of this game on the students' target language vocabulary acquisition process and also its positive effect on their attitudes. The researcher came across some studies that assessed the impact of digital games on the Turkish learners' academic skills (e.g., Çetin, Sözcü & Kınay, 2012), but no model was found investigating the impact of digital games and/or CALL on the hearing-impaired Turkish learners' foreign language skills.

The scope of this research is limited since it is concerned only with the process of vocabulary acquisition, and it will not provide a sentence-level study. Before highlighting the importance of English for deaf and hard of hearing learners, it should be emphasized that the second language of deaf and hard of hearing population in Turkey is Turkish since Turkish Sign Language is their first language. As a result, some basic functional literacy skills should be introduced to hearing-impaired learners by improving their proficiency in Turkish and by giving them the chance to attend foreign language classes so as to enhance their academic and non-academic skills and to provide equity not only in education but also in all phases of life.

#### **1.4 The Aims of the Study**

The main objective of this research study is to provide empirical evidence necessary to understand the impact of CALL on the hearing-impaired learners' motivation and their vocabulary development in English. In order to analyze this impact, the researcher administered an English vocabulary exam, conducted in-class observation sessions (e.g., field notes and observation checklists) and searched through some secondary data. In addition, she also examined the perceptions of the key stakeholders (e.g., the learners, the family members, the English teacher, the classroom teacher and the school principal) by conducting semi-structured interviews and by administering Likert-type surveys and a questionnaire that included open-ended questions.

#### **1.5 The Significance of the Study**

The integration of technology has attracted the attention of educators in the field of foreign language education, and the comparison of the innovative technological tools with the traditional ones underlines the enrichment of education through computer-assisted instruction. For instance, Wood (2001) analyzed the impact of games and concluded that game-like formats could perform better than traditional media (e.g., textbooks) in capturing students' attention (as cited in Yip & Kwan, 2006). On the other hand, research studies that examined the impact of CALL in Turkey are very rare, and there is an apparent need for the introduction of computer-assisted instructional tools in the field of special education.

The researcher aims to contribute to the body of literature conducted in the field of foreign language education in Turkey by calling attention to the relationship between CALL and the hearing-impaired Turkish learners' vocabulary development in English and their motivation to learn a new language. The present study may guide educators, students and parents for the efficient use of computer-assisted instructional tools, and it might be unique in this sense.

#### **1.6 Operational Definitions**

**Computer-Assisted Language Learning (CALL):** It is "the use of computer software for learning languages" (*Macmillan English Dictionary*, 2002). In the

present study, a website called “Quizlet” was used as a computer-assisted language learning tool to create a positive change in the learners’ basic knowledge of English and to cultivate positive attitudes towards this course.

**Motivation:** Petrides (2006) stated that in Foreign Language Learning theories, motivation is defined in relation to two factors which are the needs of the learners and also their attitudes towards their target language. In the present study, in order to assess the learners’ motivation level, the researcher tried to answer their academic and non-academic needs by integrating a computer-assisted language learning tool into the current English curriculum. She also focused on the impact of this tool on the learners’ attitudes towards the English class by assessing their interest to the content of the intervention material and their eagerness to participate in the activities. This study assessed the motivation level of the learners by focusing on four different sub-categories: cooperation, communication, self-confidence and interest (See Table 4.2) which were assessed through in-class observation checklists, field notes, semi-structured interview sessions, Likert-type surveys and a questionnaire that included open-ended questions.

**Vocabulary Development:** According to Schmitt (2000), understanding a word is known as receptive knowledge, and if learners are able to produce a word of their own accord then it is considered productive knowledge. In order to evaluate the learners’ vocabulary acquisition process, the researcher made use of various data collection tools such as in-class observation checklists, field notes, semi-structured interview sessions and an English exam that included the target words covered in the classroom.

## **1.7 Overview of the Thesis**

Chapter 1 introduces the background of the present study, its aims and significance, the problems associated with the hearing-impaired students’ foreign language education in Turkey and the role of computer-assisted instruction in education, and it also provides definitions for the variables studied in the present study. Chapter 2 will provide an overview of the relevant research studies and the major issues related to the use of computer-assisted instructional tools in the field of foreign language education and the impact of these materials on the learners’ level of

achievement and motivation, and it will also present a review of research on the education of hearing-impaired learners. Chapter 3 will present the philosophical paradigm and the design of the present study, the research questions, the setting, the participants, the data collection instruments and the data collection procedures, the data analysis process, the validity, reliability and the ethical issues and also the limitations and the delimitations of the study. The findings of the present study will be reported in Chapter 4. Finally, the conclusions related to the research questions will be given in Chapter 5, and this chapter will also provide some theoretical and pedagogical implications and will pose areas for future research.



## Chapter 2: Literature Review

### 2.1 Introduction

This chapter will highlight the literature and the major issues associated with the use of computer-assisted instructional tools in the field of English language education and will present a review of research on the education of hearing-impaired learners. It will define the terms “deaf” and “hard of hearing” and will describe biculturalism and bilingualism issues in the field of deaf and hard of hearing education. It will also examine the link between sign languages and spoken languages from a general perspective, the foreign language teaching methods, the use of technology in the field of foreign language education and its impact on hearing-impaired learners’ motivation and performance.

### 2.2 Deaf and Hard of Hearing

This section will define the terms “deaf” and “hard of hearing”, and it will also include topics such as hearing-impaired bilingual learners and Turkish Sign Language, the concept of biculturalism and hearing-impaired people, and the link between a sign language and a spoken language. Finally, it will focus on the impact of family issues on hearing-impaired learners’ academic skills and non-academic skills.

**2.2.1 Definitions of the terms “deaf” and “hard of hearing”.** Hearing impairment is highly heterogeneous, and a clear distinction should be drawn between these two terms since as Hallahan, Kauffman and Pullen (2009) stated, “Children who can’t hear sounds at or above a certain intensity (loudness) level are classified as ‘deaf’; others with a hearing impairment are considered ‘hard of hearing’” (p. 340). Audiologists make use of clinical measurements to understand the degrees of hearing loss. Heward (2009) defined these degrees by stating, “Hearing loss is usually described by the terms *slight*, *mild*, *moderate*, *severe*, and *profound*, depending on the average hearing level, in decibels, throughout the frequencies most important for understanding speech (500 to 2,000 Hz)” (p. 346).

### **2.2.2 Hearing-impaired bilingual learners and Turkish Sign Language.**

There are various types of approaches and communication methods that were used to communicate with deaf and hard of hearing learners such as oral/aural approaches (e.g., auditory learning, speechreading, etc.), sign language, the Bilingual-Bicultural approach and total communication (e.g., the use of a variety of forms of communication). In this section, the characteristics of speechreading, fingerspelling and Turkish Sign Language (TİD) are examined in detail.

One of the communication techniques used by the deaf community is called speechreading, and this term is defined as, “the process of understanding a spoken message by observing the speaker’s face. All children with hearing loss ... use their vision to help them understand speech. Some sounds are readily distinguished by watching the speaker’s lips” (Heward, 2009, p. 354). In order for learners to follow the speakers’ lips (e.g., teacher’s), some important issues should be attached importance in a classroom setting. For instance, in a book published by the Ministry of Education in Turkey it was stated that classrooms should be designed in such a way that they have the acoustic insulation against disturbance by noise (e.g., desk creaking, the sound of the air conditioning unit, etc.), there should be enough lightening in the classroom, and the desks should be arranged in such a way that learners can see their teachers’ and the other students’ faces clearly (Milli Eğitim Bakanlığı [MEB], 2003).

The term fingerspelling is defined as the representation of letters which is used to spell out certain words (Hallahan et al., 2009), and both the deaf community and the hearing people who need to communicate with hearing-impaired people may sometimes need this communication tool. However, hearing people should not expect a 100% correct spelling from the deaf community. For example, Heward (2009) focused on the English literacy skills of learners who use ASL (American Sign Language) by stating, “A child who ... cannot hear the speech of other people will not learn speech and language spontaneously, as do children with normal hearing” (p. 336), and this factor may have a negative impact on deaf and hard of hearing learners’ linguistic skills and may influence their academic achievement in a negative way. All these points will be discussed in the following sections.

The third communication tool, Turkish Sign Language is the most common communication tool used by the deaf community in Turkey. The researchers

highlighted the importance of early childhood education by saying, “complete physical, mental, and social well-being by hearing and speech is mostly age-dependent ... [because] late diagnosis and delayed (re)habilitation lessen human well-being by depriving hearing and speech” (Kemaloğlu & Kemaloğlu, 2012, p. 67). As a result, hearing-impaired individuals should be exposed to sign language in the stages of early childhood. However, Turkish people had difficulty in accepting Turkish Sign Language, and Kemaloğlu and Kemaloğlu (2012) underlined this point by stating that starting from the mid of 1980s, people (e.g., teachers) started understanding the importance of sign language. However, a sign language used in a country (e.g., Turkish Sign Language) is not the signed version of the spoken language of that country (e.g., Turkish) since a sign language used by a deaf community is a language itself with its system and rules.

Bilingualism in a deaf community can be defined as, “a form of minority language ... in which the members of the community acquire and use both the minority language (sign language) and the majority language in its written form and sometimes in its spoken or even signed form” (Grosjean, 2010, p.134). Although there are both hearing-impaired and hearing bilinguals, a various number of aspects are specific to the hearing-impaired people. For instance, Grosjean (2010) stated that hearing-impaired bilinguals need to know their sign language to be able to communicate with people within their own communities and with some hearing people, and also some knowledge of the majority language should be acquired in order for them to be able to survive in a hearing community. He also highlighted that speaking and some other majority language skills may not be acquired by the hearing-impaired bilinguals because they are unable to speak very well. In addition, hearing-impaired people may sometimes prefer to keep silent, and they do not want to use their voice to communicate since they have the tendency to believe that hearing people may give negative feedback. For instance, Lott, Easterbrooks, Heller and O’Rourke (2001) underlined that deaf and hard of hearing people may even show negative reactions towards hearing people as a result of their prejudiced thoughts (as cited in Nikolarazi & Makri, 2004/2005).

Furthermore, Turkish and Turkish Sign Language may share some similarities. For instance, Göksel and Kelepir (2013) highlighted that these two languages, “display

similar partitionings despite the fact that they belong to different modalities. Both phonologically express interrogative mood, and both have specific units that encode subgroups of questions” (p.21). Although there are some similarities between these two languages, hearing-impaired bilinguals in Turkey whose native language is Turkish Sign Language are not competent in Turkish which is their second language, and they are not able to form grammatically correct long sentences in Turkish and may not even understand 100% of the sentences uttered by hearing people. Goldin-Meadow, McNeill and Singleton (1996) put forward the differences between a sign language and a spoken language by focusing on the systematic and mimetic functions of both spoken and signed languages. They analyzed the gestures of the hearing mothers and their deaf children and stated that the children used their gestures as their sole means of communication. However, the hearing mothers had the tendency to teach their children spoken English and rarely gestured without speaking.

In addition, a sign language is a language with its own unique rules of grammar, and geographical and cultural differences may also cause slight or visible separations between a sign language and a spoken language used in a country. A research study conducted in Turkey examined the left-right and front-back axes used in Turkish Sign Language (TİD) in expressing temporal concepts, and Figure 2.1 illustrates the grammatical differences between Turkish and Turkish Sign Language and gives some clues about deaf and hard of hearing people’s culture (e.g., how they use the space around their body, etc.) which will be discussed in Section 2.2.3 more in detail.



Figure 2.1. Marking tense in Turkish Sign Language. From “Space, time, and iconicity in Turkish Sign language,” by E. Arik, 2012, *Trames: A Journal of the Humanities and Social Sciences*, 16(4), p. 355. Copyright 2012 by Estonian Academy Publishers.

The order of the words (signs) used by the person in the picture is different when it is compared with the spoken language (Turkish). Figure 2.1 also indicates that suffixes are not used in Turkish Sign Language, and hearing-impaired people have the tendency to focus only on the first syllable of the words. Thus, they may use similar signs for two different words like “çil” (freckle) and “çilek” (strawberry).

All these features of deaf community need to be embraced by teachers and school administrators in an educational setting so as to provide the most appropriate learning environments for hearing-impaired learners, and teachers should adjust their teaching styles according to the needs and the culture of this target group.

**2.2.3 The concept of biculturalism and hearing-impaired people.** Deaf and hard of hearing people who are exposed to the culture of hearing people have to go through a decisional process at the end of which they have to choose a cultural identity. While describing the deaf community who use American Sign Language, Hallahan et al. (2009) stated that hearing-impaired people “struggle with critical choices about oral versus manual modes of communication and cultural identity. With respect to the latter, in fact, many members of the Deaf community consider themselves part of a cultural minority rather than disabled” (p.339). Deaf culture is also present among hearing-impaired Turkish people. Zeshan (2003) stated that the Deaf community in Turkey [‘D’ is capitalized so as to stress deaf people’s identity and their cultural commitment in the deaf community] meets regularly for sports organizations and cultural activities (e.g., sign language theater), and Deaf clubs are also used for social activities.

Deaf people who identify themselves with the culture of hearing community were also described by Nikolarazi and Makri (2004/2005) who stated, “A part of these individuals remains for their whole life culturally hearing, and they usually interact either with other deaf people who are also culturally hearing or with hearing people in oral language” (p.405). The “culturally hearing” hearing-impaired people even deny their deafness and may suffer from lower level of self-esteem.

**2.2.4 The link between a sign language and a spoken language: A general perspective.** Although the differences observed between the sign languages and the spoken languages were described in Section 2.2.2, the positive link between them

cannot be denied. To begin with, the impact of hearing-impaired people's first language (sign language) on their acquisition level of the spoken language of a country should be attached importance since literature has shown that sign languages may facilitate learning in countries where there are no coursebooks especially designed for hearing-impaired learners. For instance, according to Grosjean (2010), sign languages can be used to clarify difficulties or explain the topics or exercises covered in a classroom setting.

In addition, the role of the spoken language should be taken into consideration because hearing-impaired students are also expected to understand the majority language of a country for the acquisition of academic and non-academic knowledge. In other words, as it was discussed in Section 2.2.2, hearing-impaired people should have some knowledge of the majority language (e.g., the written form of the majority language) to survive in a hearing community and much of what learners are presented at school are transmitted through writing. For instance, the quality of assessment tools used with hearing-impaired learners is crucial, and a variety of factors may affect the validity of these tools since, "standardized tests often cause problems ... because the tests require reading ability, even when assessing skills other than reading. Thus, test scores may reflect reading skill deficits rather than a lack of specific content knowledge" (Luckner & Bowen, 2006, p.412). As a result, hearing people, especially teachers that are in contact with hearing-impaired people should be aware of the present academic and non-academic skills and needs of hearing-impaired learners in order to find a balance between the spoken language of a country and the learners' sign language. They should plan their curriculum, their teaching tools, the daily activities, etc. accordingly.

**2.2.5 The impact of family issues on hearing-impaired learners' academic and non-academic skills.** Modality is an important factor in language education, and Vygotsky's "Zone of Proximal Development" concept claims that children benefit from adult's help (Gindis, 1999). Cannon and Kirby (2013) stated, "When deaf and hard of hearing children are raised by native signers, and thus have full access to a signed language from birth, these children show a similar development trajectory to that of hearing children acquiring a spoken language" (pp. 292-293). In other words, sign languages contain certain established rules; as a result, these rules should be

introduced as early as possible in order for hearing-impaired children to demonstrate competence in their sign languages.

On the other hand, the language development process of a hearing-impaired child can be delayed because of various elements (e.g., child's nonverbal IQ, his/her teacher's attitude, etc.), and family is one of the most important factors that may affect hearing-impaired learners' speech development and even their academic and non-academic skills. According to Ulrich and Bauer (2003), parents who are informed about their children's disability may show emotional reactions such as "uncertainty, frustration, denial, depression, and anxiety" (as cited in Gargiulo, 2009, p. 430). In addition, assistive devices (e.g., hearing aids, cochlear implants, etc.) or some other methods (e.g., interpreters) may also be used to increase deaf and hard of hearing learners' academic and non-academic skills. As a result, parents (both deaf and hearing parents) should be aware of the significant factors affecting deaf and hard of hearing learners' language development process to give them the opportunity to improve their academic (e.g., writing, reading, etc.) and non-academic skills (e.g., social skills) and to give them the chance to get used to the above-mentioned methods easily and as early as possible. Heward (2009) underlined the importance of the age of onset by stating, "A child who acquires a hearing loss after speech and language are well established, usually after age 2, has educational needs very different from the prelingually deaf child" (p. 340).

The points discussed above indicate that each family member should be informed about the impact of the age of onset on their child's language development. Not only parents' attitudes but also their socioeconomic status may have a great impact on hearing-impaired learners' speech development since Geers and Nicholas (2013) stated that children from higher socioeconomic status families may have the opportunity to receive cochlear implants at younger ages which may enhance their language outcomes. As a result, the education level and the socioeconomic level of each family member should not be neglected, and these factors should be attached importance by educators so that they can design their course content accordingly.

## 2.3 Motivation

Motivation can be defined as the “feeling of enthusiasm or interest that makes you determined to do something” (*Macmillan English Dictionary*, 2002). In every type of educational setting, motivation is admitted to be one of the most significant and essential components of teaching and learning, and a significant number of researchers have been studying to highlight its impact on students’ performance. This section will examine the language teaching and learning methods used through ages, language learning anxiety and hearing-impaired learners’ language acquisition process, computer-assisted instruction and its positive impact on learners’ academic and non-academic skills, the quality of computer-assisted instructional tools, deafness and the acquisition process of a third language.

**2.3.1 Language teaching and learning methods used through ages: Vocabulary acquisition.** There have been numerous methods of teaching foreign languages over many years, and vocabulary teaching has been one of the significant components in this field. The main objective of early foreign language teaching methods was to teach “about” a language, in other words, teachers preferred analyzing the rules of a language and neglected the natural acquisition process and the ability to use a target language. For instance, according to Howatt (1984), Grammar-Translation Method, which was developed at the beginning of the nineteenth century, was a reformist method in nature since it aimed to make language learning easier by making use of example sentences instead of focusing on whole texts (as cited in Schmitt, 2000). However, this method followed a deductive approach and focused mainly on the rules and analysis of a foreign or a second language (e.g., translation exercises). According to Richards and Rodgers (2001), there are three different theoretical views of language: structural, functional and interactional; and the structural view (e.g., Audiolingual Method, Total Physical Response and the Silent Way) is the most traditional view which claims that language is a system that contained structurally related elements to code meaning, functional view (e.g., Communicative Language Teaching) supports the communicative and semantic functions rather than merely the grammatical and structural characteristics of a language, and finally the interactional view (e.g., Whole Language, Cooperative Language Learning, Content-Based Instruction, etc.) highlights that language is a tool that provides interpersonal relations



between people.

Previous research has shown that traditional language teaching methods may not provide long-term retention of target languages. For instance, Gömleksiz (2007) presented empirical evidence that put forward the negative impact of traditional teaching methods on Turkish engineering students' vocabulary knowledge and their acquisition of active-passive voice. He stated that children who were educated through traditional methods became passive recipients, and he continued by stating, "The *t* - test results for post-test scores ... showed that the engineering students in experimental group who were taught English using cooperative Jigsaw II method performed better than the controlled students who used traditional teacher-centred teaching method" (p. 619). However, there are language teaching methods (e.g., Direct Method, Audiolingualism, Communicative Language Teaching, Suggestopedia, etc.) that focus on the vocabulary acquisition process by underlining the significance of traditional strategies (e.g., rote-memorization).

Knowing a word may have different definitions. Schmitt (2000) stated that understanding a "word is known as *receptive knowledge* and is normally connected with listening and reading. If we are able to produce a word of our own accord when speaking or writing, then that is considered *productive knowledge*" (p. 4). In other words, foreign language learners are expected to know how to use words in a sentence, the meaning or the meanings of these words, their written and spoken forms, etc. to have an excellent command of that language. As a result, in order to increase learners' target language vocabulary knowledge and their motivation to learn that language, foreign language teaching methods should be used considering the learners' needs and abilities.

**2.3.2 Language learning anxiety and hearing-impaired learners' language acquisition process.** The positive impact of learners' motivation on their performance has been analyzed for many years and traditional language classrooms started to lose their impact in the field of language education. According to Krashen's "Acquisition-Learning Hypothesis", "We 'acquire' as we are exposed to samples of the second language we understand in much the same way that children pick up their first language ... We 'learn' ... through conscious attention to form and rule learning" (Lightbown & Spada, 2006, p. 36). In other words, only focusing on conscious

learning does not provide successful linguistic competence, and creating situations in which learners understand their target language without any conscious effort is also essential. In order to increase learners' acquisition level, teachers should not merely focus on traditional methods; they should also prefer learner-centered methods by including activities that will enable meaningful interaction opportunities in the target language. Krashen (1988) stated, "Simply hearing a second language with understanding appears to be necessary but it is not sufficient for acquisition to take place. The acquirer must not only understand the input but must also, in a sense, be 'open' to it" (p. 21).

Anxiety is an undeniable factor that has an important role in the field of foreign language education. According to Krashen's "Affective Filter Hypothesis", there is a "metaphorical barrier that prevents learners from acquiring language even when appropriate input is available" (Lightbown & Spada, 2006, p. 37). In other words, if learners' anxiety level is high, they may not understand the target language information presented in the classroom. To lower their anxiety level, teachers should increase learners' motivation. Furthermore, Krashen's "Comprehensible Input Hypothesis" underlines the significance of foreign language "acquisition" process since it is the language acquisition process that "occurs when one is exposed to language that contains  $i+1$ . The 'i' represents the level of language already acquired, and the '+1' is a metaphor for language ... that is just a step beyond the level" (Lightbown & Spada, 2006, p. 37). In other words, presenting new information in a new context with the combination of learners' previously acquired knowledge may increase learners' self-confidence and comprehension level.

In order to maintain a high level of motivation in a foreign language classroom, teachers should lower learners' anxiety level by finding emotionally stimulating teaching strategies and activities that may enable them to reflect their target language knowledge. For instance, according to Csikszentmihalyi (1975), if individuals are intrinsically motivated, they take part in activities for the interest and enjoyment the activities give them (as cited in Abuhamdeh & Csikszentmihalyi, 2009). As a result, learners take part in language activities since they find pleasure and satisfaction in them. In addition, when they are extrinsically motivated, "they engage in activities in pursuit of rewards they desire such as money, prestige, or journal publications"

(Abuhamdeh & Csikszentmihalyi, 2009, pp. 1615-1616). In order to increase learners' target language acquisition level and performance, the combination of intrinsic and extrinsic motivational orientations should be preferred by language teachers because these interactive activities may provide foreign language learners with meaningful goals, and learners may "acquire" their target language subconsciously.

**2.3.3 Computer-assisted instruction and its positive impact on learners' academic and non-academic skills.** The term "game" is described as, "an activity that you do for fun that has rules, and that you can win or lose" (*Macmillan English Dictionary*, 2002). Some may define this word by focusing on its compelling nature. For instance, according to Gee (2003):

Good video games involve the player in a compelling world of action and interaction, a world to which the learners has made an identity commitment in the sense of engaging in the sort of play with identities ... Thanks to this fact, the player practices a myriad of skills, over and over again, relevant to playing the game, often without realizing that he or she is engaging in such extended practice sessions. (as cited in Compton-Lilly, 2007, p. 721)

As it can be concluded from the definitions given above, the word "game" may have different definitions. Furthermore, the term "edutainment" combines both education and entertainment. According to Gros (2003), this software genre not only focuses on academic subjects but also targets players for entertainment purposes (as cited in DeVary, 2008). This section will analyze the positive impact of computer-assisted instruction on learners' academic and non-academic skills.

In order to trigger learners' interest and to entertain them, teachers should attract learners' attention by making use of different techniques. The most traditional materials used in a language classroom are whiteboards/ blackboards, pens/ pencils/ board markers, textbooks, flashcards, realia, posters, pictures, charts, etc. In his book Wright (1989) stated that pictures contribute to interest and motivation, and he added that they present language structures, target language vocabulary and functions (e.g., making a polite request, expressing likes and dislikes in a pre-structured situation) and

improve learners' target language skills and competence (e.g., listening, reading, writing and speaking). If these materials are presented in a meaningful and systematic way, they may give learners the opportunity to "acquire" the target language information subconsciously and effectively. Furthermore, the role and function of ICT (Information and Communication Technology) in language classrooms is essential. In order to gain learners' attention and to increase their motivation, teachers should make use of online and offline digital games. In his book named *The Conditions of Learning*, Gagne (1965) listed his nine events of instructions such as gaining attention, informing learners of objectives, stimulating recall of prior learning, presenting the content, providing learning guidance, eliciting performance (e.g., practicing the new skill by posting of project work), providing feedback (scores), assessing performance and enhancing retention (e.g. surveys, interviews etc.) (as cited in Iverson, 2005). Digital games used in a language classroom should cover all these characteristics to facilitate the acquisition process (e.g., vocabulary acquisition, writing skills, etc.).

With the advent of technology, the effectiveness of computer-assisted instruction and learner-centered approaches has been examined more in detail since the increased exposure to technology has led to a new need for teachers to integrate digital instructional tools into their curricula since they need to answer learners' needs and expectations. In his article, Prensky (2001) used the word "digital native" to define today's students who are born into a digital world since he stated that they are all native speakers of the digital language of tools such as computers, the Internet, etc. Growing up in a technologically rich environment such as iPods, iPads, Twitter, Facebook and more, digital natives may have a natural affinity for technological tools, and teachers should be aware of the expectations of digital natives in order to be able to answer their academic and non-academic needs.

Richards and Rodgers (2001) included Benjamin Franklin's words, "Tell me and I forget/ teach me and I remember/ involve me and I learn" (p. 82), and the integration of computer-assisted instructional tools into a school curriculum increases the possibility of learner participation and autonomy. Ryan, Rigby and Przybylski (2006) underlined this positive impact by stating, "When activities are done for interest or personal value, perceived autonomy is high. Provisions for choice, use of rewards as informational feedback ... and non-conditioning instructions have all been shown to

enhance autonomy and, in turn, intrinsic motivation” (p. 349). Larsen-Freeman (2001) underlined the role of learner production by referring to Swain’s Output Hypothesis and stated that when students “attempt to produce structures, they get to test their hypotheses on how the structure is formed or what it means or when it is used. ... they can receive feedback on their hypotheses and modify them as necessary” (pp.257-258). As a result, computer-assisted instructional tools may give learners the opportunity to realize their academic and non-academic skills and may enhance their self-evaluation skills. For instance, a research study conducted in Turkey analyzed the impact of computer-assisted instruction on 248 Turkish learners’ vocabulary acquisition level (88.7% of them use social networking); and in the study it was highlighted that social network games had pedagogical benefits since the results of this research showed that the students could “incidentally” learn a great number of foreign language words from online games on social networks (Çetin et al., 2012). The empirical study discussed above indicates that meeting the needs of digital natives requires the use of technological tools that address the demands of today’s digital age.

Furthermore, computer-assisted instruction may increase learners’ sense of emotional safety. In other words, virtual environments may increase their sense of safety because learners are allowed to practice their skills by exploring the potential consequences of the actions taken in the real world. As a result, learners have the freedom to make mistakes without suffering the serious and real consequences of their actions. For instance, Gopher, Weil and Bareket (1994) conducted a study with two groups of Israeli Air Force cadets trained for 10 hours on the Space Fortress II game and compared their performance to a control group which was not exposed to the game. The findings of the study indicated that the two groups, who were exposed to the virtual environment, outperformed the control group by transferring their newly-acquired knowledge and skills to an actual flight condition (as cited in Tobias, Fletcher, Yun Dai & Wind, 2011).

In addition, the term “persona” is defined as, “a particular self-image ... that can be construed from our overall personality, or mental life ... aspect of our personality, either actual or imagined, that we choose to project to an audience in hope of achieving desired effects” (Sadoski, 1992, pp. 272-273). In an educational setting, poor grades may lead to feelings of inferiority by affecting learners’ self-confidence

and self-image since learners may think that the grades they earn tend to reflect their learning capacity. According to Heidegger (1992), the concept of “perception of a picture” refers to a picture which is the representation of the real world and not the real world itself, and he underlined the impact of digital beings by stating:

Here we have a new type of representing. What is now bodily given is the postcard itself. This card itself is a thing, an object, just as much as the bridge or a tree or the like. But it is not a simple thing like the bridge. As we have said, it is a picture-thing. In perceiving it, I see through it what is pictured, the bridge. ... The picture-thing can be a concrete thing - the blackboard on the wall -but the picture-thing is not merely a thing like a natural thing or another environmental thing. For it shows something, what is pictured itself. (as cited in Kim, 2001, p. 93)

In other words, the virtual environment increases learners’ sense of safety by providing them with risk-free learning environments where consequences are not “dangerous” (e.g., poor grades) and where mistakes are tolerated contrary to the traditional classroom atmosphere. The correct and incorrect answers presented on the computer screen are not the “actual grades” learners earn, and they are just the “scores” of a game. This factor may reduce learners’ anxiety level, and it may even increase their self-efficacy. For instance, Tompson and Dass (2000) conducted a study with 252 undergraduate students who were business majors, and there were two separate groups (126 students in each group) in the study. One group (experimental group) was enrolled in a simulation strategic management course, and the remaining students were enrolled in a course (control group) that taught using primarily case studies. The findings of the study showed that the learners in the experimental group showed significantly higher improvement in self-efficacy since the simulations gave them the opportunity to experience the complexities found in real strategic decisions.

**2.3.4 The quality of computer-assisted instructional tools.** In order to provide learners with a successful learner-centered language learning environment, teachers should take certain pedagogical rules and disadvantages into consideration especially

when integrating computer-assisted instructional tools into their curricula. To begin with, the success of learner-interface interaction can be achieved by focusing on learners' competency. In other words, teachers should question the prerequisite e-learning and technological skills of their learners and should pay attention to the quality of the interface used in a classroom setting by using familiar language, clear and concise instructions, consistent formatting, etc. (Iverson, 2005). For instance, Alexander (2009) stated that games include "multiple modes of writing and a need to develop a sense of how text and visuals interact; many games provide a rich environment in which gamers are developing and ... playing with a variety of complex literacy skills" (p. 36). In other words, educators need to be aware of learners' computer literacy skills in order to be able to make a clear distinction between the mistakes caused as a result of learners' lack of computer literacy skills and the mistakes caused as a result of learners' lack of target language knowledge. By adapting various computer-assisted instructional tools to learners' skills, teachers may give them the chance to feel safe and independent.

However, the learner-content interaction is also crucial, and teachers should have enough pedagogical knowledge to analyze the needs and personal interests of their learners since they should choose engaging contents by presenting classroom activities with the combination of scenarios, by using audio, music, pictures and graphic organizers etc. (Iverson, 2005). According to Iverson (2005), learner-facilitator interaction (e.g., determining learners' needs and preferences, establishing learning outcomes and objectives, providing timely feedback, etc.), and learner-learner interaction (e.g., peer monitoring, working together to analyze a problem, sharing information, etc.) should be taken into account by teachers.

Furthermore, teachers' leadership roles have a significant impact on the quality of digital media, and the standards of National Educational Technology Standards for Teachers (2008) emphasized this impact by stating "Teachers advocate, model, and teach safe, legal, and ethical use of digital information and technology, including respect for copyright, intellectual property, and the appropriate documentation of sources" (as cited in Çoklar, 2012, p. 88). Brom, Sisler and Slavik (2010) also underlined the impact of teachers' roles on the usefulness of the instructional material by stating that efforts to "make a game more educational tend to undermine its gaming

objective, which may make the game less interesting ... attempts to make educational materials more game-like may mitigate the educational objectives and cause frustration and lack of acceptance” (p. 26). As a result, teachers should find the balance between the educational objectives and the gaming objectives by reviewing the aims they want to achieve while presenting the subject matter and the needs of the learners and by adding educational aims into the context of the games. Teachers’ flexibility in regards to innovations and the change in learners’ interests may also influence the impact of computer-assisted instructional tools. For instance, a study, which focused on teachers’ skills, underlined that according to some scholars, a lack of knowledge about instructional methods for including games is one of the most frequently encountered obstacles (Kirriemuir & McFarlane, 2004, as cited in Can & Çağiltay, 2006).

**2.3.5 Deafness and the acquisition process of a third language.** In this section, topics such as hearing-impaired learners and their third language acquisition process, the integration of computer-assisted instructional tools as supporting materials to teach a third language to hearing-impaired learners, the impact of these tools on learners’ social skills, and finally the factors affecting the efficiency of computer-assisted instructional tools will be discussed.

**2.3.5.1 Hearing-impaired learners and their third language acquisition process: The cross-linguistic effect.** The foreign language education of students with special needs in Turkey has been neglected for many years. However, according to the regulation of the Ministry of Education’s Special Education and Counseling Services, students who have hearing problems or who are intellectually disabled “can be” exempt from some of the foreign language skills or from the whole class upon their parents’ request. In other words, some foreign language skills “can be” introduced to learners with special needs, including hearing-impaired learners, according to the severity of learners’ disabilities (Milli Eğitim Bakanlığı [MEB], 2014).

For hearing-impaired language learners in Turkey, English is a third language (L3) since their first language is Turkish Sign Language and their second language is Turkish. As noted previously, the degree of learners’ hearing loss and the onset of hearing impairment, are some of the key factors that may affect their acquisition level of the first, the second and even the third language and also their academic and non-



academic skills. According to the “Critical Period Hypothesis”, “there is an age-related point (generally puberty) beyond which it becomes difficult or impossible to learn a second [foreign] language to the same degree as NSs of that language” (Gass & Selinker, 2001, p. 335). Gindis (1999) stated that deafness is a severe disability since it affects speech development, blocks verbal communication and hinders entry to the world of culture. As a result, for the successful language acquisition process, hearing-impaired learners should be given the opportunity to improve their metacognitive skills and learning strategies as early as possible. The previous studies pointed out the positive role of a first language and a second language on the acquisition process of a third language. For instance, Modirkhamene’s (2006) study which compared the English language acquisition success level of Turkish-Persian bilinguals and Persian monolinguals underlined the positive impact of bilingualism on L3 learning since the study showed that the previously learned languages provided cognitive and linguistic benefits for Turkish-Persian bilingual learners (as cited in Onishi, 2013). In other words, Turkish-Persian bilinguals outperformed their monolingual peers since they were competent in both languages, and the monitoring strategies they used improved their performance in their third language and enhanced their speed. In addition, Onishi (2013) highlighted the concept of psychotypology by stating:

Psychotypology is usually understood as perceived similarities between languages. Such factors may play an important role when an L3 learner perceives his L2 and target L3 to be similar, regardless of their true genetic relatedness. For instance, Italian and English may be perceived to be similar by native speakers of some Asian languages, such as Japanese, even though Italian is a Romance language and English is a Germanic language, simply because they would appear more similar to each other than to Japanese. If the learner is a native speaker of German, however, he may not perceive Italian to be as similar to English as his native language is. (pp. 67-68)

The above quote shows that hearing-impaired learners whose first language is

Turkish Sign Language may depend on Turkish while acquiring their third language (English) since according to hearing-impaired learners these two languages may share some common features. In other words, both languages can be presented in a written form, and they mostly share the same Latin letters.

Harris and Moreno (2004) conducted a study with a group of hearing-impaired learners and hearing learners to examine their spelling performance. They concluded that most of the spelling mistakes made by the hearing-impaired learners were non-phonetic mistakes which indicated that they did not use phonological coding contrary to the hearing learners (as cited in Houston, 2009). According to Fuchs (2005), “Speaking, hearing and lip-reading in the foreign language should not be taught [to hearing-impaired learners] because they do not belong to the communicative needs of [the] deaf” (as cited in Bedoin, 2011, p.172). However, Allman (2002) examined the impact of visual information on the hearing-impaired children’s performance by observing the invented spellings of the kindergarten and the first-grade children who made use of the Total Communication approach, and he concluded that these children used some visual strategies such as lipreading, signing and fingerspelling so as to spell out words (as cited in Houston, 2009). Thus, hearing-impaired Turkish students who have experienced the written form of their second language (Turkish) may have the chance to fingerspell the English words they see, and they may also see the connection between the written forms of the vowel sounds in a word and determine them by the lip movements of the speaker (e.g., their teacher). As a result, not only the written or the spelled out form of a target word but also the equivalent sign used in Turkish Sign Language and the shape the word takes in the signers mouth should be taken into consideration to form a complete and balanced acquisition process since there can be different degrees of hearing loss in a classroom setting.

Hamilton (2011) underlined that hearing-impaired individuals’ sequentially based working memory is limited in comparison to that of hearing individuals. According to Marschark and Wauters (2008), hearing-impaired children hardly ever use sequential processing strategies which may account for their linguistic working memory deficit and language comprehension difficulties (as cited in Hamilton, 2011). As a result, in order to enhance the recall and the comprehension of a target word (e.g., meaning, spelling, etc.), teachers should provide learners with visual support or cues.

For instance, Houston (2009) stated:

in order to spell a word correctly, an individual must remember the specific order of letters within that word and that order is best remembered through verbal rehearsal; because individuals who are deaf are often unable to auditorily access speech sounds, then they must rely primarily on their visual memory of the word (whether how it looks in written format, when fingerspelled, or when pronounced on the mouth). (pp. 8-9)

The above quote describes the target language vocabulary acquisition process of hearing-impaired learners by underlining the importance of visual information. On the other hand, previous research has also shown that sentence level operation of vocabulary is also possible for hearing-impaired students who learn English as their third language. For instance, Bedoin (2011) stated that from the four basic foreign language skills (reading, writing, speaking and listening) only reading and writing are appropriate for hearing-impaired learners, but he also underlined a grammar lesson in which the hard-of-hearing learners were used to communicating orally in class and were learning how to use English adjectives in the superlative form. In that study, the English teacher chose a listening activity from an English textbook, gave instructions and explanations in French, put the audiotape out loud, expected the students to listen to the text and stopped after each sentence, repeated sentences slowly, and the students were expected to tick the correct answer (Bedoin, 2011).

In addition, language teachers should also consider the characteristics of hearing-impaired learners' native language and design instructional tools accordingly. For instance, a research study that examined the characteristics of signers and hearing-impaired people highlighted that some of the signed languages have relational lexemes, but the users of these languages prefer the visually richer expressions, and they do not prefer to use abstract or categorical ways of encoding (Özyürek, Zwitserlood & Perniss, 2010). King and Quigley (1985) also indicated that hearing-impaired children have the tendency to use and understand familiar action verbs and concrete nouns compared with abstract words with which they do not have much

experience (as cited in Furlonger & Rickards, 2011).

The points mentioned above indicate that hearing-impaired learners should be recognized as members of a linguistic and cultural community and should be given the opportunity to learn a foreign language. As a result, different and appropriate foreign language teaching strategies should be used according to the learners' level of proficiency in their target language and the degrees of hearing loss determined in a classroom setting.

**2.3.5.2 *The integration of computer-assisted instructional tools as supporting materials to teach a third language to hearing-impaired learners.*** The inclusion of foreign language education in the school curriculum should be planned carefully and effectively in order not to affect hearing-impaired learners' motivation in a negative way and to provide long-term gains in learners' academic performance. In order to provide access and communication chances for hearing-impaired learners and to increase their social satisfaction level, teachers should examine learners' needs (e.g., learning pace of the students, severity of their disabilities, etc.) and design appropriate classroom materials through which students can transfer or receive the target language knowledge successfully.

The language problems deaf and hard of hearing learners face do not always arise from learners' level of intelligence. While commenting on the English literacy level of deaf and hard of hearing students who use American Sign Language, Heward (2009) stated that these problems "in education and adjustment are largely attributable to inadequate development of a first language as well as the mismatch between the demands of spoken and written English and the students' ability to understand and communicate in English" (p. 337). A research study that examined the reading and writing skills of twenty-six deaf participants in Chile described MacDougall's (1979) ideas who claimed that a person's access to phonological information was especially auditory, but many studies underlined that phonological information can also be acquired and strengthened through visual information (as cited in Puente, Alvarado & Herrera, 2006). The positive impact of digital materials on hearing-impaired learners' academic and non-academic skills was also examined by Roberson (2001) who stated that educational technology offers visual methods of presenting information to the learners (e.g., videos, the use of Internet, etc.), and it eliminates the emphasis on the

audible communication of information; thus it allows hearing-impaired learners to be freed from the limitations in communication which may restrict their learning and participation.

The points discussed above suggest that the visual representation of a target word may develop hearing-impaired learners' receptive and productive skills since educational technology mainly focuses on appropriate means of communication (e.g., writing and reading activities) without expecting them to participate in activities that mainly require audible representation of target language information. A study which was conducted with 69 deaf and hard of hearing middle school students analyzed the impact of digital images on the learners' language skills, and Strassman and O'Dell (2012) stated that the use of visual images gave the learners the opportunity to use more content-specific vocabulary, they included more main ideas and details in their writings and wrote longer texts. Furthermore, a research study which was conducted with 70 profoundly deaf students (43 students in the experimental group and 27 students in the control group) in Serbia examined the impact of computer games on the development of these learners' visual-motor skills, and Radovanovic (2013) stated that the seven-year-olds in the experimental group outperformed their peers in the control group and the control group of eight-year-olds; and the eight-year-olds in the experimental group scored more points on the post-test compared to their peers and also the nine-year-olds in the control group.

Moreover, Drigas, Vrettaros, Tagoulis and Kouremenos (2010) presented a study which focused on the impact of e-material, vodcasting and web 2.0 tools (e.g., social networking and blog) on the deaf learners' foreign language acquisition process. After the completion of the pilot study, a questionnaire was administered to the trainers and the pedagogists in order for them to evaluate the impact of the study (e.g., the content quality, interactivity, etc.), and they concluded that the above-mentioned tools supported the learners' acquisition process and also encouraged their learning. Another study which was conducted in Thailand highlighted the positive impact of computer-assisted instruction on the hearing-impaired learners' foreign language performance (Wicha, Sharp, Sureephong, Chakpitak & Atkins, 2012), and the researchers made use of an educational software tool (Total Communication with Animation Dictionary) to facilitate the learners' vocabulary development in English

and to improve their retention skills (See Figure 2.2).



*Figure 2.2.* A screenshot showing the contextual vocabulary associated with “living room”. From “An animated dictionary for hearing-impaired students in Thailand,” by S. Wicha, B. Sharp, P. Sureephong, N. Chakpitak & A. Atkins, 2012, *Journal of Research in Special Educational Needs*, 12(4), p.239.

This software included different ways of communication (e.g., sign language, finger-spelling, lip reading, etc.), and the findings of the study showed that it increased learners’ engagement and improved their vocabulary development in English.

**2.3.5.3 The impact of computer-assisted instructional tools on hearing-impaired learners’ social skills.** The social interaction level of children who are deaf and hard of hearing is described by Antia, Jones, Luckner, Kreimeyer and Reed (2011) who stated, “Although it is expected that children with a greater degree of hearing loss will have poorer social outcomes, research indicates that children with all degrees of hearing loss have social difficulties” (p. 491). In other words, students with hearing impairment may feel isolated in a learning environment where they are not provided with appropriate teaching tools especially by mainstream teachers. Gargiulo (2009) stated, “Deaf children spend less time in cooperative peer play when they are with other deaf children; even though they are interested in and initiate the interaction, they frequently get no response from their play partner because of language deficits” (p. 411). Research has shown that cooperative computer activities that require the inclusion of teams may enhance hearing-impaired learners’ interpersonal communication skills since learners may have the opportunity to learn or acquire the target language information by comparing their performance with other students and by peer reviewing and supporting each other (e.g., correcting each other’s mistakes,

etc.) to achieve a common goal.

For instance, a study which was conducted with students attending the Atlanta Area School for the Deaf (Clarkston, GA), made use of a gesture recognition technology to increase the hearing-impaired learners' competence in American Sign Language (Henderson, Lee, Brashear, H. Hamilton, Starner, & S. Hamilton, 2005). The system used in the aforementioned study was an interactive game that included a tutoring video to show the correct signs (e.g., phrases), a live video to provide input to the system and feedback to the player and also an animated character (a cat) that performed the player's instruction. At the end of the first pilot study, the researchers decided that the game required a smoother flow in order to encourage the children to attempt to the phrases again when their signing was incorrect. As a result, they changed the flow of the game slightly in the second pilot study by including a video clip in order for the learners to watch and cue the correct signing. The findings indicated that the learners played the game until the researchers stopped them, and they were highly engaged in the game.

In addition, literature has also shown that computer-assisted instructional tools may increase hearing-impaired learners' self-confidence. For instance, the Internet provides them with the opportunity to communicate with others effectively through reading and writing since they are given the opportunity to freely communicate with people via email, forum, blogs etc. without revealing their special health status, and this may elevate their self-esteem (Barak & Sadovsky, 2008). Markey, Power and Booker (2003) conducted a study in order to investigate the impact of games on four hearing-impaired students' (2 boys and 2 girls) notion of fractions. At the end of the study it was concluded that the games used in the classroom, "not only provided a suitable basis for mathematical learning that was motivating and interesting and met the students' educational needs, but also created the basis for a way of learning that was nonthreatening and boosted self-esteem" (Markey et al., 2003, p. 256).

**2.3.5.4 Factors affecting the efficiency of computer-assisted instructional tools.** Games, which are designed according to the academic and personal needs of hearing-impaired learners, may have positive impact on learners' performance and motivation since they can provide some appropriate communication tools that may give learners the opportunity to reflect their newly acquired knowledge effectively.

However, not only the quality of instructional materials discussed in Section 2.3.4, but also the foreign language teachers' background knowledge in special education and their perceptions may have a crucial impact on learners' performance and motivation. For instance, mainstream foreign language teachers, who are expected to teach deaf and hard of hearing learners in mainstream schools or in schools specialized for hearing-impaired learners, may have the tendency to follow the same teaching strategies they use while teaching hearing students. However, teachers should use special teaching strategies while teaching hearing-impaired learners since the social-emotional development of these learners "depends heavily on the ability to use communication skills. A hearing loss modifies one's capacity to receive and process auditory stimuli; thus, the individual who is deaf or hard of hearing receives reduced auditory information" (Gargiulo, 2009, p. 411). A research article put forward the problems in the field of special education in France by stating that because of the shortage of English teachers of the deaf, teachers are recruited in schools (even in schools specialized for hearing-impaired learners) without any special training; as a result, they have to find out for themselves the challenges hearing-impaired learners may face (Bedoin, 2011).

The challenges discussed above are also observed in Turkish educational system, and language teachers who are recruited to teach hearing-impaired students should be given some background knowledge about deaf and hard of hearing learners' needs, their academic level and the communication methods they make use of (e.g., Turkish Sign Language, fingerspelling, etc.) in order to be able to design their instructional materials successfully. For instance, Luckner, Slike and Johnson (2012) emphasized that teachers need to know that a huge number of hearing-impaired students enter schools with "(1) language, vocabulary, and literacy delays; (2) gaps in background and domain knowledge; (3) inadequate knowledge and use of learning strategies; (4) social skills deficits; and (5) reliance on assistive technology" (p. 65). As a result, teachers should prefer different types of strategies (e.g., inviting interpreters) so as to make foreign languages accessible to hearing-impaired learners. However, Bedoin (2011) analyzed the situation of hearing-impaired French learners who studied English as their third language and stated that in order to be good role models for hearing-impaired learners, foreign languages should be taught "by hearing users of English who can use French sign language or by deaf people with high English proficiency"



(p.172).

All these factors and points underlined above indicate that for each course, schools should provide a curriculum especially designed for learners with hearing loss. Gindis (1999) also underlined that according to Vygotsky's "positive differential approach", students with special needs require some alternative or modified educational methods; as a result, special education programs should also design and employ their own specific methods. For instance, foreign language teachers should plan the content of their curriculum according to the characteristics of hearing-impaired learners, and they should focus on the positive impact of virtual environment on the learners' receptive and productive skills so as to increase these learners' motivation. Thus, they may give learners the opportunity to interact with each other effectively in a collaborative atmosphere. They may also have the chance to improve hearing-impaired learners' performance and motivation by directing learners' energy towards language learning without making them feel anxious about their target language performance.

Financial problems may also affect the quality and even the use of computer-assisted instructional tools. For instance, a study, which was conducted with elementary school students to assess the impact of digital video games on the learners' skills, highlighted that the use of video games in a classroom setting, "comes with a cost. Add to that barrier the rapid consumer characteristic of the younger generation, and we have an even bigger problem of providing sustainable video game environments for these learners" (Tüzün, 2007, p. 473). Kluwin and Noretzky (2005) also stated, "several administrative or structural concerns, such as local support and infrastructure; and the nature of the training program itself impinge on the likely success of the integration of technology into teaching by working teachers" (p. 352).

The empirical research studies and the points discussed above highlight the impact of quality instructional materials on the quality of learning outcomes; thus the factors discussed above (e.g., teachers' and learners' skills, financial problems, etc.) should be taken into consideration by educators and school administrators in order to be able to offer the greatest possibilities for hearing-impaired learners.

## **2.4 Conclusion**

The aim of this chapter was to describe the major topics related to the role of computer-assisted instructional tools in the field of English language education. In general, this chapter examined hearing-impaired learners' culture and the communication means they use. It also focused on the acquisition process of a third language by hearing-impaired learners, the impact of family members and teachers on hearing-impaired learners' education, the impact of computer-assisted instructional tools on learners' motivation and performance, and the factors affecting the efficiency of these tools. The next chapter will describe the methodology used in the present study.

## **Chapter 3: Methodology**

### **3.1 Introduction**

Throughout this chapter the methodological foundation of the present research study will be discussed. This chapter will provide an overview of the study, including its philosophical paradigm, the design of the study, the research questions, the setting and the participants, the data collection instruments and procedures, the data analysis process and the validity and reliability of the study. It will also discuss some ethical issues and also the limitations and the delimitations of the study. The goal was to examine the hearing-impaired Turkish students' vocabulary development in English and their motivation to study this language by integrating a CALL tool into the curriculum.

### **3.2 Philosophical Paradigm**

According to Creswell (2007), researchers bring their worldviews, paradigms or belief systems to their research projects, and a successful research study requires making these assumptions explicit. Teddlie and Tashakkori (2009) underlined the five types of paradigms: positivism, postpositivism, pragmatism, constructivism and transformative. The present study adopted a mixed methods approach in which both qualitative and quantitative methods were used to provide a broader perspective on the overall issue, and it was more qualitative in nature. Incompatibility thesis believes that it is inappropriate to mix qualitative and quantitative methods since there are fundamental differences in the paradigms underlying these methods (Teddlie & Tashakkori, 2009). However, pragmatism rejects this thesis with the compatibility thesis and claims that:

Objectivist and subjectivist perspectives are not mutually exclusive. Hence, a mixture of ontology, epistemology and axiology is acceptable to approach and understand social phenomena. ... Pragmatist researchers favour working with both quantitative and qualitative data because it enables them to better

understand social reality. (Wahyuni, 2012, p.71)

The above paragraph indicates that pragmatism is a value-bond paradigm that integrates multiple perspectives to answer the research questions of a study. On a philosophical level, the present study embraced a pragmatic approach by rejecting the either/or choices associated with the paradigm debate and triangulated methods, sources, analysts and theories by building a bridge between them.

### **3.3 Overall Design of the Study**

The main purpose of the study was to depict the impact of CALL on the hearing-impaired Turkish students' English vocabulary development process by reviewing the views of the students and the other key stakeholders such as the English teacher, the classroom teacher, the family members and the school principal. The research design is a systematic plan that combines the different components of a research study in a logical way. Therefore, it is crucial for a research study to be developed in the most appropriate form for the research questions to be answered effectively, and research methods may range from the pure qualitative to the pure quantitative methods. Considering the aims of the study and the literature conducted in the related fields, a mixed methods intervention design was employed in the present study. Tashakkori and Creswell (2007) described mixed methods research as a research study "in which the investigator collects and analyzes data, integrates the findings, and draws inferences using both qualitative and quantitative approaches or methods in a single study or program of inquiry" (as cited in Teddlie & Tashakkori, 2009, p.339).

The present study, which was more qualitative in nature, allowed for triangulation of methods, sources, analysts and theories to provide a detailed and balanced picture of the given situation which will be discussed in Section 3.8.

### **3.4 Research Questions**

The research questions were designed to reveal the perceptions of the students, the family members, the English teacher, the classroom teacher and the school principal, and they were all about the integration of CALL into the current

English curriculum. The following research questions, and/or the sub-questions, were taken as the blueprint for the present study to highlight the impact of CALL on the learners' motivation and their vocabulary development in English.

1. What is the impact of CALL on the hearing-impaired Turkish students' vocabulary development in English?
  - a. What is the impact of CALL on the students' vocabulary development in English?
  - b. What is the impact of CALL on the students' vocabulary development in English according to the perceptions of the key stakeholders (e.g., the school principal, the classroom teacher and the English teacher)?
  
2. What is the impact of CALL on the hearing-impaired Turkish students' motivation according to the perceptions of the key stakeholders (e.g., the students, the family members, the school principal, the classroom teacher and the English teacher)?

### **3.5 Setting and the Participants**

This section will provide information on the setting and the participants.

**3.5.1 The setting.** The research study was conducted in Mimar Sinan Elementary School for the Deaf which was located in Fatih, Istanbul. This school was first founded in 1889 and was forced to close due to lack of students, but it was reopened in 1953. The school took different names and moved to different places, but in the end the name Mimar Sinan Elementary School for the Deaf was given to the school. In 1995-1996, the Multi-Program High School was founded but was renamed as Fatih High School for the Deaf in 2002. However, the study was conducted with the elementary school students and not with the high school students (See Table 3.1 for the elementary school population).

Table 3.1

*Student Population in Mimar Sinan Elementary School for the Deaf*

Grade	Male Students	Female Students	Total Number
Preschool	4	6	10
1/A	3	2	5
1/B	5	1	6
2/A	2	4	6
2/B	2	5	7
3/A	7	2	9
3/B	5	1	6
3/C	5	3	8
4/A	4	4	8
4/B	3	7	10
5/A	5	4	9
5/B	6	4	10
6/A	4	4	8
6/B	7	4	11
6/C	7	4	11
6/D	9	2	11
6/E	8	5	13
7/A	5	6	11
7/B	5	6	11
7/C	5	5	10
7/D	6	3	9
7/E	7	4	11
7/F	6	3	9
8/A	7	5	12
8/B	10	4	14
8/C	6	5	11
TOTAL			246

Table 3.1 indicates that the classrooms were not crowded since crowded classrooms could distract the hearing-impaired students' attention, and they could also decrease the quality of education learners received. According to the Ministry of Education in Turkey, students are required to start learning English in the 4<sup>th</sup> grade. Unfortunately, there is not a special foreign language program designed for hearing-impaired Turkish students, and students with and without disabilities use the same foreign language coursebooks. However, according to the regulation of the Ministry of Education's Special Education and Counseling Services in Turkey, students who have hearing problems or who are intellectually disabled "can be" exempt from some

of the foreign language skills or from the whole class upon their parents' request (Milli Eğitim Bakanlığı [MEB], 2014).

Because English is one of the required courses in Turkish state schools, Mimar Sinan Elementary School for the Deaf started offering English classes for 5<sup>th</sup> and 6<sup>th</sup> graders in the academic year of 2013-2014, and each class had three hours of English per week. There were only two English teachers who worked collaboratively so as to provide strong consistency and fairness among classrooms. Each grade had its own subgroups which were divided according to the students' level of ability. Apart from English, there were also courses such as Turkish, Math, Science, Physical Education, Moral and Religion, Social Sciences, Computer, Music, etc., and teachers and students had the opportunity to use different types of technological tools (e.g., smart boards, projectors, laptops, computer labs, etc.). There was also a special sound system (Group Hearing Aid System) available in each classroom so that the voice of a teacher could be transmitted successfully, and teachers preferred using both Turkish Sign Language and Turkish in the classrooms according to the students' level of competency to facilitate access to the lecture content. All these factors affected the researcher in the process of selecting the research site.

**3.5.2 The learners.** Before the intervention, the researcher used a purposive sampling approach to select a small number of participants. There were five groups of 6<sup>th</sup> graders in the school, and the study was conducted with 6/A students since the number of the students with multiple disabilities was really high in the remaining groups. As a result, the researcher had to conduct the research study with this subgroup to be able to evaluate the impact of CALL on the students' vocabulary development process effectively. The participants were eight (8) students (4 male and 4 female participants) who were aged between 12 and 17. All the students had hearing aids and were all fluent in Turkish Sign Language. The reason why the age range was so high was that one of the students who was born in 1997 was intellectually disabled, and the other student who was born in 1999 was profoundly deaf; as a result these two students had to study in this group. Table 3.2 shows their level of disability and their year of birth which were gathered through the secondary data collection tools (See Section 3.6.1.4).

Table 3.2

*Characteristics of the Participants*

Students	Loss of Function (%)	Year of Birth
Student #1	42% Bilateral sensorineural hearing loss	2001
Student #2	52% Bilateral sensorineural hearing loss	2001
Student #3	63% Bilateral sensorineural hearing loss	2002
Student #4	Total hearing loss	1999
Student #5	57% Sensorineural hearing loss and 25% mental retardation	1997
Student #6	52% Bilateral sensorineural hearing loss	2001
Student #7	Bilateral sensorineural hearing loss (the percentage was not provided)	2001
Student #8	52% Bilateral sensorineural hearing loss	2001

**3.5.3 The teachers.** The students' English teacher, their classroom teacher and the school principal were interviewed for the present study. The school principal had gained his BA degree in the field of Religious Culture and Moral Knowledge, and he had never had the opportunity to learn Turkish Sign Language before his present position in the school. The reason why the school principal was involved in the study was to collect data on the foreign language teaching policies of the institution and to understand school culture.

The English teacher was a non-native speaker of English and worked there as a part-time teacher since she was also teaching at another state school. She was a graduate of Foreign Language Education Department and had held her BA degree in the field of English Language Teaching. However, she had never taught hearing-impaired students before and only knew the equivalents of some of the basic Turkish words and expressions in Turkish Sign Language (e.g., equivalents of the target words taught in the classroom and the common in-class expressions and words such as "write", "sit down", "exam", etc.). She was asking for guidance from the classroom teacher and the school counselor to get some information about the techniques used while teaching students with special needs. She took part in the in-class observation sessions to assess the students' target language performance by using a structured checklist with the researcher before and throughout the present



study, and she was also interviewed at the end of the study because she was the only person who could closely observe the students' reactions towards the intervention.

The classroom teacher was also the Social Science teacher. He was interviewed because he was also studying English Translation to get his second BA degree, and he was also teaching Turkish Sign Language to the novice teachers and supporting hearing-impaired learners by practicing sign language with them in person. As a result, he had the opportunity to successfully observe and comment on the impact of CALL on the hearing-impaired learners' vocabulary development in English, including their success and motivation, since he had a good command of their third language (English) and their first language (Turkish Sign Language).

**3.5.4 The family members.** In order to get some detailed information about the hearing-impaired students and their family members, the researcher administered questionnaires at the beginning and at the end of the intervention sessions because as it was stated in the previous chapter, Ulrich and Bauer (2003) underlined that the education and the awareness level of family members (e.g., parents) and their support may directly and indirectly affect the hearing-impaired learners' academic and non-academic skills (as cited in Gargiulo, 2009). The questions, which were mostly related to those factors, were answered by the students' mothers and fathers, but only one of the questionnaire packs was answered by one of the students' brother. Table 3.3 gives information about the ages and the education levels of the family members participated in the study, and it follows the order used in Table 3.2. In other words, "Family Member #1" is the family member of "Student #1".

Table 3.3

*Family Member Demographics: Age and Education Level*

Family Members	Age	Education Level
Family Member #1	50	Primary School
Family Member #2	41	Primary School
Family Member #3	25	University
Family Member #4	40	Primary School
Family Member #5	36	Primary School
Family Member #6	33	Primary School
Family Member #7	52	Primary School
Family Member #8	34	Primary School

### 3.6 Procedures

In this section, the data collection process will be explained in detail. Both qualitative and quantitative methods were used in the present study (See Figure 3.1).



*Figure 3.1.* The three research communities and their points of view. From *Foundations of Mixed Methods Research: Integrating Quantitative and Qualitative Approaches in the Social and Behavioral Sciences* (p.23), by C. Teddlie and A. Tashakkori, 2009, Thousand Oaks: CA. Copyright 2009 by SAGE Publications.

In social sciences, “triangulation” refers to the application of both qualitative and quantitative methods in mixed methods studies. It is used in the analysis process of the data to determine the quality of the collected data and to provide a more complete and comprehensive perspective on a given situation. On the other hand,

triangulating methods may have disadvantages since the researcher who uses different methods in order to study the same phenomenon may see conflicts in findings, but Patton (2002) underlined the significance of this conflict by stating:

Areas of convergence increase confidence in findings. Areas of divergence open windows to better understanding the multifaceted, complex nature of a phenomenon. ... Focusing on the *degree of convergence* rather than forcing a dichotomous choice – that the different kinds of data do or not converge – yields a more balanced overall result. (p.559)

In the present study, the researcher used some triangulation techniques to increase the design quality of the study which will be described in Section 3.8 more in detail.

**3.6.1 Data collection instruments.** The present study triangulated methods as it followed multiple data collection procedures by including both quantitative and qualitative data collection tools to answer the research study questions and to provide a well-integrated picture which will all be discussed in Section 3.8 more in detail. In Silverman's (2000) book it was highlighted that focusing only on the experimental data or some official statistics may not establish the validity of research findings effectively since, "The methods used by qualitative researchers ... can provide a 'deeper' understanding of social phenomena than would be obtained from purely quantitative data" (p.8). To sum up, both qualitative and quantitative data collection tools were used in the present study to allow for objectivity and value-free science and to leave a room for the subjective and unstructured interpretations of the participants.

**3.6.1.1 Questionnaires.** In accordance with the relevant literature conducted in the fields of English language teaching, deaf education and also technology, the researcher developed a questionnaire consisting of nineteen (19) questions and an introduction part that required some background information about the participants (See Appendix A). The questionnaire was conducted in the family members' mother tongue (Turkish) because the participants could not speak English. The demographic survey served for the purpose to get some information about the family members and

to find out their perceptions on the students' education by asking some open-ended questions about different topics such as Turkish Sign Language, English, the hearing-impaired students' attitudes towards technology, the current curriculum, etc. The researcher made use of open-ended questions in order to be able to analyze the participants' views accurately and thoroughly because the participants had the chance to use their own words; as a result the researcher could see their personal feelings and thoughts. In other words, the researcher preferred open-ended questions since it was impossible to observe the participants' reactions and ideas effectively only through scales composed of standardized items. The answers of the open-ended questions were read through and were categorized in the data analysis process.

The first part of the questionnaire aimed to get information about the family members' age, education level, their degree of relationship with the students, and it also asked whether the respondents had any disability or not. The second part of the questionnaire (Questions 1-9) was designed to find out family members' knowledge of Turkish Sign Language and lip-reading skills, the techniques they used while communicating with the learners and their perceptions on the importance of support services (e.g., rehabilitation services). Moreover, the third part of the questionnaire (Questions 10-18) was designed in relation with the objectives of the study since the questions in this part aimed to find out the family members' perceptions on their child's education (e.g., the English class, the hearing-impaired students' attitudes towards technology, etc.), and the fourth part asked whether the participants had any comments to add or not. All these questions were developed in light of the literature review conducted before the study since as it was noted previously, family members may affect hearing-impaired learners' academic and non-academic skills.

Furthermore, towards the end of the intervention, a 3-point Likert scale questionnaire (See Appendix B) consisting of 15 questions was given to the students, and a 3-point Likert scale questionnaire (See Appendix C) consisting of 8 questions and an additional part for the participants to add comments was given to the family members in order for them to reflect on the impact of CALL. These two types of Likert-type scales were almost parallel worded so that the researcher could compare the answers of the participants' while assessing their level of agreement and disagreement to the items related to the topic of interest. In other words, they

included similar questions (e.g., students' reactions towards the English class and computers, students' self-esteem, etc.). The open-ended questions and the Likert-type scale questionnaire were used to assess the results both quantitatively and qualitatively.

**3.6.1.2 Interviews.** The semi-structured interviews were held in Turkish to make the participants feel comfortable (See Appendix D), and they were preferred to get in-depth information about the perceptions of the teachers about the role of the learners' knowledge of Turkish in their English vocabulary acquisition process, the impact of CALL on the learners' motivation and their language learning outcomes, and finally the impact of English on the learners' academic and social skills in the future. Bogdan and Biklen (1982) suggested that qualitative data were:

*Soft*, that is, rich in descriptions of people, places, and conversations, and not easily handled by statistical procedures. ... They [People] are concerned as well with understanding behavior from the subject's own frame of reference. External causes are of secondary importance. They tend to collect their data through sustained contact with people in settings where subjects normally spend their time. (p.2)

In addition, the interviews conducted in the study provided some qualitative data for further understanding because it gave the participants the opportunity to reflect their own feelings and ideas about the topic under study. As a result, in order to analyze the answers of the questions that were related to the perceptions of the participants, the researcher utilized this technique because it was almost impossible for her to directly observe the feelings and thoughts of the participants only through standardized items.

Creating rapport also paves the way for successful data collection process, and the researcher made use of a conversational tone during the interview sessions to build trust and to increase the quality of the data. The interview questions were designed to get further information on the participants' views about the impact of CALL on the students' vocabulary development in English and their motivation.

**3.6.1.3 Observation.** The researcher also made use of the participant-observer technique by going into the field to be able to directly observe the factors or anything that may escape awareness among the people in the setting. The English teacher was also asked to participate in the in-class observation sessions to increase the reliability level of the collected data which will be discussed in Section 3.8. A checklist, which was designed in English, was used in order for the English teacher and the researcher to specifically observe and assess the impact of CALL on the students' motivation and their in-class performance (e.g., their target language vocabulary knowledge, self-confidence, interest, etc.). The observation checklist items included a "Yes" box and a "No" box, and the scoring was "Yes=1" and "No=0" (See Appendix E for the observation checklist).

However, because checklists did not give the observers the opportunity to record detailed notes, the observers in the present study discussed the definitions of the predetermined categories in the checklist in detail and found a common definition for each term so that they could answer the items from a similar point of view since a term (e.g., motivation) may have different connotations for different people. The researcher also took extensive field notes in English for each intervention session (See Appendix F for the field notes sheet) and compared her detailed notes with the checklist results. According to Chiserti-Strater and Sunstein (2001), field notes include date, time, the place in which the observation takes place, description of the environment, specific words, phrases, summaries of conversation, personal responses and behaviors, etc. (as cited in Berg, 2007).

**3.6.1.4 Secondary data.** The researcher also collected some unobtrusive documents which are defined as documents that "do not require intrusion into the lives of participants by investigators" (Berg, 2007, p.152). For instance, with the help of the school counselor, the researcher gathered data from the students' personal files, in other words, the students' medical reports that gave information about their level of disability and their year of birth.

**3.6.1.5 The evaluation material.** Before the intervention, the researcher gained some information about the current English vocabulary knowledge of the hearing-impaired students by asking the English teacher to provide some information about the results of an English exam which had been administered before the present study.

In the present study, the learners' target language vocabulary knowledge was evaluated by conducting an English vocabulary exam after the completion of the intervention sessions. In other words, the researcher used computer activities in the classroom and evaluated the results of the exam (See Appendix G for the exam questions) so as to investigate the impact of CALL on the students' vocabulary development in English. The questions included in the evaluation material were prepared by the English teacher since the researcher had to stick to the school curriculum designed by the English teacher. See Section 3.8 for the explanation of the reasons why the researcher did not use a pretest-posttest design for the present study. The evaluation material consisted of abstract and concrete words which were covered in the classroom. The exam questions asked the students to write the Turkish equivalents of the English words, and there were also some matching questions (e.g., matching the target words with the correct picture) in the exam.

**3.6.1.6 The intervention material.** The researcher made use of a website called "Quizlet" so as to design computer activities for the participants. According to Charles Doe (n.d.) "Quizlet is highly recommended for anyone needing to learn information that fits the flashcard format. Teachers will find it useful to create flashcards for students and to set up entire classes in groups so students can help each other" (as cited in Rivero, 2011, p.32). "Quizlet" also provides teachers with a safe teaching environment in which teachers can have the control of the material. It also gives teachers the opportunity to prepare age-appropriate activities according to the program they follow. Figure 3.2 shows an example of a digital flashcard material, and Figure 3.3 illustrates an example of an activity page designed by the researcher.

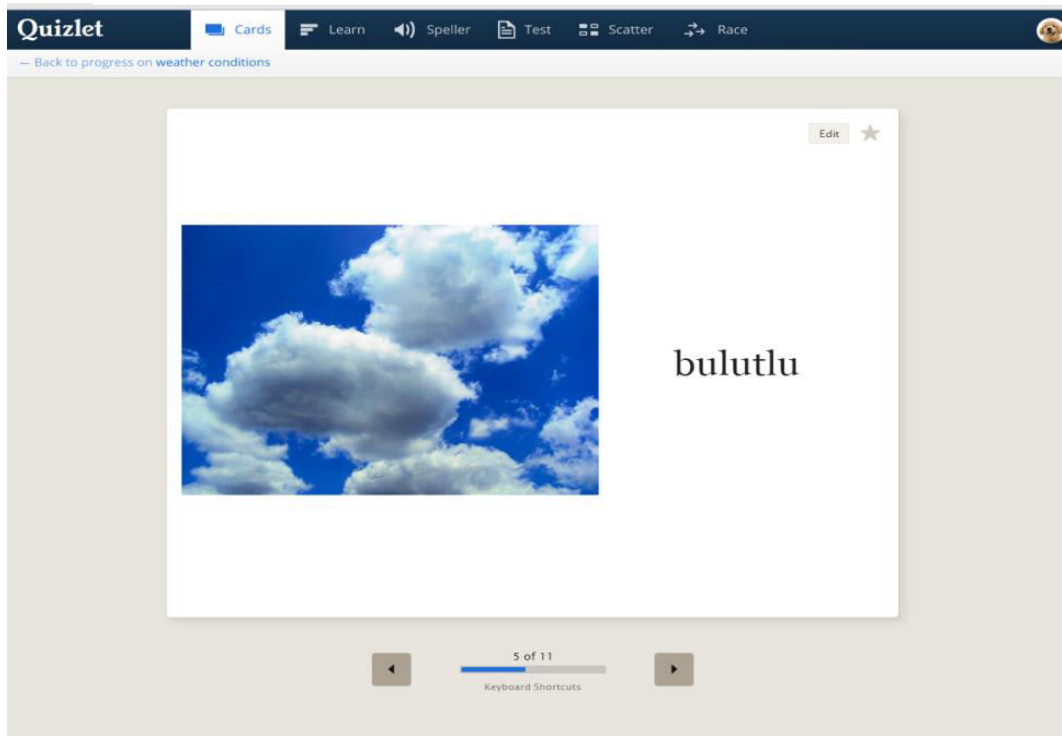
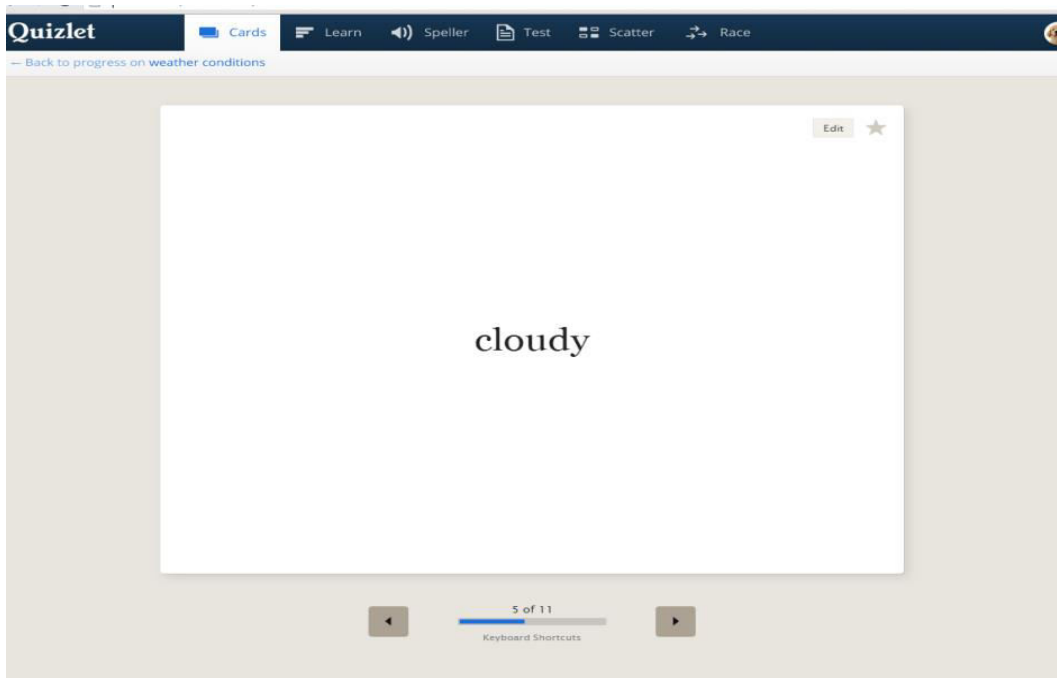


Figure 3.2. An example of a digital flashcard material designed by the researcher.



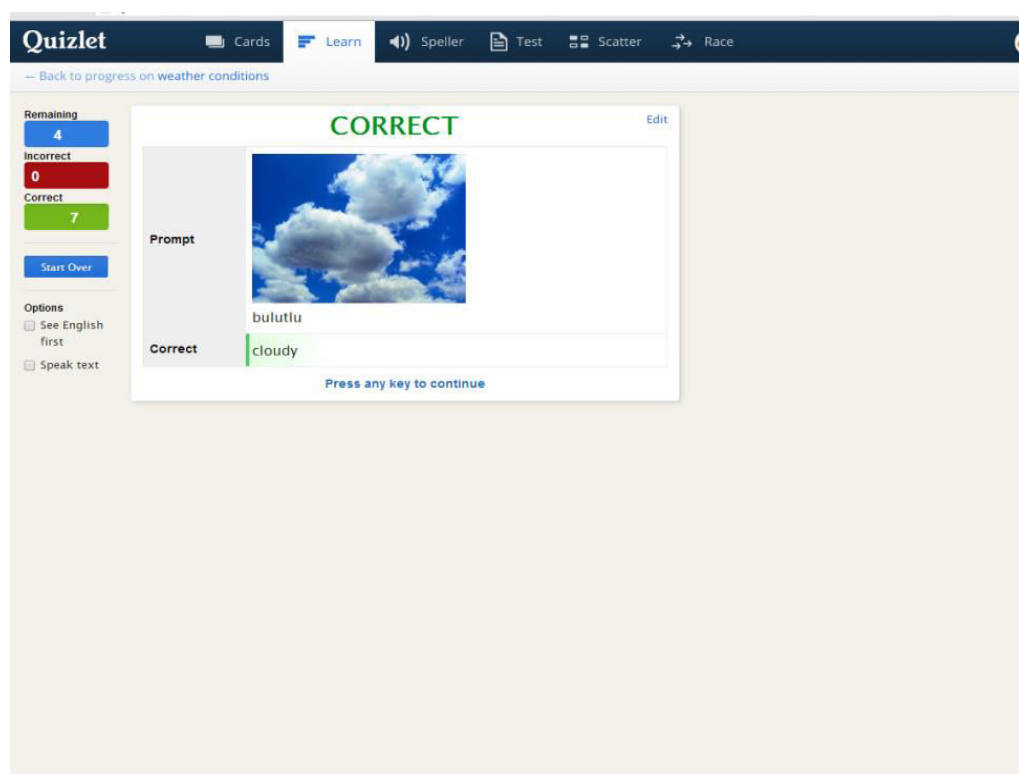
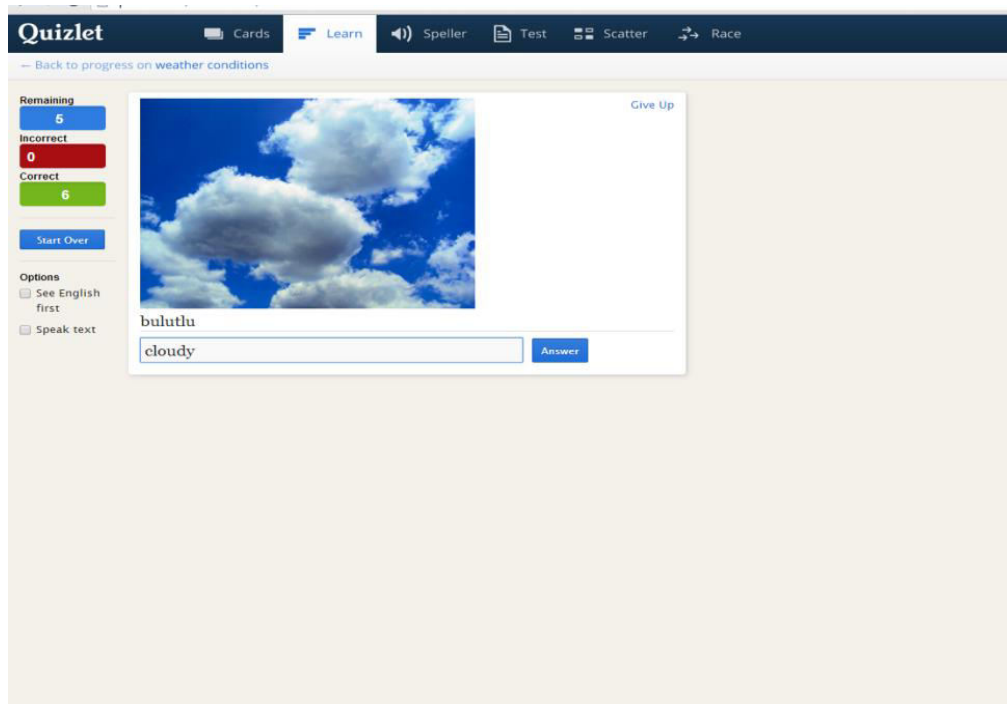


Figure 3.3. An example of an activity page designed by the researcher.

The steps of the in-class activities followed by the researcher will be discussed in Section 3.6.2 more in detail. As it was highlighted in the previous chapter, Alexander (2009) underlined that teachers' and students' computer literacy skills may influence the effectiveness of digital instructional tools, and Iverson (2005) also highlighted the importance of learner-content interaction (e.g., learners' needs, their expectations, etc.) by stating that the quality of this interaction type may also influence the effectiveness of digital tools. In other words, teachers should be aware of students' and their own technological skills while including computer-assisted instructional tools into their curriculum. However, as it was indicated by the figures given above, "Quizlet" is a user-friendly website that can give teachers and learners the opportunity to focus on the language skills they want to cover without requiring advanced technological skills.

The prior literature also showed that financial problems may also affect the inclusion of digital tools into the school curricula. For instance, as it was stated in the previous chapter, Tüzün (2007) underlined that these digital tools come with a cost. However, the website used by the researcher was free of charge. "Quizlet" also allows students to practice the required skills in an interactive environment by increasing their level of engagement, motivation and autonomy, and it also increases their sense of emotional safety through instant and corrective feedback given in a virtual environment (e.g., points). The positive impact of visual information on the hearing-impaired learners' academic skills (e.g., MacDougall, 1979, as cited in Puente et al., 2006) should be highlighted since these learners, by enlarge, are visual learners, and they may miss out letters when writing because of their disability. However, computer-assisted instructional tools such as "Quizlet" would empower them through their learning process and would give teachers the chance to design tools according to the learners' literacy level and pace.

**3.6.2 Data collection procedure.** At the beginning of the study, required permissions from the Ministry of Education, from the Ethics Committee (Bahçeşehir University's), from the family members and from the school in which the study was conducted were granted. Before conducting the present study, the teachers, the students and the family members were informed about the details of the study, and their permissions were granted individually. They were also informed about the

confidentiality issues that their names were not mentioned in any part of the study. Afterwards, as it was mentioned in Section 3.5.2, the appropriate class was chosen with the accompaniment of the teachers in the first week of December, and the researcher informed the English teacher about the content of the study. The questionnaire was administered to the family members in the second week of December, 2013, and they were handed to the researcher by the school counselor in the following week. In the third week of December, the English teacher and the researcher observed the students' in-class performance before the intervention sessions to provide some general information about the learners' target language vocabulary knowledge and their reactions towards the English language.

The intervention sessions started on February 11, 2014 after the semester holiday and lasted 10 weeks. At least ten (10) target words were chosen for each week, the target words were prepared according to the weekly topics (e.g., weather conditions, clothes, fruits, etc.), and the researcher prepared a computer activity for each week by using the website called "Quizlet". All the participants studied the digital vocabulary teaching material under their English teacher's scrutiny. The English teacher taught 3 hours of English per week, and the researcher participated in the English classes 2 hours a day per week (on Tuesdays). The English teacher introduced the target words in the first hour and let the learners write the words in their notebooks. In the second hour (the following day) the researcher introduced the target words to the students by presenting some digital flashcards, and in the third hour the learners took part in the activities by using the researcher's computer. In the first part of the activity, each student looked at the picture of each target word they had studied before, and they typed the English equivalents of the words on the computer and got corrective feedback or gained points. In the second part of the activity, the researcher divided the class into two groups where gender distribution was even in each group because she wanted to eliminate the gender effect. She gave instructions in Turkish Sign Language because she had some sufficient knowledge of the learners' first language and then started a vocabulary activity that asked learners to type the English equivalents of the Turkish words on the computer. The students had the opportunity to see the pictures of the target words before typing the answers, and they gained points (1 point for each word) or corrective feedback after answering the questions.

The researcher was standing with the students in front of the computer in case the participants needed her guidance while using the computer and while typing the letters (e.g., the order of the letters). As it was stated in the previous chapter, Harris and Moreno (2004) highlighted that hearing-impaired learners had the tendency to make spelling errors, and most of them were non-phonetic errors (as cited in Houston, 2009). In addition, in order to minimize the negative impact of the spelling errors on the students' motivation and performance, the English teacher assessed the learners' target language vocabulary acquisition level by preparing exam questions that required them to write only the Turkish equivalents of the target words and did not ask questions that could expect them to write the English equivalents of the Turkish words. Furthermore, these spelling errors were also observed when the students were writing down Turkish words in their notebooks or on their exam sheets, and the misspelled Turkish equivalent of a target language word was not crossed out by the English teacher as long as the meaning or the translation of that given word was correct. The group that got the highest score was awarded (e.g., chocolate, candies, etc.). The reason why the researcher prepared both individual and group activities was that she wanted to increase the students' level of autonomy and their interpersonal communication skills through digital activities. In other words, as it was mentioned before, Roberson (2001) underlined that educational technology offers effective modes of communication with others, and it gives hearing-impaired students the opportunity to be freed from the limitations in communication (e.g., audible communication of information).

In the fourth week of April, the researcher distributed a questionnaire for the family members and also interviewed the classroom teacher to get some detailed information about each student in the classroom and asked about his observations (e.g., his observations about the students' reactions towards the English class or the computer activities, etc.). The interview session lasted around 35 minutes. On the same day, the students took their English exam. The researcher got the answers of the questionnaire given to the family members in the following week, and on the same day she gave each student a questionnaire sheet to assess their reactions towards the English class and the computer-assisted language learning tool. However, because the questions were all in Turkish, she asked for guidance from the school counselor who translated the items on the questionnaire into Turkish Sign

Language. The following day, the English teacher gave the English exam scores to the researcher, and the researcher interviewed the English teacher and the school principal to learn more about their perceptions on the impact of the intervention sessions. Both interview sessions lasted about 20 minutes, and at the end of each session the researcher thanked participants for their contributions to the study.

The ethical issues concerning the precautions taken against the participant-observer effect and how the categories, the questionnaires and the interview questions were developed will be discussed in Section 3.8. See Table 3.4 for the summary of the procedures followed in the present study.

Table 3.4

*A Summary of the Procedures Followed in the Present Study*

Date	Description
December 2, 2013	-The appropriate group was determined
December 9, 2013	-A questionnaire was administered to the family members
December 16, 2013	-The answers of the questionnaire were received -The English teacher and the researcher observed the students in the classroom
February 11, 2014- April 15, 2014	-Intervention sessions were conducted
April 22, 2014	-A questionnaire was administered to the family members -The classroom teacher was interviewed -The students took their English exam
April 29, 2014	-The answers of the questionnaire were received -The researcher gave a questionnaire to the students and collected the results
April 30, 2014	-The researcher got the English exam scores -She interviewed the English teacher and the school principal

### **3.7 Data Analysis Procedure**

Data triangulation is applied by gathering and analyzing both quantitative and qualitative data so as to minimize the possible problems that may arise from a single method. In the present study, the quantitative data were collected through the English vocabulary exam scores of the learners, and the percentage of agreement [ $(\text{Number of Agreements} / \text{Number of Agreements} + \text{Disagreements}) \times 100$ ] between the observation checklists recorded both by the English teacher and the researcher was also calculated. The Likert-type scale surveys, which were conducted in Turkish, were also administered to the family members and the students. Descriptive statistics were employed to analyze the results gathered through these data collection tools by using Microsoft Excel.

The qualitative data were gathered through the semi-structured interviews conducted with the teachers, the open-ended survey responses received from the family members and the field notes taken by the researcher. The semi-structured interviews and the open-ended question survey were conducted in Turkish, and thematic or categorical patterns were identified to analyze these written documents and the transcriptions of recorded verbal communications mentioned above. Each interview session was transcribed fully, the interviewees were informed about the presence of the recorder, and they had the chance to turn the recorder off whenever they liked. The interviews were transcribed, and then they were translated into English. The translations were checked many times for accuracy, and some basic theme categories for analysis were developed by looking at the interviewees' verbatim responses.

Furthermore, the open-ended survey data, which were gathered from the responses of the family members, were translated into English. The translations of the answers were checked many times, and the collected data were clustered under different theme categories. Moreover, the researcher also noted down some simple sentences and keywords while observing the students in the classroom, and then she took some detailed notes by focusing on these notes after each intervention session. Qualitative data were organized using Microsoft Word program.

In the following chapter, the results of the data analysis process and the

specific outcomes will be presented in detail.

### **3.8 Validity, Reliability and Ethical Issues**

Focusing on the validity and the reliability issues of a research study increases its quality, and “triangulation” is defined as, “the attempt to get a ‘true’ fix on a situation by combining different ways of looking at it” (Silverman, 2000, 177). The process of triangulation is preferred by researchers to reduce systematic bias and to increase the reliability, credibility and the validity of a research study. Patton (2002) listed four kinds of triangulation techniques by stating:

1. *Methods triangulation*: Checking out the consistency of findings generated by different data collection methods
2. *Triangulation of sources*: Checking out the consistency of different data sources within the same method
3. *Analyst triangulation*: Using multiple analysts to review findings
4. *Theory/perspective triangulation*: Using multiple perspectives or theories to interpret the data. (p.556)

Regarding the definitions given above, it is clear that the researcher triangulated methods by making use of a mixed methods design. The rationale for this technique was to gain a deeper understanding of the phenomenon under study since it combined different types of sources or data collection tools to provide a broader perspective. In other words, the researcher believed that certain kinds of questions in a study could lend themselves to qualitative methods, and on the other hand some could also be answered by quantitative methods. The researcher had to support her data by triangulating data collection tools to find out more about the participants’ views. The qualitative data in the present study were gathered through semi-structured interviews conducted with the teachers (e.g., the English teacher, the classroom teacher and the school principal), and a questionnaire that included open-ended questions was also prepared for family members to obtain some demographic information and to learn about their perceptions on the impact of CALL on the

students' motivation. Secondary data collection technique (e.g., students' medical reports, etc.) was also used to obtain detailed information about the learners' disability level, and the researcher took some detailed field notes.

The reason why the researcher did not use a pretest-posttest design to collect quantitative data could be explained by focusing on the working memory systems of hearing-impaired learners. For instance, Hansson, Forsberg, Löfqvist, Mäki-Torkk and Sahlén (2004) assessed the long-term working memory skills of the children with and without hearing loss through a reading span test. They examined the children's novel word learning process through a mutual inclusion test and stated:

The CHL [Children with sensorineural hearing loss] performed the same as their CNH [Children with normal hearing] age-mates on working memory and word learning but exhibited significantly smaller receptive vocabulary sizes ... It is possible that the smaller receptive vocabulary sizes are a residual effect of delayed development of working memory. (as cited in Stiles, McGregor & Bentler, 2012, p.154)

The information given above indicates that focusing on the hearing-impaired learners' long-term working memory development process could have given unsuccessful results since the first intervention session was conducted 10 weeks before the last intervention session, and the English exam was administered a week after the final intervention session. The above-mentioned time may cause pretest sensitization in general, but it can be a long period of time for hearing-impaired students because of their poor long-term working memory skills. Although various techniques are used to improve hearing-impaired learners' long-term working memory systems (e.g., grouping the target words as semantically related words, semantically paired words, etc.), including these techniques in the present study would have required a longitudinal study and a more flexible curriculum. As a result, the pretest-posttest design was not preferred since the time between a pretest and a posttest would have been too long for the hearing-impaired learners' to recall the meanings of the target words and the order of letters within each word. The



curriculum used by the English teacher did not allow the researcher to design a more detailed program with the aforementioned special techniques, but these techniques could have improved the hearing-impaired learners' long-term working memory skills. Moreover, the content of each exam had to be different from one another according to the school curriculum, and conducting an additional exam for a pretest-posttest comparison would not have fit the school curriculum and would have also increased the learners' level of exam anxiety according to the teachers' point of view.

In addition, apart from the English exam scores of the students, the quantitative data were analyzed through the structured questionnaires administered to the students and to the family members towards the end of the study to explore their views on the impact of the intervention sessions. Furthermore, as it was mentioned above, the researcher took extensive field notes to gather some qualitative data about what was happening in the research site. As a result, in order to provide some objective information and to lower the impact of researcher bias on the findings of the study, quantitative data were also gathered by the structured checklists recorded both by the researcher and the English teacher which gave the researcher the opportunity to measure the consistency of the observers' answers. It is an example of a triangulation technique since "Triangulating observers ... helps reduce the potential bias that comes from a single person doing all the data collection and provides means of more directly assessing the consistency of the data obtained" (Patton, 2002, p.560). Because the researcher had an active role in the present study, it was crucial for her to act as an emphatically neutral inquirer, and including a second observer might have also reduced the potential bias of the researcher by drawing a more objective perspective. In general, the in-class observation checklist results indicated a high level of agreement between the two observers (See Appendix I for the checklist results).

Researchers may also influence the analysis and the interpretation processes by their subjective expectations, and by asking her thesis advisor to review the findings of the study, the researcher had the opportunity to increase the accuracy, fairness, completeness and the validity of the data analysis process and the findings of the study, and she could also decrease the level of her subjectivity. It is also

possible that participant-observers may change during the course of the evaluation (e.g., as a result of the situation they witness). In other words, the credibility of the researcher is an important factor that can be affected by his or her past experiences, biases, prejudices etc., and these factors should be clarified so that the reader can understand the researcher's position that may affect the course of a study (Creswell, 2007). In the present study, the researcher had been involved in the deaf culture in Turkey, and she had some sufficient knowledge of Turkish Sign Language. She was familiar with the challenges hearing-impaired people face (e.g., their academic and non-academic needs, the communication problems they experience, etc.). As a result, she could adopt a stance of neutrality throughout the present study, and she could design the intervention material of the study accordingly.

Moreover, by including multiple disciplines in the present study - i.e. English Language Education, Information Technology and Special Education - and by reviewing some of the approaches, methods and techniques used in these fields, the researcher also triangulated theories in the present study. In order to integrate multiple perspectives to increase the validity of the data collection tools, the researcher consulted her thesis advisor who was a qualified instructor in the fields of Psychology and Special Education and another instructor from the same department who was also a qualified instructor in the field of Psychology. In other words, the researcher was getting her master's degree in the field of English Language Education, and in order to combine these three fields effectively, to develop successful questions for the surveys and for the interview sessions and to develop themes for analysis, she asked for guidance from her instructors and revised her data collection tools accordingly.

As for the ethical issues, at the beginning of the study, the procedures and the materials used in the study (e.g., the questionnaires, the intervention material, etc.) were presented in the form of proposals to the Ministry of Education and to the Ethics Committee (Bahçeşehir University), and the required permissions were granted. The researcher respected the participants' privacy and would not share the information she received from them with anyone without their permission. She also stated that the participants would have the chance to avoid answering any of the questions (e.g. interviews, questionnaires, etc.) whenever they felt uncomfortable.

The researcher also prepared a consent letter (See Appendix H) and gave it to the school principal so that he could send it to the family members. In this letter, she explained the details of the study and asked permission from them. In order to maintain confidentiality, the researcher made use of coded identifiers (e.g., Student #1, Family Member #1) and did not mention the participants' names. In addition, each interview session was transcribed as fully and fairly as possible and was checked many times for accuracy. The interviewees were informed about the presence of the recorder, and they had the chance to turn the tape recorder off whenever they liked.

As for the financial issues, in order to keep costs for the participants to a minimum, the researcher made use of her own laptop and internet connection device and prepared the materials (e.g., copying the questionnaires, rewards given to the students, etc.) without demanding money from the school. Moreover, the intervention material used in the study was a reliable educational tool that could be controlled by the users, and the activities were conducted under the English teacher's scrutiny. The data collected throughout the present study will be destroyed within five years.

### **3.9 Limitations and Delimitations**

Every study, no matter how well it is conducted has some limitations and delimitations. Limitations are the shortcomings over which the researcher has no control. To begin with, there is not an abundance of research done pertaining to the impact of computer-assisted instructional tools on hearing-impaired learners' foreign language acquisition process. In addition, because the study had to be carried out in a short period of time, the researcher could only evaluate the short-term impact of the intervention, and thus it could not assess the learners' long-term working memory skills.

The presence of an observer can also affect the attitudes of the participants. In other words, in the present study, the participants might have been hesitant to reveal their true opinions or attitudes because the participants, especially the family members and the children, might have been concerned about the teachers' reactions, and this could have affected the validity of the study. However, Glesne (1999) stated,

“When a large amount of time is spent with your research participants, they less readily feign behavior or feel the need to do so; moreover, they are more likely to be frank and comprehensive about what they tell you” (as cited in Patton, 2002, p.567). In order to minimize the participant-observer effect and to acquire trustworthy data, the researcher introduced herself to the participants and explained the procedures she would take before conducting her research study, and she stated that she would respect their privacy. Moreover, the researcher had some little experience (2 years) in the deaf culture, and it was almost impossible for her to know all the significant factors (e.g., the impact of her gestures, the speed of her speech, etc.) which might have affected the quality and the quantity of the answers she expected to get from the participants.

The sampling process was also a limitation since the purposive sampling strategy had to be used in the present study because the researcher could not find another school that offered an English class for hearing-impaired learners, and the number of the students who took the English class was also limited within the research site. Furthermore, as it was mentioned in Section 3.5.2, the number of the students with multiple disabilities in the remaining groups was really high, and the study group, which was thought to be the most appropriate group, was selected according to the teachers’ opinions. As a result, the present study lacked a control group. There is this possibility that the limited number of students might have affected the quality of the study, but because the students had a certain level of disability, the classroom within the research site was not allowed to be crowded (See Table 3.1). For instance, in their research article, which was about a study conducted with special education teachers in 55 rural districts, Berry and Gravelle (2013) underlined the importance and the necessity of small class size for special education classes by stating that it provided a detailed personal knowledge of the learners and their families, and the students could be observed in a variety of academic and non-academic contexts. Thus, the number of the students in the recommended group was also limited so as to provide an individualized instruction which is an important factor to meet the academic and non-academic needs of the students with special needs. In other words, teachers may fail to pay close attention to each learner in a crowded classroom setting.

Some other extraneous factors might have also affected the results of the English exam given to the students towards the end of the study since it is possible that in a research study, a successful student may fail a test due to various reasons (e.g., history effect: health problems). As a result, a product-oriented paper-based test should not be the only tool for assessment, and in order to minimize these possible factors, the researcher not only focused on the students' exam results but also conducted a process-oriented method to assess the learners' motivation and performance by including data collection tools such as field notes, teacher interview sessions and also a survey that was administered to the family members at the beginning of the study. For instance, the continuous inclusion of vocabulary activities during the intervention sessions and the performance of the students while participating in these activities could enable the researcher to observe the impact of the intervention on the learners' motivation and their vocabulary development in English.

Delimitations are the boundaries set by the researcher. The researcher could not conduct a focus group with the family members because she did not have the chance to access the family members. As a result, she preferred conducting a survey to be able to assess their perceptions effectively. At the beginning of the study, she made use of some open-ended questions because she wanted to get some background information about the family members. However, the researcher had to evaluate the perceptions of the family members at the end of the study by administering a Likert-scale survey since their education level was low (See Table 3.3) in general. The Likert-scale survey, which was administered to the family members, included an additional part that gave the respondents' the opportunity to write comments by using their own words. However, the researcher believed that including some guiding statements would give the family members the opportunity to evaluate and to focus on the impact of the intervention sessions effectively. Furthermore, the learners were not competent in Turkish, and the survey questions had to be translated by the school counselor because the researcher was not fluent in Turkish Sign Language. As a result, the researcher administered a Likert-type survey instead of conducting a focus group to be able to follow the translation process or to avoid the overuse of translation because the statements in the survey were simple and to the point.

Moreover, the study only analyzed the learners' vocabulary development process and did not present a sentence-level analysis. In addition, the researcher only focused on a certain age group within a certain area so as to provide an in-depth study of a small number of participants. However, the intervention type preferred by the researcher may not be as effective as it was in the present study when it is conducted with a different age group or when it is conducted in other districts. As a result, the findings may not be generalized or transferred to other contexts because they were highly context dependent.

### **3.10 Conclusion**

The purpose of this chapter was to describe the methodology used for the present study. A mixed methods intervention design was employed, and the data collection tools such as the survey questions (open-ended questions and Likert-type scales), the semi-structured interviews, the researcher's field notes, the observation checklist, the exam scores of the learners and some secondary data were used to compare and contrast the perceptions of the participants on the integration of a computer-assisted instructional tool into the English curriculum and to assess the learners' vocabulary development in English and their motivation. The following chapter will present the findings of the present study.

## Chapter 4: Results

### 4.1 Introduction

The purpose of the present study was to analyze the impact of CALL on the hearing-impaired Turkish students' vocabulary development in English and their motivation. By triangulating observers, qualitative and quantitative methods and sources, the researcher aimed at gaining a deeper understanding of the phenomenon under study. Data were collected in two phases: The first phase depicted the collection of the quantitative data including the English exam scores of the learners, the Likert-type surveys administered to the family members and the learners and the structured checklists recorded by the English teacher and the researcher. In addition, the second phase of the study consisted of the collection of the qualitative data through the semi-structured interviews conducted with the teachers, the open-ended questions prepared for the questionnaire which was administered to the family members at the beginning of the study and the detailed field notes taken by the researcher. As it was mentioned above, mixed method approach involves two separate phases: The quantitative analysis of data uses descriptive statistics and the qualitative phase mostly includes the thematic analysis of the gathered data. See Table 4.1 for the categorization of the research questions.

Table 4.1

*Categorization of the Research Questions and the Data Collection Tools*

Research Questions	Data Collection Tools
1- What is the impact of CALL on the hearing-impaired Turkish students' vocabulary development in English?	<ul style="list-style-type: none"><li>➤ The English exam scores</li><li>➤ The observation checklists recorded both by the English teacher and the researcher</li><li>➤ Field notes</li><li>➤ Semi-structured interviews conducted with the teachers</li></ul>

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2. What is the impact of CALL on the hearing-impaired Turkish students' motivation according to the perceptions of the key stakeholders?

- The observation checklists recorded both by the English teacher and the researcher
- Field notes
- Semi-structured interviews conducted with the teachers
- Likert-type scales administered to the family members and the learners
- Open-ended questions prepared for the survey that was administered to the family members

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The organization of this chapter is based on the research questions of the present study, and the study was more qualitative in nature. The quantitative data were analyzed using Microsoft Excel, and the qualitative data were organized using Microsoft Word program. The descriptive statistics were used to calculate the data in the form of percentages and frequencies. The findings of the quantitative strand of the study were based upon the information gathered from the English exam that was administered towards the end of the study, the Likert-type scales given to the family members and the learners and the observation checklists (See Table 4.2 for the predetermined categories of the observation checklists) recorded by the English teacher and the researcher. Moreover, the qualitative data were gathered through the semi-structured interviews, the open-ended questions used in the survey that was administered to the family members and the field notes taken by the researcher during the in-class observation sessions. Some themes were developed by the researcher for the semi-structured interview sessions and the open-ended survey data, and then they were revised according to the reflections of the researcher's thesis supervisor. As previously mentioned, the participants were coded due to confidentiality reasons.



Table 4.2

*Definitions of the Predetermined Categories*

Categories	Definitions
Cooperation	The act of acting together for a common purpose (e.g., teamwork, helping each other, studying together, etc.)
Communication	The act of exchanging thoughts and feelings (e.g., eye-contact, listening to his/her classmates, comforting his/her classmates when they are unhappy, etc.)
Self-Confidence	Being sure of yourself, your abilities and actions (e.g., wants to use the computer without any help, trusts his/her knowledge, etc.)
Interest	Wanting to learn more about something or to participate in something (e.g., asks questions about the activities used in the classroom, wants to participate in them, impatient, makes eye contact with the researcher, etc.)
Knowledge	Information gained through study or learning (e.g., answers questions and does not ask for help, etc.)

The observation checklist results gathered in the third week of December (See Table 4.3) summarized the general success and motivation levels of the students before the intervention.

Table 4.3

*Students' Success and Motivation Levels before the Intervention*

	Self-									
	Cooperation		Communication		Confidence		Interest		Knowledge	
	T	R	T	R	T	R	T	R	T	R
Student #1	0	0	1	1	0	0	0	0	0	0
Student #2	1	1	1	1	0	0	0	0	1	1
Student #3	1	1	0	0	1	1	0	0	1	1
Student #4	0	0	0	0	0	0	0	0	0	0
Student #5	0	0	1	1	0	0	1	1	0	0
Student #6	0	0	1	1	0	0	0	0	0	0
Student #7	0	0	1	1	1	1	0	0	1	1
Student #8	0	0	1	0	1	0	0	0	0	0
(%)	100%		90%		90%		100%		100%	

Note. T=Teacher; R=Researcher.

The following chapters will discuss the success and motivation levels of the students throughout and after the intervention sessions.

**4.1.1 The impact of CALL on the hearing-impaired Turkish students' vocabulary development in English.** This section will assess the data collection tools that will answer the sub-questions of the first research question by examining the impact of CALL on the hearing-impaired learners' vocabulary development in English.

**4.1.1.1 The impact of CALL on the students' performance.** In order to assess the students' target language vocabulary knowledge, qualitative data were gathered through the field notes taken by the researcher, and quantitative data were collected through the English exam scores of the students and the observation checklists recorded by the English teacher and the researcher (See Appendix I).

The English exam (See Table 4.4), which was administered towards the end of the research study, consisted of 20 target words in total (both abstract and concrete words). The exam questions asked students to write the Turkish equivalents of the English words, and it also included some matching exercises (e.g., writing down the target words under the correct pictures).

Table 4.4

*The English Exam Scores of the Learners*

	P1	P2	P3	P4
Student #1	100%	60%	100%	100%
Student #2	25%	100%	100%	100%
Student #3	100%	100%	100%	100%
Student #4	50%	20%	20%	100%
Student #5	50%	60%	60%	100%
Student #6	100%	100%	60%	100%
Student #7	100%	60%	80%	100%
Student #8	100%	0%	100%	100%

The information provided in the above table indicated that 5 out of 8 students showed high performance (100%) in answering the first part of the exam questions that included four abstract words which were some of the target words covered in the third intervention session. The observation checklist results (See Appendix I) were also in line with the exam results of the five students. Two students showed a success rate of 50%, but the researcher's field notes indicated that these two learners' in-class performance was quite well. For instance, the researcher observed the performance of Student #4 by stating, "*He had never given a correct answer before, but he showed better performance this week [third week]. He knew how to finger-spell the words and even finger-spelled the ones which were to be answered by his classmates*" (field notes, February 25, 2014). The researcher's notes on the performance of Student #5 underlined that, "*The target words 'summer' and 'spring' started with the same letter, and she typed the wrong word on the computer. However, towards the end of the intervention session she could sign the correct equivalents of these target words*" (field notes, February 25, 2014). As for the performance of the remaining student (25%), the researcher included positive comments by saying, "*He [Student #2] stated that he did not like the words, but he liked the game. He gave correct answers when I showed him some digital flashcards to assess his performance*" (field notes, February 25, 2014). The earned results indicated that although the low-performing students (3 out of 8) could not reflect their target language vocabulary knowledge successfully in the first part, they had

shown satisfactory in-class performance (See Appendix I).

The second part of the exam included some of the target words covered in the fifth week. The exam results indicated that 3 out of 8 students showed high performance (100%) in this section. In addition, 3 out of 5 students in the remaining group showed a success rate of 60%, another student showed a success rate of 20%, and one of the students could not answer the second part. On the other hand, all the students' in-class performance was really high during the fifth intervention session (See Appendix I). The examples in the researcher's field notes depicted the low-performing students' in-class performance. For instance, she remarked, "*She [Student #1] typed all the answers on the computer correctly without any hesitation*" (field notes, March 11, 2014). The researcher also stated, "*She [Student #5] typed the word 'sunny' instead of the word 'snowy' and signed to say that these two words looked so similar. However, she realized her mistake and corrected it and smiled*" (field notes, March 11, 2014). The researcher added, "*Student #2, Student #4 and Student #7 covered the Turkish equivalents of the target words together. They could finger-spell the target words quickly*" (field notes, March 11, 2014). The researcher also reflected on the in-class performance of Student #8 by stating, "*He was sitting in front of Student #2, Student #4 and Student #7. He looked back to watch his friends and finger-spelled the target words they were studying*" (field notes, March 11, 2014). The researcher also summarized the English teacher's comments by stating, "*She was shocked since the learners could type the words quickly and effortlessly on the computer*" (field notes, March 11, 2014). The researcher also stated, "*I went over the target words we covered last week, and the learners could remember the meanings of the words this week [6<sup>th</sup> week]. The majority of learners could also remember the order of the letters*" (field notes, March 18, 2014).

The target words in the third part of the English exam included some of the target words covered during the seventh intervention session. Contrary to the exam results of the third part, all the students performed quite well during the seventh intervention session according to the observation checklist results (See Appendix I) and the field notes. To begin with, 4 out of 8 students could place all the target words correctly (100%) in this part. On the other hand, the success rate of one of the students in the remaining group was 80%. Two students showed a success rate of

60% and the success rate of the remaining student was 20%. According to the field notes taken by the researcher, only one of these low-performing students (the success rate of Student #4 was 20%) made a mistake during the seventh intervention session, but this example did not influence the overall performance of that student according to the observation checklist results (See Appendix I) which summarized his target language performance in general. The researcher also commented on Student #6, whose success rate was 60%, by stating, “*She misspelled the word ‘foot’ and then corrected it on her own*” (field notes, March 25, 2014). Furthermore, another example showed that in the third part of the exam, Student #6 wrote “eye” instead of the word “ear” and “ear” instead of the word “eye”, and Student #5 (her success rate was 60%) confused the word “head” with the word “hand”. Student #7 wrote “hand” in the place of “head”, and it was clear from the pencil marks left on the paper that he was hesitant to write the answers, but he showed a success rate of 80% and could not remember only one of the target words.

The last part of the English exam included some of the words covered during the eighth and the ninth intervention sessions, but this part asked learners to write the Turkish equivalents of the English words to make it easy for them to reflect their target language vocabulary knowledge effectively since writing the English equivalent of a Turkish word could be difficult and demotivating for hearing-impaired students. The success rate of all the students was 100% in the fourth part, and the observation checklist results (See Appendix I) were mostly in line with the exam results. However, according to the observation checklist results of the English teacher, Student #8 could not show a high level of in-class performance. On the other hand, the observation checklist results (See Appendix I) of the researcher showed that he performed well since her field notes revealed that Student #8 only misspelled a long target word (e.g., pomegranate). The researcher also included some other examples about the learners’ acquisition process and stated, “*She [Student #1] came next to me and finger-spelled the word ‘limon’ to show the similarity between this word and the target word ‘lemon’*” (field notes, April 8, 2014).

***4.1.1.2 The impact of CALL on the students’ performance: The teachers’ perceptions.*** In order to reach further qualitative data about the perceptions of the participants (the school principal, the classroom teacher and the English teacher) on

the impact of the intervention sessions, the researcher conducted semi-structured interviews (See Appendix D) with them. This section will examine the second sub-question of the first research question by focusing on the following themes:

1. The role of English in the hearing-impaired students' lives in the future
2. The relation between the hearing-impaired students' second language (Turkish) and their third language (English)
3. The impact of computer-assisted instruction on the hearing-impaired students' achievement

The themes listed above show that this section will assess the interviewees' views on the integration of CALL into the current English curriculum and the impact of the hearing-impaired learners' second language knowledge on their acquisition process of a third language (English). It will also evaluate the role of English language in the hearing-impaired learners' lives in the future.

*4.1.1.2.1 The role of English in the hearing-impaired students' lives in the future.* For the Question 4 “Do you think that the foreign language education which has just started for the hearing-impaired students in Turkey would provide positive academic and social outcomes for them in the future?”, the participants stated that it was too early for them to comment on its possible impact because they had never seen such an example before. The classroom teacher added, “When our students apply for a job in the future, they may be required to know some of the basic rules of the language. Why not?” (personal communication, April 22, 2014). The English teacher also stated, “They [students] may want to have an academic position in the future, and they may benefit from their foreign language skills to improve their career” (personal communication, April 30, 2014). The opinions of the participants indicated that although they did not feel comfortable enough to foresee the possible effects of the students' foreign language education in the future, they were not completely against it.

*4.1.1.2.2 The relation between the hearing-impaired students' second language (Turkish) and their third language (English).* When Question 1 “Do you think that Turkish, which has a written format just like English language, has any positive or negative impact on the hearing-impaired students' third language literacy skills?”

was asked, the participants underlined both the positive and the negative impact of this relation. For example, the school principal first highlighted the differences between Turkish Sign Language and Turkish by saying, “*Hearing-impaired people in Turkey do not have suffixes and tenses in their first language, and this language has a completely different sentence structure*” (personal communication, April 30, 2014). He then continued by saying:

*We should accept Turkish Sign Language as their first language and Turkish as their second language. Adding English in the school curriculum may make it difficult for them to study this third language because it is a completely different language, too. However, as you have also mentioned, there are students who are willing to study this language. We have just started teaching English to our students, and next year we may offer this course not as a required course but as an elective course for the students who really want to study it.* (personal communication, April 30, 2014)

He also highlighted the role of Total Communication Approach by saying:

*While teaching English or any other course, teachers should also focus on these students’ first language [Turkish Sign Language] and even speak in order to reach all the hearing-impaired students because there may be different degrees of hearing loss in the classroom, and these students do not have a full command of Turkish language.* (personal communication, April 30, 2014)

In addition, the classroom teacher underlined that the hearing-impaired students’ major language (Turkish) literacy skills should be improved in order for them to acquire their third language more easily and said:

*We need to see that our hearing-impaired students accept Turkish Sign Language as their first language which does not have a written format. However, most of the coursebooks we cover are prepared in Turkish, and teaching English may add a third dimension if their Turkish literacy skills are inadequate. (personal communication, April 22, 2014)*

The English teacher who was also participating in the in-class observation sessions first highlighted the relation between Turkish and English by giving some information about the hearing-impaired students' attitudes towards English and said:

*When I first came to this school, students were anxious about my course because they just knew the sign of the word "English" [she signs it] and nothing else. They were almost sure that they would fail this course. However, gradually, they compared it with Turkish and realized that they would also write this new language. Now, when I show them some English and Turkish words they are familiar with and ask them to show the Turkish word and sometimes the English word, they generally give correct answers. (personal communication, April 30, 2014)*

She also commented on the relation between the learners' second language and their third language by stating:

*You also know that we witnessed some examples of this relation. For instance, when we were covering the word "doctor", one of the students came next to me and finger-spelled the Turkish equivalent of this target word and signed to show that these two words looked so similar. (personal communication, April 30, 2014)*

She also underlined the possibility of the negative language transfer effect by



saying:

*On the other hand, while referring to their second language in the process of writing or typing an English word, students may also mistakenly use Turkish letters or words. We have not seen such an example yet, but that is also possible. However, although our students sometimes misspelled some of the Turkish words, thanks to the written format of this language, it had already introduced students the Latin letters. As a result, it was easy for them to accept their third language after spending some time with it. (personal communication, April 30, 2014)*

*4.1.1.2.3 The impact of computer-assisted instruction on the hearing-impaired students' achievement. When Question 3 "Do you think that the computer activities used in the study had a positive impact on the hearing-impaired students' success?" was asked, the school principal, who did not have the chance to observe the students' in-class performance closely, uttered a general comment: "Hearing-impaired students are visual learners in general, and they learn by doing or taking part in the activities. We should take advantage of these technological tools in order to increase their success" (personal communication, April 30, 2014).*

The classroom teacher also commented on the impact of CALL by stating:

*I hear positive comments about these activities, but they [students] sometimes state that they find it hard to type the long words on the computer, but this is normal because they mostly focus only on the first syllable of the words they are presented. (personal communication, April 22, 2014)*

Finally, the English teacher, who could observe the students' in-class performance, gave some detailed information by saying:

*Pictures in the activities had a positive impact on their [learners'] acquisition process. You especially preferred including authentic pictures which really took their attention. I also used pictures, but they were not digital. Thanks to these digital pictures, they could remember the meanings of the words easily. These pictures developed their receptive and productive skills or their literacy skills simultaneously since they were active in the classroom, and they were eager to try and take part in the typing activities. (personal communication, April 30, 2014)*

She also underlined the positive impact of CALL on the hearing-impaired learners' memory skills and thanked the researcher for the present study by saying:

*The students sometimes got bad scores when they misspelled a word or when they could not remember its meaning, but these trials did not threaten them because they were just computer activities or games played on the computer. Plus, they could see their mistakes or their friends' mistakes and acquired the correct forms of the target words. Because they could acquire those words naturally and did not memorize them, they could remember them easily and could finger-spell these words most of the time correctly in the following lesson by looking over their notes briefly. Also, I really want to thank you for your study because we had the chance to see that we could increase the hearing-impaired learners' academic achievement level through these computer activities. (personal communication, April 30, 2014)*

In conclusion, the participants supported the use of computer-assisted instructional tools by pointing out their positive impact on the learners' performance.

**4.1.2 The impact of CALL on the hearing-impaired Turkish students' motivation.** This section will focus on the data collection tools that will answer the second research question of the present study by assessing the impact of CALL on the hearing-impaired learners' motivation.

**4.1.2.1 The impact of CALL on the hearing-impaired students' motivation: The students' perceptions.** This section will present a quantitative analysis of the answers of the first four items in the observation checklist (See Appendix E), and it will also combine the quantitative data gathered from the observation checklist results with the qualitative data gathered through the field notes of the researcher. A 3-point Likert scale survey (Agree/ Slightly Agree/ Disagree), which consisted of 15 questions (See Appendix B-See Figure 4.1 for results), was administered to reveal the expectations of the students and their perceptions on the integration of CALL into the curriculum.

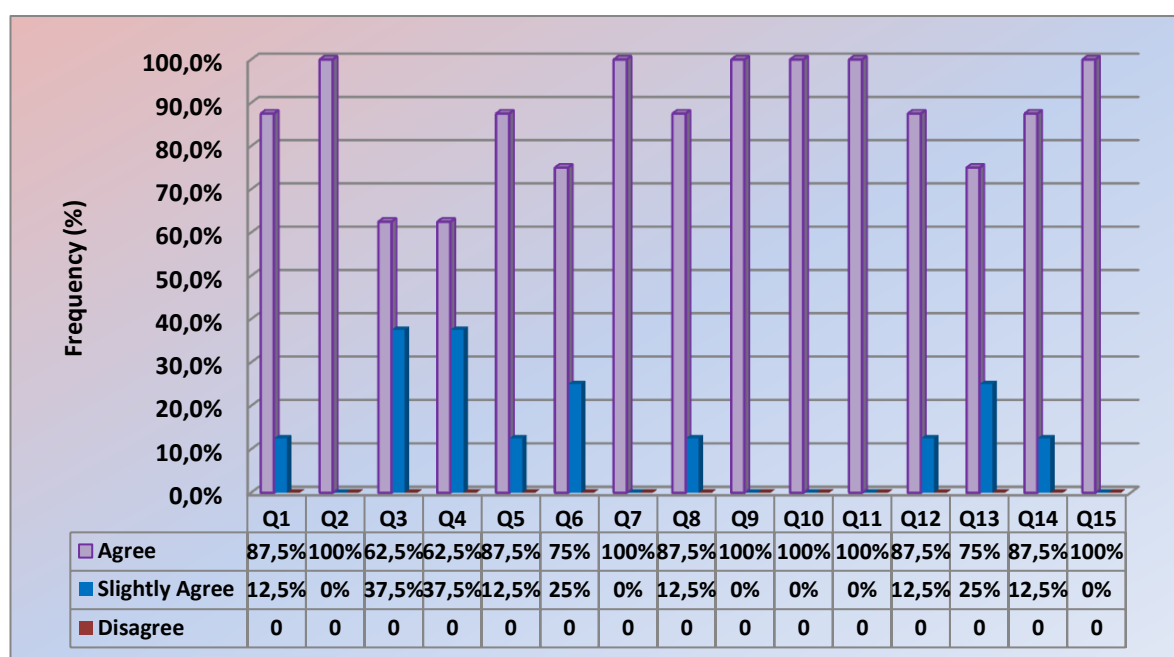


Figure 4.1. Data collected through the survey that was administered to the learners.

Generally, the observation checklist results (See Appendix I) pointed out the positive impact of CALL on the hearing-impaired learners' cooperation and communication skills and their self-confidence and interest. As for the answers of the learners, no one chose the “disagree” option for any of the statements. To begin with, the majority of learners (87.5%) found it boring to write the English exercises in their notebooks (Q1). For instance, the majority of learners were not interested in the

English class according to the results gathered before the intervention sessions (See Table 4.3). All the respondents (100%) agreed that they liked using computers (Q2) and also the same number of respondents (100%) agreed that typing on the computer was not difficult (Q7). In addition, 62.5% of respondents agreed that the use of computer in the classroom made it easy for them to learn the target language words (Q4), and the same number of respondents (62.5%) agreed that learning target words through this instructional material was enjoyable (Q3). For example, the researcher commented on the positive impact of CALL on the learners' interest in their third language by stating, "*Student #7 pulled the curtain and turned on the computer. Student #4 helped him. They were really excited about playing games*" (field notes, February 25, 2014).

The results also indicated that the integration of CALL into the current English curriculum cultivated positive attitudes towards this course since all the students (100%) agreed that typing the target words on the computer was easy and enjoyable (Q9 and Q10). The field notes taken by the researcher showed that the learners, who thought that writing the target words in the notebooks was boring, were eager to participate in the activities so that they could type on the computer. As a result, their target words literacy skills were developed effortlessly and subconsciously. For instance, Student #2, Student #4 and Student #7 studied really hard because, "*They wanted to get high scores*" (field notes, March 11, 2014). Furthermore, all the respondents (100%) agreed that they liked the English class because they use computers in the classroom (Q11), and the same number of students also agreed that they want to continue to learn English through computer activities (Q15).

The integration of CALL into the English curriculum influenced the hearing-impaired learners' self-confidence and their description of themselves, in other words, their self-image. For instance, 75% of respondents agreed that thanks to the computer activities, it was quite easy for them to study for their English exam (Q6). The majority of learners (87.5%) agreed that they could easily remember the meanings of the target words thanks to the digital pictures (Q5), and the same number of respondents also agreed that they could easily understand the questions asked through this digital instructional material (Q8). For instance, the researcher commented on Student #5 by stating, "*She was hesitant to participate in the*

*activities before, but she started to take that responsibility now. She raised her hand to participate in the activities and even finger-spelled the target words enthusiastically this week*” (field notes, March 11, 2014). The field notes which were taken towards the end of the intervention sessions also pointed out the positive impact of CALL on the learners’ exam anxiety since one of the students [Student #6] came next to the researcher and signed to say that, *“I do not want to take the exam. I am afraid of it. I want to play games”* (field notes, April 8, 2014). This was also in line with another statement of the survey since the majority of learners (87.5%) agreed that they were not afraid of the scores they got during the intervention sessions (Q14) since these questions were less threatening than the paper-based exams they took. In addition, the majority of learners (87.5%) agreed that they had higher level of self-confidence (Q12), and 75% of learners agreed that they felt more successful in the classroom thanks to the computer activities (Q13).

The positive impact of CALL on the learners’ cooperative learning skills (See Appendix I) was also observed in the present study. For instance, the researcher commented on Student #3 by stating, *“She did not want to take part in the group activities. However, this week she could somehow balance her ego because she helped her friends, and she gave some clues so that they could gain scores”* (field notes, March 4, 2014). The computer activities also improved the learners’ communication skills (See Appendix I), and the researcher’s field notes also highlighted the positive impact of CALL on the learners’ communication skills. For instance, the English teacher believed that these activities became a new means of communication for the hearing-impaired learners since according to the field notes of the researcher the English teacher said, *“At first, the learners were just copying and memorizing the target words. However, they study these words through meaningful activities now, and they are given the opportunity to interact with each other to achieve a common goal”* (field notes, April 15, 2014).

**4.1.2.2 The impact of CALL on the students’ motivation: The family members’ perceptions.** This section will provide both the quantitative and the qualitative data gathered throughout the present study to examine the perceptions of the family members. To begin with, the survey (See Appendix A), which consisted of 19 questions and an introduction part that required some background information,

was administered to the family members to gather some demographic information about them (See Table 3.3 for the demographic information about the family members). This data collection tool was also utilized to get some qualitative information about their perceptions on the hearing-impaired students' education by asking questions about several topics including Turkish Sign Language, the hearing-impaired students' attitudes towards technology and the present English curriculum framework, etc. Some qualitative data were obtained from the family members before the intervention so that these qualitative data could be compared with the quantitative data gathered through the 3-point Likert-type survey (Agree/ Slightly Agree/ Disagree) consisting of 8 questions and an additional part for the family members to add comments (See Appendix C). This quantitative data collection tool was administered towards the end of the study. Both data collection tools were conducted in Turkish in order for the participants to express their thoughts and feelings more easily and effectively, and then the responses were translated into English. The translated qualitative and the quantitative data were read many times, and thematic analysis method was utilized to categorize the open-ended survey data: The themes, which were developed by the researcher, are provided below:

1. The family members' attitudes towards the hearing-impaired students' disabilities
2. The role of technology in the hearing-impaired students' lives
3. The hearing-impaired students' third language education

The open-ended survey data revealed that none of the respondents were disabled. The themes listed above indicate that the following sections will focus on the family members' attitudes towards the learners' disabilities, and they will examine the respondents' views on the third language education of the hearing-impaired learners and the role of technology in the students' lives. This section will also include the quantitative data gathered through the Likert-type survey administered to the family members (See Figure 4.2).

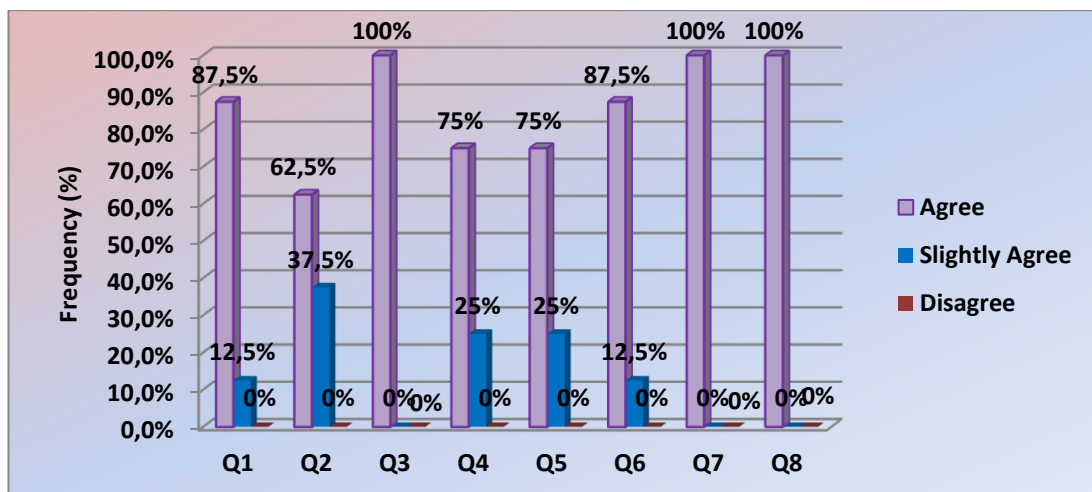


Figure 4.2. Data collected through the Likert-type survey that was administered to the family members.

4.1.2.2.1 *The family members' attitudes towards the hearing-impaired students' disabilities.* First of all, the qualitative data, which were gathered through the open-ended questions 1, 2, 3, 4, 5, 6, 7, 8 and 9 provided some general information on the family members' attitudes towards the learners' education and disabilities. As it was mentioned in Section 3.5.4, the survey questions were answered by the students' mothers and fathers, but only one of the questionnaire packs was answered by one of the students' brother. The open-ended survey questions 3 and 4 asked about the family members' knowledge of signing and lip-reading skills, and the survey question 7 asked about the communication means used by the family members to communicate with the learners. The responses of the family members showed that all of them (8 out of 8) knew Turkish Sign Language, but they also expressed their distrust in their signing skills. 4 out of 8 of the respondents had some knowledge of lip-reading, but they did not feel comfortable with their lip-reading skills. For instance, one of the respondents stated, *"I know most of the words my child uses, but I cannot sign fluently"* (Family Member #2, Male). Another participant stated, *"My child signs so quickly. It is difficult for me to understand the words she signs, but I can communicate with her"* (Family Member #6, Female). Finally, one of the respondents stated, *"When I cannot sign a word, I fingerspell it or speak slowly so that she can read my lips"* (Family Member #1, Male).

The above-mentioned results indicated that the communication means preferred within each family were not used effectively. In addition, 5 out of 8 of the respondents stated that their child was the only disabled person in the family (Survey Question 1), and the answers of the same family members for the survey question 5 and 6 showed that there was no one in their family who knew how to sign and lip-read apart from them. In other words, more than half of them were not able to communicate with more than one person in the family. As for the survey question 9, all the respondents (8 out of 8) stated that the hearing-impaired learners in the present study preferred using Turkish Sign Language when they wanted to communicate with people outside the family circle.

The responses given for the survey questions 2 and 8 highlighted the family members' attitudes towards their child's disability. To begin with, the second survey question asked about the first reactions the family members showed when they realized their child's disability. The respondents gave almost similar answers by expressing their frustrations. For instance, one of the family members stated, *"She was talking at first when she was a baby. Then, suddenly she stopped talking. When I realized her disability, I felt like my heart stopped beating"* (Family Member #5, Male). In addition, another participant described her disappointment by stating, *"He was not looking at us when we called his name. When I was informed about his disability, he was around two years old. The whole world came crashing down on me"* (Family Member #8, Female).

The survey question 10 asked about the perceptions of the family members on the education provided for the hearing-impaired learners, and the eleventh question asked them to write the reasons behind their answers if they said "No" for the survey question 10. All the participants were almost satisfied with the students' education. In addition, as for the survey question 8, which asked whether the hearing-impaired students had ever received any assistance from support services, one of the respondents underlined the positive impact of these support services on his child's performance by stating that they *"improved her academic skills"* (Family Member #5, Male). The examples given above indicated that the family members had already acknowledged the students' disabilities in spite of their first negative reactions they had mentioned since they had searched for additional support services to help the



learners in the present study.

*4.1.2.2.2 The role of technology in the hearing-impaired students' lives.* This section will examine the family members' views on the role and the significance of technology in the hearing-impaired students' lives by focusing on the survey questions 12 and 13. To begin with, the survey question 12 asked about the hearing-impaired students' attitudes towards technological tools, and the answers of the participants indicated that all the hearing-impaired students in the present study liked using technological tools. The survey question 13 asked, "*For what purposes does your child use technology?*", and the answers of the respondents revealed that the students made use of technology to search for information and to play games. For instance, one of the respondents pointed out the positive impact of technological tools on the students' self-esteem by stating, "*He [her child] sometimes types some keywords to find out information on the Internet about the topics he is interested in or the topics he studies in the classroom. He seems to be proud of himself*" (Family Member #7, Female). Another respondent stated, "*She [her child] likes playing games on the computer. She finds it enjoyable*" (Family Member #6, Female). Finally, one of the family members also commented on the positive impact of her child's computer literacy skills on his motivation to use computers by stating, "*Most of the time he uses his computer to play games. He looks really happy. Maybe, that is because he feels comfortable with his computer literacy skills*" (Family Member #8, Female).

*4.1.2.2.3 The hearing-impaired students' third language education.* This section will analyze the participants' perceptions on the role of English in the hearing-impaired students' lives and their perceptions on the present English curriculum framework. The survey question 15 asked about the respondents' views on the role of English in the hearing-impaired learners' academic and social lives. Nearly the majority of respondents (7 out of 8) were doubtful about the impact of the English class, but they did not have any negative reactions towards it. One of the family members stated, "*I am not sure. My child finds it hard to study English*" (Family Member #4, Male). Another respondent stated, "*I think my sister's foreign language skills will provide many advantages for her in the future. She may get a head start on her career*" (Family Member #3, Male).

The perceptions of the family members on the present English curriculum were also discussed. The survey question 14 asked, “*Do you think that teachers who teach hearing-impaired students, including the English teachers, the Math teachers etc., should make use of Turkish Sign Language in the classroom?*”, and all the respondents said that those who teach hearing-impaired students should use Turkish Sign Language in the classroom. The survey question 16 asked if the hearing-impaired students had ever studied English before, and the responses given by the family members revealed that the learners had no prior experience in that target language. However, one of the respondents added by stating, “*I will search for a language course for him [his child] in the future*” (Family Member #4, Male). The survey question 17 asked, “*Is there anyone in the family who can help your child learn English?*”. Unfortunately, the answers of the respondents revealed that the hearing-impaired children studied on their own since the family members had no experience in the hearing-impaired students’ target language. One of the participants stated, “*I wish I had the chance to help him [her child], but I do not know how to do that*” (Family Member #7, Female).

The survey question 18 asked the respondents to state their perceptions on the current English curriculum framework. Only one of the family members did not comment on the current curriculum and expressed himself by saying, “*I do not have enough knowledge to decide whether it is suitable or not. Sorry*” (Family Member #5, Male). On the other hand, the majority of respondents (7 out of 8) expressed their displeasure with the current curriculum framework designed for the courses in general, and three of the respondents who criticized the curriculum provided reasons as to why they were not pleased with it. For instance, one of them said, “*Each coursebook provided for these children is above their level*” (Family Member #1, Male). Another one stated, “*They [students] get bored because the coursebooks are not suitable for them*” (Family Member #2, Male). Another respondent stated, “*There are lots of topics and skills which are not suitable for the hearing-impaired students, and the curriculum developed for each subject expects our teachers to teach all these topic and skills, but it is difficult and almost impossible*” (Family Member #3, Male). Q19, which gave the respondents the opportunity to write additional comments, was skipped by all the family members.

As for the quantitative data received from the Likert-type survey (See Figure 4.2), which was administered towards the end of the study, no one selected the “disagree” option while answering the questions. To begin with, 100% of respondents underlined the positive impact of CALL on the learners’ attitudes, and they agreed that the hearing-impaired students’ attitudes towards their English teacher changed in a positive way (Q3). In addition, the majority of respondents (87.5%) agreed that the learners were excited about the computer activities (Q1), and the same number of respondents agreed that the learners felt comfortable with their computer literacy skills (Q6). Furthermore, 100% of respondents agreed that computer-assisted instruction had positive impact on the hearing-impaired learners’ self-confidence and their in-class performance (Q7), and all the respondents (100%) agreed that the use of computer-assisted instruction supported the learners’ target language (third language) acquisition process (Q8). 75% of respondents agreed with the statement, “*My child’s interest in the English class has increased*” (Q4), and the same number of respondents agreed that the learners were eager to learn English (Q5). Finally, 62.5% of respondents agreed with the statement, “*My child’s attitude towards the English class have changed in a positive way*” (Q2). The last part of the survey, which was added in order for the respondents to state their feelings and thoughts, was skipped by all the respondents.

**4.1.2.3 The impact of CALL on the students’ motivation: The teachers’ perceptions.** In order to reach further qualitative data about the participants’ (the school principal, the classroom teacher and the English teacher) perceptions on the integration of CALL into the current English curriculum, the researcher conducted semi-structured interviews (See Appendix D) with them. The participants’ responses to the second question of the interview, “*Do you think that the computer activities used in the study had a positive impact on the hearing-impaired students’ motivation to learn English?*” were categorized. The themes, which were developed by the researcher, are provided below:

1. The link between the current English curriculum framework and the hearing-impaired students’ motivation
2. The link between the computer activities used in the classroom and the hearing-impaired students’ motivation

In the following sections, the perceptions of the school principal, the classroom teacher and the English teacher will be discussed.

*4.1.2.3.1 The link between the current English curriculum framework and the hearing-impaired students' motivation.* During the interview sessions, the participants stated that they felt the need to use coursebooks especially designed for the hearing-impaired learners, and they mentioned the challenges they faced. The school principal underlined the negative impact of these books on the hearing-impaired learners' motivation by stating:

*Teaching them [students] how to write and read in English, and even in Turkish, is not effective. They can read, but sometimes they do not even understand the sentences they read. It is like parroting for them. The sentences and the instructions in the coursebooks are long and too complex for them. (personal communication, April 30, 2014)*

The classroom teacher also underlined the negative impact of the coursebooks on the social-emotional development of the hearing-impaired learners' by stating:

*The hearing-impaired people sometimes feel lonely and uncomfortable among hearing people. Unfortunately, they may also feel in the same way when teachers make them use the coursebooks that are not designed for them. For instance, one of the objectives of a unit I cover in the classroom aims at developing students' listening skills. How can I accomplish this with hearing-impaired students? Yes, we develop individualized programs for each student and study with them in person, but there should be educational resources especially designed for these students because they may feel isolated and demotivated when they face such resources throughout their lives. (personal communication, April 22, 2014)*

The sentences uttered by the classroom teacher focused on the inadequacy of the current instructional materials. The English teacher also underlined the challenges she faced by stating:

*The coursebooks we use are not suitable for the hearing-impaired students. It is not just adding or omitting activities according to the disability level of these students. We should have supplementary books or coursebooks especially designed for these students to give them the motivation to study.*  
(personal communication, April 30, 2014)

The above-mentioned results indicated that the respondents gave almost similar answers since they believed that the coursebooks did not fully meet the academic and non-academic needs of the hearing-impaired students. As a result, the inadequacy of these books could negatively affect the students' motivation.

*4.1.2.3.2 The link between the computer activities used in the classroom and the hearing-impaired students' motivation.* According to the responses of the participants, the integration of computer-assisted instructional tools may have positive impact on the hearing-impaired learners' motivation. For instance, the school principal said, *"They [students] are definitely interested in technological tools, and we should make use of these materials while designing our course schedules"* (personal communication, April 30, 2014). The classroom teacher also stated, *"They [students] like using technology because they feel comfortable with their computer literacy skills. They even talk about the games they play at home"* (personal communication, April 22, 2014). He also underlined the positive impact of computer activities on the students' interaction skills and their motivation by giving examples:

*When I ask her [one of the students in the classroom] a question or when I comment on one of her paper-based tasks in the classroom, she always behaves in a shy way. However, when I bring a computer into the classroom and cover my course through activities by using it, her attitude towards my*

*course and also her communication style with her classmates change. Most of the students in the classroom who feel nervous about completing a task, feel relieved when we make use of these technological tools in the classroom.*

(personal communication, April 22, 2014)

The English teacher commented on the concept of learner-content interaction and its impact on the hearing-impaired learners' motivation:

*Our students like using computers. However, we should consider the ethical issues and our students' [computer literacy] skills before using these technological tools. We should design these computer activities by taking these factors into account in order to be able to eliminate the possible negative effects on learner motivation.* (personal communication, April 30, 2014)

The English teacher also underlined the positive impact of computer-assisted instructional tools on the hearing-impaired learners' autonomy and self-confidence by saying:

*Students who use computers at home find it enjoyable to use it in a classroom setting, and they are comfortable with it. As you said, we call them "digital natives". They even search for the pictures of the new words I cover in the classroom and talk about them with me. They sometimes claim that they can learn the target language words on their own at home by using their computers [smiles].* (personal communication, April 30, 2014)

The English teacher also underlined the positive impact of CALL on the hearing-impaired learners' interaction skills, and she talked about a perfectionist student who most of the time denied participating in group activities with others

because she did not trust her friends' target language knowledge. According to the English teacher, these activities, which were presented as "games" or as "computer activities", lessened the stress level of the perfectionist student and her authority over her classmates at the same time, and she added:

*She was unwilling to participate in group works. However, although she showed some similar reactions while participating in the computer activities in the classroom, she was cooperating with her classmates in general, and these activities also developed her communication skills in a positive way.*  
(personal communication, April 30, 2014)

The English teacher also stated that these activities had positive impact on the hearing-impaired students' self-image and also on their attitudes towards the English class, and she talked about a student who was reluctant to take part in the activities:

*Most of the time he did not even open his notebook, and he was bored. However, now, thanks to the integration of technology in the classroom, he goes over the target words in his notebook and raises his hand to answer the questions asked during the intervention sessions. He is impatient to answer the questions, and he even prefers using the finger-spelling technique when someone else is answering a question. Simultaneously, he acquires the target language words.* (personal communication, April 30, 2014)

In general, according to the data provided above, the integration of CALL increased the learners' motivation and their vocabulary development in English, and it also cultivated positive attitudes towards the English class.

## **4.2 Conclusion**

The results of the present study were reported in this chapter, and they showed that the triangulation of both the qualitative and the quantitative data

collection tools yielded a more complete portrayal of the topic under study. The interpretation of the findings will be the focus of the following chapter.



## Chapter 5: Discussion and Conclusions

### 5.1 Introduction

The results of the present study were presented in the previous chapter. The purpose of the study was to examine the impact of CALL on the hearing-impaired Turkish students' motivation and their vocabulary development in English. The researcher aimed to investigate the perceptions of the students, the family members and the teachers to assess their views on the relationship between the computer-assisted instructional tools and the learners' motivation and performance. The following sections will discuss the implications of the findings for theoretical and pedagogical development and will also suggest avenues for future research.

### 5.2 Discussion of Findings for the Research Questions

1. What is the impact of CALL on the hearing-impaired Turkish students' vocabulary development in English?
  - a. What is the impact of CALL on the students' vocabulary development in English?
  - b. What is the impact of CALL on the students' vocabulary development in English according to the perceptions of the key stakeholders (e.g., the school principal, the classroom teacher and the English teacher)?
2. What is the impact of CALL on the hearing-impaired Turkish students' motivation according to the perceptions of the key stakeholders (e.g., the students, the family members, the school principal, the classroom teacher and the English teacher)?

Both qualitative and quantitative data collection tools are utilized to answer the questions listed above. The findings will be discussed under two sections: the impact of CALL on the hearing-impaired Turkish students' vocabulary development in English and its impact on the hearing-impaired Turkish students' motivation.

**5.2.1 The impact of CALL on the hearing-impaired Turkish students' vocabulary development in English.** In this section, the sub-questions of the first

research question will be analyzed. To begin with, the data were gathered through the English exam questions that were asked towards the end of the study, the observation checklist results of the English teacher and the researcher, the field notes taken by the researcher during the intervention sessions and also the semi-structured interviews conducted with the teachers.

The exam results of the learners were not always in line with the observation checklist results and the researcher's field notes. In other words, according to the observation checklist results and the field notes, the overall in-class performance of the students was quite well. However, the exam results highlighted that some of the students had difficulty in answering the questions that included the abstract words covered in the classroom, and they also confused the words that looked similar to each other. For example, one of the two learners, whose success rate was 50% in the first part, was intellectually disabled (25%), and the other student was profoundly deaf. As noted previously, it is difficult for the hearing-impaired learners to acquire the abstract words as it is (Özyürek, Zwitterlood & Perniss, 2010; King & Quigley, as cited in Furlonger & Rickards, 2011), and in this case, the presence of an additional disability and total deafness may complicate the learning process of these learners. As a result, it was really difficult for these two learners to grasp the meanings of these abstract words. The researcher's field notes indicated that these two students performed well while covering the target words of the first part, but the reason why they showed low performance on the examination day could be because of their low working memory skills (Marschark & Wauters, 2008, as cited in Hamilton, 2011). Thus, the findings of the present study are parallel to the findings of the research study conducted by Hansson et al. (2004) because both studies indicated that the hearing-impaired learners had smaller receptive vocabulary sizes than those children with normal hearing (as cited in Stiles et al., 2012). Another student whose success rate was 25% stated that he did not like the target words of the week, but he could answer the researcher's questions successfully in the classroom.

In the second part of the exam, the majority of learners showed low performance. The combination of the information gathered from the observation checklist results and the researcher's field notes indicated that the hearing-impaired students could remember the target language words quickly and most of the time

effortlessly in the classroom, but the low-performing students could not show the same performance on the examination day. The reason why they could not perform well could be because the target words (e.g., sunny, rainy, windy and cloudy) looked so similar according to the most of the hearing-impaired students. In other words, as it was mentioned before, hearing-impaired learners could mix the words because of their smaller receptive vocabulary sizes (Hansson et al., 2004, as cited in Stiles et al., 2012). They could not remember the words on the examination day successfully because of their low working memory skills (Marschark & Wauters, 2008, as cited in Hamilton, 2011) since the exam was administered 5 weeks after the completion of the fifth intervention session. However, an example quoted from the researcher's field notes showed that during the sixth intervention session, the majority of learners could remember the meanings of the target words and the order of the letters they had studied a week before.

The negative impact of the hearing-impaired learners' long-term working memory skills and their smaller receptive vocabulary sizes (Marschark & Wauters, 2008, as cited in Hamilton, 2011; Hansson et al., 2004, as cited in Stiles et al., 2012) was also observed in the third part of the exam. For instance, one of the students confused the word "eye" with the word "ear" and two students confused the word "hand" with the word "head". However, the observation checklist results (See Appendix I) and the field notes highlighted some positive results. As mentioned previously, the reason why the hearing-impaired students confused the above-mentioned words could be because the target words they confused looked so similar according to them. As a result, their success level might have been affected because of their low working memory skills and their smaller receptive vocabulary sizes.

Finally, all the students showed a success rate of 100% in the last part of the exam. As noted previously, according to Heward (2009), hearing-impaired children cannot learn speech and language spontaneously as do their peers with normal hearing. Houston (2009) also stated that in order to spell a word successfully, a person must remember the order of the letters which can be accomplished through verbal rehearsal, but hearing-impaired learners are unable to auditorily access speech sounds, thus they rely on their visual memory of the word. However, as discussed earlier, the long-term memory skills of hearing-impaired people are quite low in

general (Marschark & Wauters, 2008, as cited in Hamilton, 2011) which might also lessen the positive impact of their visual memory skills, and the example which was about the overall in-class performance of Student #8 revealed the relation between memory and literacy skills in general.

The results also pointed out the strategies the learners created to study their third language since the findings showed that the learners had the tendency to compare their second language and their third language. An example quoted from the researcher's field notes underlined the positive influence of the similarities between two languages. In other words, as it was discussed before, the concept "psychotypology" which was pointed out by Onishi (2013) claims that regardless of their true genetic relatedness, the similarities between two languages can facilitate the third language acquisition process of a language learner since learners may refer to their second language to comprehend their third language. For example, the findings of the present study showed that Student #1 focused on a Turkish word covered in the classroom and stated that it looked so similar to its equivalent in English. These types of similarities revealed the positive impact of the learners' knowledge of Turkish on their third language acquisition process. Because the findings of the study underlined the positive impact of the learners' second language knowledge, these results met the findings of Modirksamene's (2006) study. Modirksamene's (2006) study which had been conducted with Turkish-Persian bilinguals and Persian monolinguals indicated that the bilingual EFL learners showed high performance thanks to their previously learned monitoring strategies, and their competence in both languages enhanced their speed and facilitated their third language acquisition process (as cited in Onishi, 2013).

As a result, the hearing-impaired learners' literacy skills in Turkish should be improved as early as possible so that they can make use of their second language knowledge effectively since as it was stated before, late diagnosis and delayed rehabilitation can influence hearing-impaired learners' literacy skills in a negative way (Kemaloğlu & Kemaloğlu, 2012). In addition, hearing-impaired learners should be supported through assistive devices (e.g., hearing aids, cochlear implants, etc.), and they should be exposed to sign language as early as possible since inadequate development of first language may cause problems in education (Heward, 2009). The

aforementioned key factors showed that the learners' first and second language skills should be improved effectively in order for them to demonstrate a similar competence in their third language.

The present study underlined the positive impact of CALL on the academic performance of the hearing-impaired learners. For instance, thanks to the integration of computer activities that included the pictures of the target words covered in the classroom, it was quite easy for the learners to acquire not only the concrete words but also the abstract words. The data mentioned above also pointed out the positive impact of CALL on the learners' vocabulary development in English since the students could type or finger-spell the target words correctly most of the time in the classroom, and the majority of learners had the potential to remember the meanings of the words and the order of the letters they had studied a week before. In addition, examples quoted from the researcher's field notes showed that students had the tendency to correct their mistakes thanks to the feedback (e.g., scores) they received during the intervention sessions since the use of CALL provided immediate and corrective feedback for them, and this also enhanced their self-evaluation skills. The results gathered from the present study correlate with the results of the study conducted by Çetin et al. (2012) which was discussed earlier in this paper since both studies indicated that the students incidentally or naturally acquired the target language words through computer-assisted instruction.

A general conclusion derived from the comparison of the qualitative and the quantitative data revealed that according to the observation checklist results and the field notes, the hearing-impaired students' in-class performance was quite high in general contrary to the exam scores mentioned before. In other words, this information could only show the impact of visual images on the hearing-impaired learners' short-term memory skills (Houston, 2009), and it could indicate the negative impact of their poor working memory skills (Marschark & Wauters, 2008, as cited in Hamilton, 2011) on their vocabulary development in English (e.g., spelling mistakes, confusing the target words that looked similar according to them, etc.). As a result, in order to assess the long-term working memory skills of the learners successfully, different teaching strategies should be included by conducting a longitudinal study to improve memory and retention.

Furthermore, in order to answer the second sub-question of the first research question, semi-structured interviews were conducted with the school principal, the classroom teacher and the English teacher. First of all, the answers of the interviewees' showed that they did not feel comfortable enough to comment on the long-term impact of foreign language education on the hearing-impaired learners' lives in the future, but they were not completely against it. As mentioned previously, Onishi (2013) underlined the concept "psychotypology" to point out that regardless of their true genetic relatedness, the similarities between two languages can facilitate the third language acquisition process of learners. In the present study, the general information gathered through the semi-structured interview sessions highlighted both the positive and the negative impact of the hearing-impaired learners' second language knowledge on their third language acquisition process.

For instance, the interview results showed that the learners' familiarity with the Latin letters used in Turkish triggered their positive reactions towards English and made it easy for them to develop their target language productive skills (e.g., writing skills: spelling, recognition of the Latin letters, etc.) and even receptive skills (e.g., comprehending the meanings of the concrete and the abstract words and even the listening skills of those who were not profoundly deaf, etc.) since they could realize that these two languages shared some common features. However, the interview results also highlighted the possibility of negative language transfer, but there was no example in the present study underlining the negative impact of the similarities between the two languages. On the other hand, the general comments also highlighted that Turkish is the hearing-impaired learners' second language, and Turkish Sign Language is their first language. In other words, their second language literacy skills should be improved successfully to facilitate the acquisition of a third language. In addition, Allman (2002) pointed out that hearing-impaired learners feel the need to use some visual strategies (e.g., lipreading, signing and fingerspelling) to spell out words (as cited in Houston, 2009) which underlined the positive impact of the combination of these strategies (Total Communication) on their performance. The results of the interview sessions also pointed out the significance of Total Communication method since the interviewees also stated that teachers should use Turkish Sign Language, and they should also speak to be effective in a classroom setting where the population of children with hearing loss is not homogeneous.

The interviewees also commented on the coursebooks in general and stated that these books were not designed according to the hearing-impaired learners' level which could also influence the success level of the learners in a negative way. However, in order to eliminate this factor, the learners' second language literacy skills should be developed (e.g., their familiarity with the Latin letters, etc.). For instance, hearing-impaired learners' literacy skills can be improved by introducing them the written representations of the spoken language, and this can be accomplished by the use of the "fingerspelling" technique which is one of the visual strategies mentioned above.

The interviewees had positive comments on the impact of CALL in general since the hearing-impaired learners were visual learners according to the interview results. For instance, the participants stated that the digital pictures used in the classroom facilitated the learners' productive and receptive target language skills in general since in the present study, these visual materials could meet the hearing-impaired learners' academic needs by developing their short-term memory skills. As mentioned previously, Alexander (2009) also underlined the positive impact of visual information by stating that it provides learners with a rich environment in which they have the chance to improve a variety of literacy skills by developing a sense of how text and visuals interact. In addition, the findings of earlier studies (e.g., MacDougall, 1979, as cited in Puente et al., 2006; Strassman & O'Dell, 2012; Radovanovic, 2013; Drigas et al., 2010; Wicha et al., 2012) underlined the significance of visual information on hearing-impaired learners' performance. In other words, the results of these studies met the results of the present study since they all indicated that the visual information introduced to the hearing-impaired learners facilitated their acquisition process. The learners in the present study could also find it hard to remember the spelling of the long words because they had the tendency to focus only on the first syllable of a word. However, as it was mentioned before, various language teaching strategies could be used together with the computer-assisted instructional tools to reinforce long-term retention of a target language.

To sum up, although the English exam scores of the hearing-impaired learners could not reflect the learners' target language vocabulary knowledge effectively, the overall results of the semi-structured interview sessions generally revealed

complementary results to the aforementioned information gathered through the researcher's field notes and the observation checklist results.

**5.2.2 The impact of CALL on the hearing-impaired Turkish students' motivation.** In order to address the second research question of the present study, the researcher gathered data through the observation checklists results, the field notes, the semi-structured interviews conducted with the teachers, Likert-type scales administered to the family members and the learners and the open-ended questions prepared for the survey that was administered to the family members at the beginning of the intervention session.

The Likert-type scales answered by the learners indicated that the survey results were mostly in line with the observation checklist results and the field notes. The results gathered from these data collection tools showed that the use of CALL increased the hearing-impaired learners' interest in the English class because as noted previously, according to Prensky (2001), children who are born into a world of digital technologies, are called "digital natives". For instance, all the respondents agreed that they liked using computers and typing on the computer was not difficult for them. Furthermore, the learners' familiarity with computers triggered their motivation to study English. As it was clear from the examples quoted from the researcher's field notes, most of the time the learners were eager to take part in the activities, and more than half of the respondents agreed that learning target words through computer activities was enjoyable and easy. The reason why the number of the students who agreed with these statements was not high could be because they knew that their target language vocabulary knowledge would be tested through paper-based exams. In other words, the learners had no problem with the computer-based vocabulary instruction in general since all the respondents agreed that typing the target words on the computer was enjoyable and easy because the content of the material did not require complex computer literacy skills. The results indicated that, as it was discussed before, teachers should question the prerequisite technological skills of their learners since the materials used in the classroom should contain familiar language and clear instructions (Iverson, 2005).

In addition, the majority of learners agreed that they could easily remember the



meanings of the target words, and the reason why the learners could recall the meanings of the words almost effortlessly could be because of the positive impact of the digital flashcards or the digital pictures used throughout the intervention sessions since as discussed previously, pictures or visual information contribute to the literacy skills of the hearing-impaired learners by triggering their interest (e.g., Wright, 1989; Houston, 2009). In addition, the majority of respondents agreed that they could easily understand the questions asked through the digital instructional material used in the study. The computer activities in the present study also cultivated positive attitudes towards the English class since the majority of respondents found traditional teaching methods boring, and all the respondents agreed that they liked English since they use computers in the classroom and agreed that they wanted to continue to learn English through computer activities. As a result, the students were acquiring the meanings of the target words and the order of letters in a stress-free and a risk-free environment (Gopher et al., 1994, as cited in Tobias et al., 2011) thanks to these emotionally stimulating activities, and they were also “open” to the target language input (Krashen, 1988) psychologically. For instance, three quarters of the respondents agreed that thanks to these computer activities, it was quite easy for them to study for their English exam.

As previously mentioned, Heidegger (1992) defined the concept, “the perception of a picture” as the pictured representation of something from the real world (as cited in Kim, 2001). According to this definition, digital beings (digital information) may also represent what is in the real world. This concept was also in line with another statement of the survey since the majority of respondents agreed that they were not afraid of the scores they got during the intervention sessions, and they felt safe since these activities were less threatening than the paper-based exams they took. Learners may think that the grades they earn tend to reflect their capacity (See Section 2.3.3), and the virtual environment of digital activities provided learners with risk-free learning environments where consequences were not “dangerous” (Tompson & Dass, 2000). In other words, the scores presented throughout the intervention sessions were not the “actual grades” and they were just the “scores” of the computer activities used in the classroom. As a result, this factor lessened the learners’ foreign language learning anxiety.

These computer activities also influenced the learners' self-image (persona) which can be defined as the aspect of an individual's personality that he or she chooses to project to an audience (Sadoski, 1992). Previous research has underlined the positive impact of computer-assisted instruction on learners' self-confidence or self-image (Barak & Sadovsky, 2008; Markey et al., 2003; Henderson et al., 2005). In the present study, the integration of CALL affected the learners' self-image in a positive way by presenting them some alternative methods for communication (e.g., interactive activities). For instance, the computer activities used in the present study increased learners' communication chances (e.g., interaction with their classmates, interaction with their teacher and the researcher, etc.), and they could also enable the learners to reflect their target language knowledge effectively since these activities were more suitable to their learning abilities. For instance, the majority of respondents agreed that their level of self-confidence increased, and three quarters of the respondents agreed that their performance increased thanks to the integration of the computer activities. These results were all in line with the observation checklist results and the field notes.

The findings of the present study are parallel to the findings of the study conducted by Gömleksiz (2007) in the sense that computer-assisted instruction may enhance learners' cooperative skills through learner-centered interactive activities. In other words, it was clear from the data gathered in the present study that the integration of CALL developed the learners' cooperative and also communication skills by giving them the opportunity to participate in meaningful and interactive activities. The significance of the two primary types of motivation was discussed earlier. In other words, Csikszentmihalyi (1975) underlined the role of intrinsic motivation (as cited in Abuhamdeh & Csikszentmihalyi, 2009), and the impact of extrinsic motivation was also highlighted (Abuhamdeh & Csikszentmihalyi, 2009). In the present study, the computer activities increased the learners' intrinsic motivation by triggering their interest in the activities, and these activities also increased their extrinsic motivation since the learners were in pursuit of rewards (e.g., scores). However, as it was mentioned before, Gargiulo (2009) underlined that deaf children may be reluctant to participate in the cooperative activities if they do not find the opportunity to communicate effectively because of their language deficits. In other words, the level of the interactive activities should meet the learning

needs and abilities of students to give them the opportunity to overcome the communication problems that may affect the quality of the interaction they experience.

The researcher also assessed the perceptions of the family members on the impact of technology by utilizing a survey with open-ended questions and a Likert-type questionnaire. The qualitative data gathered from the open-ended questions were in line with the observation checklist results and the field notes, and they showed that all the students liked using computers. Some of the examples uttered by the respondents also underlined the learners' tendency and motivation to use technological tools for academic and non-academic purposes (e.g., searching for information, playing games, etc.).

The comparison of the qualitative and the quantitative data showed that although the majority of family members (7 out of 8) were doubtful about the long-term impact of the third language education on the learners' lives in the future, they were not completely against it. The results of the open-ended questions also revealed similar answers to the answers of the teachers since the majority of respondents (7 out of 8) were not satisfied with the content and the expectations of the coursebooks, and they also believed that these books were not suitable for the hearing-impaired learners. Moreover, the results obtained from the Likert-type questionnaire showed that three quarters of the respondents agreed that the use of computer activities in the classroom triggered learners' motivation to study and their interest in their third language. The majority of respondents stated that the learners were excited about the computer activities used in the present study. The majority of family members had mentioned their displeasure with the present English curriculum, and after the intervention sessions all the respondents agreed that CALL could meet the learners' educational needs by increasing their level of self-confidence because the computer activities were conducted in a nonthreatening classroom environment (Barak & Sadovsky, 2008; Markey et al., 2003). In addition, these activities also provided an appropriate language learning environment for the learners by offering them methods of presenting information that freed them from the limitations in communication and increased their participation (Roberson, 2001).

All the respondents agreed that the learners' attitudes towards their English

teacher changed in a positive way. However, only more than half of respondents agreed that the students' attitudes towards the English class changed in a positive way, and this could be because of the English exam included in the curriculum since they knew that the students would be tested through a paper-based evaluation material. As it was mentioned before, according to Iverson (2005), the quality of the interface used in a classroom setting should have features such as familiar language, clear and concise instructions, consistent formatting, etc., and the majority of respondents also stated that the hearing-impaired learners felt comfortable with the computers used in the classroom, and all the respondents believed that computer-assisted instructional tools supported the learners' target language acquisition process in a positive way.

The qualitative data gathered from the semi-structured interviews conducted with the teachers were also examined, and the results of the interview session were also in line with the observation checklist results and the field notes. To begin with, the interviewees believed that the coursebooks did not fully meet the academic and non-academic needs of the hearing-impaired students because the level of these books was above these students' learning skills, and thus they could decrease the students' motivation to study for their target language. The answers of the interviewees also suggested the positive impact of technological tools on the students' motivation and their autonomy, the students' perceptions on their self-image, their self-confidence, their interaction skills and also their attitudes towards their courses.

In the field of special education, a curriculum especially designed for students with special needs is required (Gindis, 1999). The overall results gathered from the above-mentioned data collection tools also underlined the inadequacy of the present curriculum and its negative impact on the hearing-impaired learners' motivation. The findings pointed out the stimulating impact of CALL on the hearing-impaired learners' motivation to learn a target language.

### **5.3 Theoretical and Pedagogical Implications**

Majority of the literature revealed the positive impact of computer-assisted instructional tools on students' performance and their motivation level. It is

noteworthy to mention that hearing-impaired students depend more upon their visual skills, and including visually rich materials may meet their academic and non-academic needs. For instance, as previously mentioned, the present study also echoed the significance of CALL which gave the learners the chance to use different means of communication to interact with their friends, their teachers and the researcher.

According to Krashen's "Affective Filter Hypothesis", high level of anxiety prevents learners from acquiring a target language input (Lightbown & Spada, 2006). On the other hand, as previously mentioned, Larsen-Freeman (2001) underlined Swain's "Output Hypothesis" which argues that language output gives learners the chance to focus on their target language knowledge. In other words, learners may notice the gap in their target language knowledge which may enable them to evaluate their target language skills (self-evaluation). For instance, in the present study, the integration of CALL into the current English curriculum provided learners with meaningful and engaging activities which gave them the opportunity to produce their newly acquired knowledge. As a result, they could find the chance to modify their output thanks to the feedback (e.g., scores) they gained in the vocabulary activities. As noted previously, "edutainment" is defined as the combination of education and entertainment, and the results of the present study revealed the positive impact of this method. In other words, the computer-assisted instructional tool used in the present study found the balance between the target language input and output by presenting the target language words through activities that aimed at entertaining the learners, and it also facilitated their target language production simultaneously and naturally.

Another important implication derived from the present study is related to the positive impact of constant inclusion of computer activities and the ineffectiveness of the present English curriculum. For instance, the comparison of the English exam results and the qualitative and the quantitative data which were gathered to evaluate the participants' in-class performance showed that teachers should also include some process-oriented evaluation tools especially in the field of special education so as to eliminate the possible negative impact of hearing-impaired learners' smaller receptive vocabulary sizes on their performance (Hansson et al., 2004, as cited in Stiles et al., 2012). In other words, the inclusion of process-oriented materials may give teachers the opportunity to assess the learners' skills and their academic and

non-academic needs effectively since including more than one type of evaluation tool may help teachers see the learners' progress and attitudes from a developmental perspective. This method may also enable learners to develop their target language skills by monitoring their target language knowledge and also the overall performance of their classmates.

As it was mentioned before, Luckner et al. (2012) emphasized that teachers should know the characteristics of hearing-impaired learners (e.g., literacy delays, social skills deficits, etc.) to be able to use various and appropriate instructional tools to make the content accessible to them. In addition, the above-mentioned positive results indicated that computer-assisted instructional tools should be used as supplementary tools to foster positive consequences for students' achievement and motivation even if the traditional assessment tools are the mandatory elements of the foreign language curriculum.

#### **5.4 Conclusions**

There are two main conclusions since the present study was concerned with the impact of CALL on the hearing-impaired Turkish students' motivation and their vocabulary development in English. The findings of the study revealed that although the exam scores did not reveal any significant improvement in the vocabulary learning outcomes of the learners due to some reasons mentioned before, the qualitative and the quantitative data collected in the present study underlined the positive impact of CALL on the hearing-impaired students' academic and non-academic needs. In other words, if the content of an instructional material is designed in a way that appeals to students' attention and provides meaningful and interactive learning environments according to their learning abilities, some motivating computer-assisted instructional tools can be introduced to hearing-impaired learners to increase their level of achievement. The findings also highlighted the role of evaluation tools since in order to provide a more complete and effective assessment of learners' performance, especially the performance of learners with special needs, teachers should make use of process-oriented evaluation materials along with the product-oriented evaluation techniques. To sum up, the present study proposed a step toward providing a whole child approach to the education of hearing-impaired Turkish students by focusing on their vocabulary development in English and their

motivation to learn English. However, more research is required to raise an increased awareness in this field.

### **5.5 Recommendations for Future Research**

Considering the limitations and the delimitations of the study, some suggestions for further research are presented in this section. To begin with, the study had to be completed in a limited amount of time, and in order to observe the long-term impact of CALL on the hearing-impaired students' English vocabulary development process, longitudinal studies that take more than a year can be carried out. Thus, this type of study may also reveal the impact of hearing-impaired learners' long-term memory skills on their target language acquisition process (Marschark & Wauters, 2008, as cited in Hamilton, 2011). However, in order to be able to get successful results from such a research study and to improve the long-term memory skills of the learners, some other effective teaching methods should also be used.

The study was highly context dependent since it was conducted with a small number of participants, and only a certain age group within a certain district was investigated. Thus, the findings of the present research study cannot be generalized. As a result, a further research study can be conducted with more participants from different age groups by focusing on more than one district of Turkey, if possible. In addition, the present study lacked a control group, and another study that investigates the impact of CALL on the hearing-impaired students' English vocabulary development process can be done via an experimental study. In other words, a control group with whom traditional foreign language teaching methods are used and an experimental group with whom some computer-assisted instructional tools are used can be compared since a control group can reveal the impact of an intervention more clearly and effectively. Furthermore, the present study only focused on the English vocabulary development process of the hearing-impaired learners, but a further research study can be designed to conduct a sentence-level study.

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## **APPENDICES**

**APPENDIX A**  
**THE QUESTIONNAIRE ADMINISTERED TO THE FAMILY MEMBERS**

## APPENDIX A

### VELİ ANKETİ

Aşağıdaki sorulara verilen yanıtlar işitme engelli öğrencilerimizin okul içerisindeki eğitimlerine destek olmayı amaçlamaktadır ve öğrencilerin genel durumlarıyla ilgili araştırmacıya bilgi verecektir. Yanıtlarınız hiçbir kurum ve kuruluş ile paylaşılmayacaktır. Araştırmaya ilişkin daha detaylı bilgi almak istiyorsanız, aşağıda belirtilen iletişim bilgilerini kullanabilirsiniz.

Saygı ve sevgilerimle,

Aslin ARSLANOĞLU

Bahçeşehir Üniversitesi- İngiliz Dili Eğitimi Y.L.P. Öğrencisi

E-mail:

████████████████████

Telefon:

████████████████

#### Anketi Dolduran Kişinin Bilgileri

-Yaşınız :

-Eğitim Durumunuz :

-Çocuğa yakınlık dereceniz (Örneğın; anne, baba, kardeş vs.) :

-Herhangi bir engeliniz var mı? Varsa engelinizi lütfen belirtiniz :

1) Ailenizde işitme engelli başka biri var mıdır?

.....  
.....

2) Çocuğunuzun işitme engelini nasıl ve ne zaman fark ettiniz? Ne hissettiniz?

.....  
.....

3) Türk İşaret Dili'ni biliyor musunuz? Cevabınız evet ise ne düzeyde biliyorsunuz?

.....  
.....

4) Dudak okuma yöntemini biliyor musunuz? Cevabınız evet ise ne düzeyde biliyorsunuz?

.....  
.....

5) Aile içerisinde Türk İşaret Dili'ni bilen var mıdır? Cevabınız evet ise ne düzeyde bilmektedir?

.....  
.....

6) Aile içerisinde dudak okuma yöntemini bilen var mıdır? Cevabınız evet ise ne düzeyde bilmektedir?

.....  
.....

7) Çocuğunuzla nasıl iletişim kuruyorsunuz (Örneğin; Türk İşaret Dili ve/veya dudak okuma yöntemi vs.)?

.....  
.....

8) Çocuğunuza eğitim gördüğü okul dışında destek eğitim sağlıyor musunuz (Örneğin; rehabilitasyon merkezine göndermek vs)?

.....  
.....

9) Çocuğunuz sosyal çevresi ile nasıl iletişim kurmaktadır?

.....  
.....

10) Çocuğunuzun aldığı eğitimden memnun musunuz?  Evet  Hayır

Lütfen memnun olduğunuz ya da olmadığınız yönleri belirtiniz.

.....  
.....

11) Bir önceki soruya “hayır” yanıtı verdiyseniz sizce nasıl bir eğitim ortamı ya da yöntemi çocuğunuzun eğitimini daha iyi destekleyebilir?

.....  
.....

12) Çocuğunuzun teknoloji ile arası nasıl?

.....

13) Çocuğunuz teknolojiyi hangi amaçla kullanmaktadır?

.....

.....

14) İngilizce öğretmenleri, matematik öğretmenleri de dahil olmak üzere işitme engelli öğrencilere ders veren öğretmenlerin sınıf içerisinde Türk İşaret Dili kullanmaları gerekir mi?

.....

.....

15) Sizce işitme engelli öğrencilere verilen yabancı dil eğitimi onlara eğitim ve sosyal hayatlarında avantaj sağlayacak mıdır? Kısaca açıklayınız.

.....

.....

16) Çocuğunuzun öğrenmekte olduğu yabancı dil (İngilizce) ile ilgili daha önceden bir deneyimi var mıdır? Lütfen açıklayınız:

.....

.....

17) Ailede çocuğunuza İngilizce öğrenmesi konusunda yardımcı olabilen biri var mıdır? Lütfen açıklayınız:

.....

.....

18) Kullanılmakta olan İngilizce müfredat engelli öğrenciler için yeterli midir? Cevabınız hayır ise bu müfredatın geliştirilmesi için neler önerirsiniz?

.....

.....

19) Eklemek istediğiniz başka hususlar var mıdır?

.....

.....

.....

ANKET SON BULMUŞTUR. YANITLARINIZ İÇİN TEŞEKKÜR  
EDERİM

**APPENDIX B**  
**THE EVALUATION SURVEY (FOR THE STUDENTS)**

## APPENDIX B

### ÖĞRENCİ DEĞERLENDİRME ANKETİ

Merhaba. Ben Aslin. Sizinle beraber bilgisayar ortamında İngilizce çalıştık. Aşağıda size sorular sordum ve bu soruları cevaplamanızı istiyorum. Şimdiden teşekkürler.

SORULAR	Katılıyorum	Kısmen Katılıyorum	Katılmıyorum
İngilizce alıştırmaları sadece deftere yazmak sıkıcı	☺	?	☹
Bilgisayar kullanmayı seviyorum	☺	?	☹
İngilizce kelimeleri bilgisayar ortamında öğrenmek eğlenceli	☺	?	☹
İngilizce kelimeleri bilgisayar ortamında öğrenmek kolay	☺	?	☹
Bilgisayarda gördüğüm resimler İngilizce kelimelerin anlamlarını hatırlamamı kolaylaştırıyor	☺	?	☹
Sınıfta yaptığımız bilgisayar alıştırmaları sayesinde İngilizce sınavına daha kolay çalıştım	☺	?	☹
Bilgisayarda yazı yazmak bence zor değil	☺	?	☹
İngilizce alıştırmalar bilgisayar ortamında sorulduğunda onları daha kolay anlıyorum	☺	?	☹
İngilizce kelimeleri bilgisayarda yazmak eğlenceli	☺	?	☹
İngilizce kelimeleri bilgisayarda yazmak kolay	☺	?	☹
İngilizce dersini seviyorum çünkü bilgisayar kullanıyoruz	☺	?	☹
Bilgisayar ortamındaki alıştırmalar sayesinde İngilizce dersinde kendime daha çok güveniyorum	☺	?	☹
Bilgisayar ortamındaki alıştırmalar sayesinde İngilizce derslerinde daha başarılıyım	☺	?	☹
Bilgisayar ortamında cevapladığım alıştırmalardan düşük puan alsam da kendimi güvende hissediyorum çünkü bu alıştırmalar İngilizce sınavları kadar beni korkutmuyor	☺	?	☹
Bilgisayar kullanarak İngilizce öğrenmeye devam etmek istiyorum	☺	?	☹

**APPENDIX C**  
**THE EVALUATION SURVEY (FOR THE FAMILY MEMBERS)**



## APPENDIX C

### VELİ DEĞERLENDİRME ANKETİ

Bildiğiniz gibi bir süredir öğrencilerimizin İngilizce derslerinde misafir olarak bulunuyor ve bilgisayarda İngilizce alıştırmalar çalıştırıyorum. Aşağıdaki soruları araştırmamın etkisini daha iyi değerlendirebilmem için cevaplamanızı rica edeceğim. Araştırmama katılıp bu süreçte bana destek olduğunuz için tekrar teşekkür ederim.

Velinin adı /soyadı:

Saygı ve sevgilerimle,  
Aslin ARSLANOĞLU

SORULAR	Katılıyorum	Kısmen Katılıyorum	Katılmıyorum
Çocuğum, sınıf içerisinde gerçekleştirilen bilgisayar etkinliklerinden evde heyecanla bahsediyor			
Çocuğumun İngilizce dersine karşı tutumu olumlu yönde artış gösterdi			
Çocuğumun İngilizce öğretmenine karşı tutumu olumlu yönde artış gösterdi			
Çocuğumun İngilizce dersine karşı merakı arttı			
Çocuğumun İngilizce öğrenme isteği arttı (Örn.; son İngilizce sınavına ilgiyle çalıştı vb.)			
Çocuğum sınıf içerisinde bilgisayarı rahatlıkla kullanabildiğini söylüyor			
Çocuğumun bilgisayar ortamındaki alıştırmalar sayesinde sınıf içerisinde daha rahat ve kendine güvenle İngilizce dersine katıldığına inanıyorum			
Bilgisayar destekli eğitimin çocukların İngilizce eğitimini desteklediğine inanıyorum			

Eklemek istediğiniz başka hususlar var mıdır?

**APPENDIX D**  
**THE SEMI-STRUCTURED INTERVIEW QUESTIONS (FOR THE TEACHERS)**

## APPENDIX D

### YARI YAPILANDIRILMIŞ GÖRÜŞME SORULARI

- 1- Sizce İngilizce gibi yazılı formatı olan Türkçenin, öğrencilerin üçüncü dil yazım becerileri üzerine herhangi bir olumlu ya da olumsuz etkisi var mıdır?
- 2- Sizce çalışmada kullanılmış olan bilgisayar ortamındaki alıştırmalar, işitme engelli öğrencilerin İngilizce öğrenme motivasyonları üzerine olumlu bir etki yaratmış mıdır?
- 3- Sizce çalışmada kullanılmış olan bilgisayar ortamındaki alıştırmalar, işitme engelli öğrencilerin başarıları üzerine olumlu bir etki yaratmış mıdır?
- 4- Sizce Türkiye’de işitme engelli öğrenciler için henüz başlatılmış olan yabancı dil eğitimi gelecekte onlar için olumlu akademik ve sosyal sonuçlar sağlayacak mıdır?

**APPENDIX E**  
**THE OBSERVATION CHECKLIST**

**APPENDIX E**

**OBSERVATION CHECKLIST**

**Date:** \_\_\_\_\_

**Title of the observer: English Teacher / Researcher**

**Student's Name:** \_\_\_\_\_

<b>ACTIONS OBSERVED</b>	<b>YES</b>	<b>NO</b>
<b>COOPERATION</b>		
<b>COMMUNICATION</b>		
<b>SELF-CONFIDENCE</b>		
<b>INTEREST</b>		
<b>KNOWLEDGE</b>		

**APPENDIX F**  
**THE FIELD NOTES SHEET**

**APPENDIX F**

**The Field Notes Sheet**

**Date:** \_\_\_\_\_

**1. Positive attitudes observed in the classroom:**

---

---

---

**2. Negative attitudes observed in the classroom:**

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---

---

**3. High-performing students in the classroom. Give examples.**

---

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---

**4. Low performing students in the classroom. Give examples.**

---

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**APPENDIX G**  
**EXAM QUESTIONS**



## APPENDIX G

2013-2014 Eğitim Öğretim Yılı Mimar Sinan İşitme Engelliler 6.Sınıf İngilizce Yazılısı

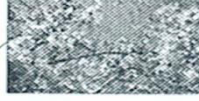
A)Aşağıda verilen mevsimleri İngilizce olarak yazınız.

summer

autumn

spring

winter



.....

.....

.....

.....

B)Kelimelerle resimleri eşleştiriniz.

(snowy, rainy, sunny, windy, cloudy)



1).....

2).....

3).....

4).....

5).....

C)Vücudun bölümlerini eşleştiriniz.

(ear , hand , leg , eye , foot)



D)Aşağıdaki kelimelerin Türkçe anlamlarını yazınız.

Lemon:

Orange:

Water:

Milk:

Salt:

Pepper:

NOT: Her soru 5 puandır..

**APPENDIX H**  
**THE CONSENT LETTER**

## APPENDIX H

Değerli Veli,

Ben Bahçeşehir Üniversitesi Eğitim Bilimleri Enstitüsü İngiliz Dili Eğitimi Yüksek Lisans Programı öğrencisiyim ve öğrencisi olduğum kurumda aynı zamanda asistan olarak görev yapmaktayım. Bir eğitmen olarak işitme engelli öğrencilerimizi daha yakından tanıyabilmek ve onları daha iyi anlayabilmek için Türk İşaret Dili eğitimi aldım ve bu kursu başarı ile bitirip sertifika almaya hak kazandım.

Bu yıl yüksek lisans eğitimimin son yılındayım ve tez çalışmam için sınıf içerisinde kullanılan bilgisayar ortamındaki alıştırmaların öğrencilerimizin yabancı dil eğitimleri üzerindeki etkisini araştırmak istiyorum çünkü dünya çapında çeşitli araştırmacılar tarafından gerçekleştirilen çalışmalarda, bilgisayar destekli eğitimin öğrencilerin dil öğrenme motivasyonlarını ve başarılarını arttırdığı görülmüştür. Bu amaçla araştırmam için okulunuzu seçmiş bulunmaktayım ve araştırmamın içeriğini değerli müdürümüz ile paylaşmak için okulunuzda misafir olduğum gün değerli öğrencilerimizin bir kısmı ile de tanışma fırsatını buldum. Bu araştırmanın amacı öğrencilerimizin yabancı dil kelime bilgisini desteklemektir ve bu amaçla zaman zaman çeşitli sınıf içi aktivitelere yer verilecektir.

Belirtmek istediğim bir diğer husus ise kullanılacak olan eğitim materyallerinin araştırmacı tarafından güvenli eğitim kaynaklarından özenle seçilmiş olduğu ve bu aktivitelerin İngilizce öğretmeninin gözetiminde uygulanacak olmasıdır. Araştırma sırasında edinilen hiçbir bilginin başka kurum ve kuruluşlarla paylaşılmayacağını, araştırmanın içeriğinin değerli öğrencilerimize hiçbir anlamda zarar vermeyeceğinin ve bu konuda sizler kadar hassas olduğumun güvenini özellikle vermek isterim. Bu anlamda Milli Eğitim Bakanlığı'nın, okul müdürümüzün, rehber öğretmenimizin, sınıf öğretmenimizin ve İngilizce öğretmenimizin de bilgisi dahilinde yapılacak olan yaklaşık 3,5 ay sürecek olan bu çalışmayı yapabilmek için öncelikle sizlerin izin ve onayınızı almam gerekmektedir. Yabancı dil eğitimini desteklemeyi amaçlayan bu çalışmamda beni destekleyeceğinizi umuyorum. Konu ile ilgili sorularınız olursa çekinmeden aşağıda paylaştığım iletişim bilgilerimden bana ulaşabilirsiniz.

Desteğiniz için şimdiden çok teşekkürler.

### VELİ İZİN FORMU

**Araştırmacı tarafından araştırma konusu hakkında paylaşılan genel bilgileri anladım ve çocuğumun öğretmenlerinin de bilgisi dahilinde gerçekleştirilecek olan bu çalışmaya katılmasına:**

**İzin veriyorum**  **İzin vermiyorum**

Ad- Soyadı:

İmza:

Saygı ve sevgilerimle,

Aslin ARSLANOĞLU

E-mail:

Telefon:

**APPENDIX I**  
**THE OBSERVATION CHECKLIST RESULTS**

## APPENDIX I

### THE OBSERVATION CHECKLIST RESULTS

Student #1	Cooperation		Communication		Self-Confidence		Interest		Knowledge	
	T	R	T	R	T	R	T	R	T	R
WEEKS										
Week 1	1	1	1	0	0	0	1	1	1	0
Week 2	1	1	1	0	0	0	1	1	1	0
Week 3	1	1	1	1	0	0	1	1	1	1
Week 4	1	1	1	1	1	1	1	1	1	1
Week 5	1	1	1	1	1	1	1	1	1	1
Week 6	1	1	1	1	1	1	1	1	1	1
Week 7	1	1	1	1	1	1	1	1	1	1
Week 8	1	1	1	1	1	1	1	1	1	1
Week 9	1	1	1	1	1	1	1	1	1	1
Week 10	1	1	1	1	1	1	1	1	1	1
Percentage of Agreement (%)	100%		80%		100%		100%		80%	

Student #2	Cooperation		Communication		Self-Confidence		Interest		Knowledge	
	T	R	T	R	T	R	T	R	T	R
WEEKS										
Week 1	0	0	1	1	0	0	0	0	0	0
Week 2	0	0	0	0	1	1	0	0	0	0
Week 3	0	1	1	1	0	0	0	0	1	1
Week 4	1	1	1	1	1	1	1	1	1	1
Week 5	1	1	1	1	1	1	1	1	1	1
Week 6	0	0	0	0	1	1	1	1	1	1
Week 7	1	1	1	1	1	1	1	1	1	1
Week 8	1	1	1	1	1	1	1	1	1	1
Week 9	1	1	1	1	1	1	1	1	1	1
Week 10	1	1	1	1	1	1	1	1	1	1
Percentage of Agreement (%)	90%		100%		100%		100%		100%	

Student #3	Cooperation		Communication		Self-Confidence		Interest		Knowledge	
WEEKS	T	R	T	R	T	R	T	R	T	R
Week 1	0	0	1	1	0	1	1	1	1	1
Week 2	0	0	1	1	1	1	1	1	1	1
Week 3	1	0	1	0	0	1	1	1	1	1
Week 4	1	1	1	1	0	1	1	1	1	1
Week 5	1	1	1	1	1	1	1	1	1	1
Week 6	1	1	0	1	1	1	1	1	1	1
Week 7	1	1	1	1	1	1	1	1	1	1
Week 8	1	1	1	1	1	1	1	1	1	1
Week 9	1	1	1	1	0	0	1	1	1	1
Week 10	1	1	1	1	1	1	1	1	1	1
Percentage of Agreement (%)	90%		80%		70%		100%		100%	

Student #4	Cooperation		Communication		Self-Confidence		Interest		Knowledge	
WEEKS	T	R	T	R	T	R	T	R	T	R
Week 1	0	0	0	0	0	0	0	0	0	0
Week 2	1	0	1	0	0	0	0	0	0	0
Week 3	1	1	1	1	1	1	1	1	1	1
Week 4	1	1	1	1	1	1	1	1	1	1
Week 5	1	1	1	1	1	1	1	1	1	1
Week 6	1	1	1	1	1	1	1	1	1	1
Week 7	1	1	1	1	1	1	1	1	1	1
Week 8	1	1	1	1	1	1	1	1	1	1
Week 9	1	1	1	1	1	0	1	1	1	1
Week 10	1	1	1	1	1	1	1	1	1	1
Percentage of Agreement (%)	90%		90%		90%		100%		100%	

Student #5	Cooperation		Communication		Self-Confidence		Interest		Knowledge	
WEEKS	T	R	T	R	T	R	T	R	T	R
Week 1	0	0	1	0	0	0	1	1	0	0
Week 2	1	1	1	1	0	0	1	1	0	0
Week 3	1	1	1	1	0	0	1	1	1	1
Week 4	1	1	1	1	0	0	1	1	1	1
Week 5	1	1	1	1	1	1	1	1	1	1
Week 6	1	1	1	1	1	1	1	1	0	1
Week 7	1	1	1	1	1	1	1	1	1	1
Week 8	1	1	1	1	1	1	1	1	1	1
Week 9	1	1	1	1	1	1	1	1	1	1
Week 10	1	1	1	1	1	1	1	1	1	1
Percentage of Agreement (%)	100%		90%		100%		100%		90%	

Student #6	Cooperation		Communication		Self-Confidence		Interest		Knowledge	
WEEKS	T	R	T	R	T	R	T	R	T	R
Week 1	1	1	0	0	0	0	0	0	0	0
Week 2	1	1	0	1	1	1	1	1	0	0
Week 3	1	1	1	1	1	1	1	1	1	1
Week 4	1	1	1	1	1	1	1	1	1	1
Week 5	1	1	1	1	1	1	1	1	1	1
Week 6	1	1	1	1	1	1	1	1	1	1
Week 7	1	1	1	1	1	1	1	1	1	1
Week 8	1	1	1	1	1	1	1	1	1	1
Week 9	1	1	1	1	1	1	1	1	1	1
Week 10	1	1	1	1	1	1	1	1	1	1
Percentage of Agreement (%)	100%		90%		100%		100%		100%	

Student #7	Cooperation		Communication		Self-Confidence		Interest		Knowledge	
WEEKS	T	R	T	R	T	R	T	R	T	R
Week 1	0	0	0	0	1	1	1	1	0	0
Week 2	0	0	0	1	0	0	1	1	0	0
Week 3	1	1	1	1	1	1	1	1	1	1
Week 4	1	1	1	1	1	1	1	1	1	1
Week 5	1	1	1	1	1	1	1	1	1	1
Week 6	1	1	1	1	1	1	1	1	1	1
Week 7	1	1	1	1	1	1	1	1	1	1
Week 8	1	1	1	1	1	1	1	1	1	1
Week 9	1	1	1	1	1	1	1	1	1	1
Week 10	0	0	0	0	1	1	0	0	1	1
Percentage of Agreement (%)	100%		90%		100%		100%		100%	

Student #8	Cooperation		Communication		Self-Confidence		Interest		Knowledge	
WEEKS	T	R	T	R	T	R	T	R	T	R
Week 1	0	0	1	0	0	0	0	0	0	0
Week 2	0	0	0	0	0	0	0	0	0	0
Week 3	1	1	1	1	1	1	1	1	1	1
Week 4	1	1	1	1	1	1	1	1	1	1
Week 5	0	0	1	1	1	1	1	1	1	1
Week 6	1	1	1	1	1	1	1	1	1	1
Week 7	1	1	0	0	1	1	1	1	1	1
Week 8	1	1	1	1	1	1	1	1	1	1
Week 9	1	1	1	1	1	1	1	1	0	1
Week 10	0	0	0	0	1	1	0	0	1	1
Percentage of Agreement (%)	100%		90%		100%		100%		100%	

**APPENDIX J**  
**CURRICULUM VITAE**



**APPENDIX J**  
**CURRICULUM VITAE**

**PERSONAL INFORMATION**

Surname, Name: Arslanoğlu, Aslin

Nationality: Turkish (TC)

Date and Place of Birth: 14 September 1988, Istanbul

Marital Status: Single

E-mail: aslina88@hotmail.com

**EDUCATION**

<b>Degree</b>	<b>Institution</b>	<b>Year of Graduation</b>
BA	Bahçeşehir University	2010
High School	Pangaltı High School	2006

**WORK EXPERIENCE**

<b>Year</b>	<b>Place</b>	<b>Enrollment</b>
2012-Present	Bahçeşehir University	Academic Assistant
2010-2011	Pangaltı High School	English Teacher
2009	Hürriyet Daily News and Economic Review	Intern

**FOREIGN LANGUAGES**

English (fluent), Spanish (intermediate), Turkish Sign Language (intermediate)

**CERTIFICATES**

Turkish Sign Language – Kariyer Adam (2013)	Ankara, Turkey
Writing Course - Yıldız Technical University (2012)	Istanbul, Turkey
Instituto Cervantes Estambul (2009)	Istanbul, Turkey

"Facing the Past / Facing the Future: History, Memory, Literature" (2009)  
Istanbul, Turkey

## **PUBLICATIONS**

### **Year**

- |      |   |
|------|---|
| 2012 | Short story translation<br>published in a literary<br>magazine called "Lacivert"<br>(James Thurber "Mr Preble<br>Gets Rid of His Wife") |
| 2012 | Story ("Ağıt") published<br>in a literary magazine called<br>"Galapera Fanzin"  |
| 2011 | Short story translation<br>published in a literary magazine<br>called "Lacivert" (Langston Hughes,<br>"Thank You, M'am")                |

## **HOBBIES**

Reading, Writing, Watching movies, Doing puzzles, Learning new languages, Caring for street animals, Jogging, Zumba, Pilates

**APPENDIX K**  
**TURKISH SUMMARY**

## APPENDIX K

### TURKISH SUMMARY

#### 1. Bölüm: Giriş

Bu bölüm, arařtırmayı kısaca tanıtmakta, arařtırmanın ortaya ıkmasını tetikleyen problemleri ve ayrıca arařtırmanın amacı ve önemi ile ilgili genel bilgileri sunmakta ve işlemsel tanımlara yer vermektedir. Bu alıřma, öğretmenlere daha bütüncül bir yaklaşım sunarak engelli öğrenciler de dâhil olmak üzere tüm öğrencilere eşit eğitim fırsatları sunmaları ile ilgili mesajlar vermekte ve işitme engelli öğrencilerin yabancı dil (İngilizce) kelime kazanım süreçlerine odaklanmaktadır.

Bilgisayar destekli eğitim materyalleri, bilginin deęişik ve ilgi çekici bir biçimde tanıtılmasını sağlamakta ve öğrencilerin akademik ve akademik olmayan ihtiyaçları üzerine olumlu etkide bulunabilmektedir (Örneęin; Strassman & O'Dell, 2012; Markey, Power & Booker, 2003; Radovanovic, 2013). Aynı zamanda, ülkemizde de bu tür materyallerin öğrencilerin yabancı dil öğrenim süreçlerine olumlu etkileri olduęu yapılan arařtırmalarda gözlemlenmiştir (Örneęin; Çetin, Sözcü & Kınay, 2012). Ancak, ülkemizde işitme engellilerin yabancı dil eğitiminin ve bu eğitimde kullanılan dijital eğitim araç ve gereçlerinin rolünün incelendięi bir arařtırma ile karşılaşılmamıştır.

Bu arařtırmanın temel amacı, işitme engelli öğrencilerin yabancı dil kelime kazanımları ve motivasyonları üzerinde bilgisayar destekli eğitim araçlarının rolünü incelemek ve eğitimciler, öğrenciler ve ebeveynler ile bu alan hakkında bilgi paylaşımı gerçekleřtirmektir. Arařtırmacı, bu amacı gerçekleřtirmek için öğrencilerin arařtırma sonunda elde edilen İngilizce sınav sonuçlarına, gözlem sırasında kendi tutmuş olduęu notlara, İngilizce öğretmeni ile birlikte doldurmuş oldukları gözlem formlarının sonuçlarına ve aynı zamanda bir takım ikincil verilere (Örneęin; öğrencilerin saęlık raporları vs.) odaklanmıştır. Arařtırmacı, katılımcıların görüşlerini inceleyebilmek için ise İngilizce öğretmeni, sınıf öğretmeni ve okul müdürü ile yarı yapılandırılmış görüşmeler gerçekleřtirmiş, arařtırmanın

başında aile üyelerine açık uçlu sorular içeren bir anket uygulamış ve son olarak da araştırmanın sonuna doğru öğrencilere ve aile üyelerine Likert tipi anketler uygulamıştır. Bu bölümde ayrıca, araştırma süresince değişkenlerin nasıl değerlendirildiği ile ilgili de birtakım işlemsel tanımlar sunulmuştur.

## **2. Bölüm: Alan Yazın Taraması**

Bu bölüm, “sağır” ve “duyma zorluğu olan” terimleriyle ilgili bilgiler vermekte ve işitme engellilerde iki kültürlülük ve iki dillilik ile ilgili bilgiler paylaşmaktadır. Bu bölümde ayrıca işaret dilleri ve konuşma dilleri arasındaki ilişki ile ilgili genel bir bakış sunulmakta, yabancı dil öğretim yöntemleri, yabancı dil eğitiminde teknolojinin kullanımı ve bu yöntemin işitme engelli öğrencilerin motivasyon ve başarıları üzerine etkisi ile ilgili bilgiler de verilmektedir.

İşitme engelliler ile iletişim kurarken kullanılmakta olan farklı yaklaşımlar ve yöntemler mevcuttur (Örneğin; duymasal-sözel yöntem, işaret dili, tüm iletişim yöntemi, parmak alfabesi, dudak okuma vb.). Ülkemizde yoğun olarak kullanılmakta olan üç yöntem ise dudak okuma yöntemi, parmak alfabesi ve Türk İşaret Dili (TİD)'dir. Ancak, Türk İşaret Dilinin gerekliliği 1980'lerden itibaren anlaşılmaya başlamıştır. Ülkemizdeki işitme engellilerin ana dilleri Türk İşaret Dili olduğundan Türkçeye çok hâkim değildirler ve uzun cümleleri doğru bir biçimde kurmak ve anlamak konusunda oldukça zorlanmaktadırlar. Başka bir ifadeyle, Türk İşaret Dili kendine özgü dil bilgisi kurallarına sahip olup (Örneğin; bu dilde ekler yok denecek kadar azdır) Türkçeden tamamen bağımsız bir dildir.

İşitme engelli öğrencilerin, sınıflarında kullanabilecekleri düzeylerine uygun kitap olmadığından sınıf içerisinde işaret dilini kullanma ihtiyacı doğmaktadır. Örneğin; Grosjean'a (2010) göre kimi zaman işaret dili sınıf içerisinde açıklamalar yapmak için kullanılabilir. Bireylerin işaret dili becerilerinin tam anlamıyla gelişmemesi akademik ve akademik olmayan becerilerini olumsuz yönde etkileyebildiğinden yardımcı cihazlarla (Örneğin; işitme cihazı, koklear implant vb.) ve diğer yöntemlerle (Örneğin; işaret dili tercümanı) erkenden tanıştırmaları gerekmektedir.

Geleneksel ve geleneksel olmayan öğretim yöntemlerinin kıyaslanmasında

dijital eğitim materyallerinin öğrencilerin başarıları ve motivasyonları üzerine etkileri gözlemlenmiştir. Schmitt'e (2000) göre bir kelimenin anlaşılır olması, öğrencilerin hedef kelimeyi kavrama ve kullanma becerilerinin gelişmiş olması demektir. Krashen'in "Edinme-Öğrenme" ayrımına göre bizler bir dilin örneklerine (o dilde anlaşılır mesajlara) maruz kaldığımızda o bilgileri tıpkı ana dilimizi öğrenme sürecimize benzer bir süreçte edinebilmekteyiz; ancak bir dili "öğrenmek", o dilin kurallarını çalışmak ve bunun için bilinçli bir çaba göstermekle gerçekleşmektedir (Lightbown & Spada, 2006). Bir dili doğal bir şekilde edinebilmek için, Krashen'a (1988) göre öğrencilerin öğrenmeye "açık" olmaları gerekmektedir ve Krashen'in "Etkili Filtre Hipotezi"ne göre öğrencilere sunulan bilgi öğrenciler için ne kadar anlaşılır olursa olsun eğer öğrencilerin endişe düzeyi yüksekse bu onların hedef dil hakkında sunulan bilgiyi anlamalarını güçleştirmektedir (Lightbown & Spada, 2006). Bu sebeple, öğrencilerin olumsuz endişe düzeyini azaltacak yöntemler geliştirmek ve onların içsel güdülenme (Csikszentmihalyi, 1975; akt. Abuhamdeh & Csikszentmihalyi, 2009) ve dışsal güdülenme (Abuhamdeh & Csikszentmihalyi, 2009) düzeylerini yükseltmek gerekmektedir.

Öğrencilerin öğrenme motivasyonları ve başarılarını yükseltmek için ise eğlence ve eğitim kavramlarının bir araya geldiği "edutainment" (Eğitlence) kavramına odaklanılmaktadır. Bu yazılım türü, Gros (2003)'ün de açıkladığı gibi kullanıcıları/öğrencileri sadece akademik konulara ya da hedeflere değil aynı zamanda eğlenceli hedeflere de yönlendirmektedir (akt. DeVary, 2008). Böylece kullanıcılar oyun oynadıkları esnada farkında olmadan hedef bilgiyi edinebilme şansına sahip olmaktadır. Öğretme, Gagne'nin (1965) açıklamış olduğu dokuz adıma göre, dikkat çekme, öğrenciyi hedef hakkında bilgilendirme, ön öğrenmenin hatırlatılmasını sağlama, içeriği sunma, öğrenme konusunda rehberlik sağlama, performansı ortaya çıkarma, dönüt sağlama, performansı değerlendirme ve kalıcılığı sağlama adımlarından oluşmalıdır (akt. Iverson, 2005). Yeni nesil artık dijital bir kültür içerisinde doğmuş olup artık "dijital yerliler" olarak tanımlanmaktadır (Prensky, 2001). Bu sebeple öğrencilerin ihtiyaçları değişmiş ve akademik ve akademik olmayan ihtiyaçlarını karşılayabilmek için kullanılacak olan eğitim materyallerinin de bu değişikliğe uygun olarak geliştirilmesi ve değiştirilmesi ihtiyacı ortaya çıkmıştır.

Heidegger'ın (1992) “bir resmin algılanması” ile ilgili düşüncesi gerçek dünyadaki herhangi bir şeyin resmedilmiş temsili olarak tanımlanabilmektedir (akt. Kim, 2001) ve dijital ortamda öğrencilerin yapmış oldukları eylemler sonucu aldıkları dönütler (Örneğin; puanlar) de bir bakıma gerçekte almış oldukları ya da alacakları puanların/notların birer yansıması sayılabilmektedir. Bu dönütlerin oyun sırasında alınan puanlar şeklinde sunulması ise öğrencilerin geleneksel yöntemlerle almış oldukları ya da alacakları puanlara kıyasla (Örneğin; kâğıt üzerinde gerçekleştirilen sınavlardan aldıkları notlar) daha olumlu bir etkiye sahiptir. Bunun sebebi ise, “oyun” adı altında sunulan bu alıştırmalar öğrencilerin bakış açısına göre tehlikesiz bir ortamda sunulmaktadır ve öğrenciler de böylece yanlış yapma konusunda çekinmeden bilgilerini test etme şansına sahip olabilmektedirler. Swain'in “Çıktı Hipotezi”ne göre öğrenciler sahip oldukları bilgileri doğrultusunda hedef dildeki yapıları ürettiklerinde, bu yapıların nasıl oluşturuldukları ve ne zaman kullanıldıkları hakkında kendilerini ve kendilerince kurmuş oldukları hedef dil hakkındaki hipotezlerini test etme şansını bulabilmektedirler (akt. Larsen-Freeman, 2001). Örneğin, ülkemizde gerçekleştirilen, sosyal ağ oyunlarının 248 Türk öğrencinin kelime kazanımları üzerine etkisinin incelendiği bir araştırmaya göre, bu tür oyunların birtakım pedagojik faydalarının olduğu ve öğrencilerin “şans eseri” hedef dildeki kelimeleri edindikleri gözlemlenmiştir (Çetin ve ark., 2012).

Bu bölümde ayrıca, bilgisayar destekli eğitim materyallerinin etkinliği üzerinde öğretmenlerin rolü de incelenmiştir. Oyun içerisinde yer alan eğlendirici ve eğitici hedefler arasında eşit dengenin sağlanması gerektiği (Brom, Sisler & Slavik, 2010) ve özel eğitim alanında çalışan öğretmenlerin işitme engelli öğrencilerin özellikleri ile ilgili birtakım bilgilere sahip olması gerektiği (Luckner, Slike & Johnson, 2012) türden bilgiler öğretmenlerin eğitici materyaller üzerindeki etkisini özetleyen örnekler arasındadır.

İşitme engelli öğrencilerin bir kelimeyi doğru yazabilmeleri için harflerin diziliş sırasını doğru bilmeleri gerekmektedir ve işitme engelli öğrenciler hedef bilgiyi işitsel anlamda etkili bir biçimde edinemediklerinden ağırlıklı olarak görsel verilere odaklanmaktadır (Örneğin; Houston, 2009; Radovanovic, 2013). Bu sebeple, bilgisayar destekli eğitim materyallerinin eğitim programlarına dâhil edilmesi, işitme engelli öğrencilerin hedef dile karşı olan ilgilerinin ve aynı zamanda

onların iletişim ve işbirliği becerilerinin artmasını sağlayabilmektedir. Örneğin; Roberson'a (2001) göre eğitim teknolojisi, bilginin birtakım görsel yöntemler ile sunulmasını sağlayarak işitme engelli öğrencilerin sadece işitmeye dayalı iletişim gerektiren yöntemlerden kurtulmaları konusunda onlara yardımcı olmuştur.

Yukarıdaki bilgiler gösteriyor ki, işitme engelli öğrencilerin yabancı dil becerileri ve motivasyonları birtakım dijital materyallerin de programa eklenmesiyle arttırılabilmektedir. Başka bir ifadeyle, bu materyaller işitme engelli öğrencilerin özerklik, öz değerlendirme, kişilerarası iletişim ve işbirliği becerilerinin artması konusunda alternatifler sunmaktadır.

### **3. Bölüm Yöntem**

Bu bölümde, araştırmanın felsefi paradigması ve modeli, araştırma sorunsalı, çalışmanın gerçekleştirildiği yer ve çalışma grubu, veri toplama araçları ve verilerin analizi, araştırmanın güvenilirliği, geçerliliği ve araştırmanın etiği ve son olarak da araştırmada doğan sınırlılıklar ve araştırmacının belirlediği sınırlılıklar hakkında bilgi verilmiştir.

Bu çalışmada pragmatik bir yaklaşım tercih edilmiş ve karma araştırma deseni kullanılmıştır çünkü bu yaklaşım paradigmalardan sadece birini seçmekle ilgili tartışmaları reddetmekte ve yöntemler, kaynaklar, analizciler ve kuramları birlikte harmanlayarak değerlendirmektedir.

#### Araştırma Sorunsalı:

Bu araştırmanın amacı bilgisayar destekli dil eğitiminin (BDDE) işitme engelli Türk öğrencilerin motivasyonları ve bu öğrencilerin İngilizce kelime dağarcığı gelişimi üzerine etkisini araştırmaktır. Bu amaç doğrultusunda araştırmacı tarafından aşağıdaki sorular sorulmuştur:

1. BDDE'nin işitme engelli Türk öğrencilerin İngilizce kelime dağarcığı gelişimi üzerine etkisi nedir?

a. BDDE'nin öğrencilerin İngilizce kelime dağarcığı gelişimi üzerine etkisi nedir?



b. İlgili kişilerin (Örneğin; Okul müdürü, sınıf öğretmeni ve İngilizce öğretmeni) bakış açısına göre BDDE'nin öğrencilerin İngilizce kelime dağarcığı gelişimi üzerine etkisi nedir?

2. İlgili kişilerin (Örneğin; Öğrenciler, veliler, okul müdürü, sınıf öğretmeni ve İngilizce öğretmeni) bakış açısına göre BDDE'nin işitme engelli Türk öğrencilerin motivasyonları üzerine etkisi nedir?

#### Araştırmanın Gerçekleştirildiği Yer:

Araştırma, Fatih ilçesinde bulunan Mimar Sinan İşitme Engelliler İlköğretim Okulu'nda gerçekleştirilmiştir. Araştırmanın gerçekleştirildiği okul 2013-2014 eğitim ve öğretim yılında beşinci ve altıncı sınıflara İngilizce dersleri vermeye başlamıştır.

#### Araştırma Grubu:

Öğrenciler: Araştırmacı sadece altıncı sınıfın 6/A grubuna odaklanmıştır. Araştırmada toplam 8 öğrenci (4 kız ve 4 erkek) bulunmakta ve her bir öğrenci de ana dilleri olan Türk İşaret Dili konusunda oldukça başarılılardır.

Öğretmenler: Araştırmaya ayrıca okul müdürü, sınıf öğretmeni ve İngilizce öğretmeni de katılmıştır. Araştırmacının bu çalışmaya okul müdürünün de katılmasını isteme sebebi okul ve okulun yabancı dil eğitim politikaları hakkında bilgi toplamaktır. Araştırmaya sınıf öğretmenin dâhil edilmesinin sebebi, öğretmenin kendi branşı Sosyal Bilgiler olmasına rağmen ikinci bir bölüm olarak araştırmanın gerçekleştirildiği sırada İngilizce çevirmenlik bölümünde okuyor olmasıdır. Ayrıca, öğrencilerin ana dillerini de okula yeni başlayan öğretmenler ve öğrencilere bu konuda eğitim verecek kadar iyi bilmektedir. Sonuç olarak, her iki dile de aşina olduğu için sınıf öğretmenin araştırmaya katkı sağlayacağı düşünülmüştür. İngilizce öğretmenin bu araştırmaya dâhil edilmesinin sebebi araştırmacı ile birlikte uygulamaya yakından tanık olarak sınıf içi gözlemlere araştırmacı ile birlikte katılıp ikinci ve farklı bir gözle katkıda bulunabilecek olmasıdır.

Aile Üyeleri: Araştırmaya aile üyelerinin katılmasının sebebi öğrenciler

hakkında daha detaylı bilgi almak ve bu araştırmanın bir de aile üyelerinin gözünden değerlendirilmesini sağlamaktır.

### Veri Toplama Yöntemleri:

Anketler: 19 adet açık uçlu soru ve bir de anketi cevaplayan kişi hakkında bilgi isteyen kısa bir giriş bölümünden oluşan ve araştırmanın başında aile üyelerine dağıtılan anket, katılımcılar hakkında birtakım bilgiler talep etmiş ve Türkçe olarak uygulanmıştır. Anketin amacı ise aile üyelerine çeşitli konular hakkında (Örneğin; öğrencilerin teknolojiye karşı olan tutumları, aile üyelerinin kullanılmakta olan müfredat hakkındaki görüşleri vb.) sorular sorup onlardan birtakım nitel veriler elde etmektir. Nicel veriler ise araştırmanın sonuna doğru aile üyelerine uygulanmış olan 8 soru ve bir de yorum için ayrılmış olan bölümden oluşan Likert tipi ölçek ve yine araştırmanın sonuna doğru öğrencilere uygulanan 15 soruluk Likert tipi ölçekten oluşmaktadır. Bu ölçekler, uygulamanın etkisi ile ilgili birtakım sorular içermektedir.

Görüşme: Öğretmenlerin (Örneğin; okul müdürü, sınıf öğretmeni ve İngilizce öğretmeni) işitme engelli öğrenciler ve genel müfredat hakkındaki görüşleri ve araştırma için uygulanan yöntemin etkisi ile ilgili görüşlerini almak için yarı yapılandırılmış görüşmeler düzenlenmiştir. Bu görüşmeler Türkçe uygulanmıştır.

Gözlem: Araştırmacı ayrıca nitel anlamda detaylı veri sağlayan sınıf içi gözlem notları almış ve uygulamaya dayalı nicel veri sağlayan ve her bir öğrencinin haftalık durumunun takip edilmesi için İngilizce öğretmeni ile birlikte tutulması gereken gözlem formlarını işaretlemiştir. Bu gözlem formları İngilizce hazırlanmış, “Evet” ve “Hayır” seçeneklerinden oluşmuş ve gözlemcilerin işaretlemeleri için beş ayrı başlık içermektedir (Örneğin; işbirliği, iletişim, kendine güven, ilgi ve bilgi).

İkincil Veriler: Okuldaki rehber öğretmen aracılığıyla öğrenciler hakkında bilgi toplamak için (Örneğin; engel düzeyleri ve yaşları) öğrencilerin sağlık raporlarına ulaşılmıştır.

İngilizce Sınav: Araştırma sonuna doğru bilgisayar destekli dil eğitiminin etkisinin ölçülmesi için öğretmen tarafından hazırlanmış olan bir İngilizce sınav uygulanmıştır. Sınav, sınıf içerisinde işlenmiş olan soyut ve somut kavramlardan oluşmuştur ve aynı zamanda öğrencilerden bazı İngilizce kelimelerin de Türkçe

karşılıklarının yazılması istenmiş ve ayrıca eşleştirme sorularına da yer verilmiştir.

Uygulamada Kullanılan Materyal: Uygulama sırasında “Quizlet” isimli bir internet sitesinden yararlanılmıştır. Bu sitede araştırmacı işlenen konulara göre kelime aktiviteleri hazırlama ve bu kelimelerin her biri için de dijital resimler ekleme ve kullanma şansına sahip olmuştur.

#### Veri Analizi:

Araştırmada tek bir yöntemden doğacak olası zayıflıklara karşı karma araştırma deseni uygulanmıştır. Ancak, araştırmacının nitel özelliği daha ağır basmaktadır. Araştırmada elde edilen nicel veriler şu şekildedir: Öğrencilerin İngilizce sınav sonuçları, İngilizce öğretmeni ve araştırmacının gözlem formlarından elde edilen sonuçlar arasındaki anlaşma yüzdesi  $(\frac{\text{Görüş Birliği}}{\text{Görüş Birliği} + \text{Görüş Ayrılığı}} \times 100)$  ve öğrenci ve son olarak aile üyelerine uygulanan Likert tipi ölçeklerden elde edilen sonuçlar. Bu veri toplama yöntemleriyle toplanan sonuçlar için betimsel istatistiklere yer verilmiş ve Microsoft Excel programı kullanılmıştır. Araştırmada elde edilen nitel veriler arasında öğretmenlere uygulanan yarı yapılandırılmış görüşmeler ve açık uçlu sorulardan oluşan ve araştırmacının başında aile üyelerine dağıtılmış olan anketlerden elde edilen sonuçlar yer almaktadır. Bu veriler tematik açıdan incelenmiştir. Görüşmeler yazıya aktarılmış ve İngilizceye tercüme edilmiştir. Çeviriler birçok kez kontrol edilmiş ve analiz için birtakım temalar oluşturulmuştur. Açık uçlu sorulardan elde edilen veriler de İngilizceye çevrilmiş, birçok kez kontrol edilmiş ve birtakım temalara göre gruplandırılmıştır. Araştırmacının gözlem sırasında almış olduğu notlar incelenmiştir. Bütün bu nitel veriler Microsoft Word programı kullanılarak düzenlenmiştir.

#### Araştırmanın Geçerliliği, Güvenirliği ve Araştırma Etiği:

Araştırma sırasında yöntemler, kaynaklar, analizciler ve kuramlar harmanlanmıştır. Örneğin; nitel ve nicel yöntemlere, birden fazla kaynağa ve analiz ve gözlem sırasında birden fazla analizciye yer verilmiş, ayrıca, yabancı dil eğitimi, bilgi teknolojisi ve özel eğitim alanlarındaki bazı bilgi ve yaklaşımlar incelenmiştir.

Araştırmaya başlamadan önce Milli Eğitim Bakanlığı’ndan, araştırma yapılacak olan okuldan ve Bahçeşehir Üniversitesi Etik Kurulu’ndan gerekli izinler

alınmıştır. Bu bölümde ayrıca, araştırmacının katılımcıların özel hayatına ve tercihlerine duyduğu saygı, görüşmelerin yazıya aktarılma sürecinde dikkat ettiği konular, araştırma yaptığı okuldan maddi anlamda herhangi bir talepte bulunmadığı ve uygulama materyalinin güvenilirliği ile ilgili bilgiler paylaşılmıştır. Son olarak, araştırma sırasında ortaya çıkan sınırlılıklar arasında araştırmanın kısa sürede tamamlanması gerektiği, araştırma yapılan alanda örnek oluşturacak yeteri kadar araştırma yapılmış olmaması, katılımcı-gözlemci etkisi, araştırmacının işitme engelli kültürü ve dili ile ilgili tüm detaylara hâkim olmaması, katılımcı sayısının az olması ve bir kontrol grubuna ulaşılmamış olması, öğrencilerin performanslarının sağlık problemi gibi dış faktörler tarafından etkilenebilir olma ihtimali yer almaktadır.

Araştırmacı tarafından belirlenen sınırlılıklar arasında araştırmacının aile üyelerine ve öğrencilere Likert-tipi anket uygulamayı tercih etme sebebi ve sadece öğrencilerin kelime kazanım süreçlerine odaklandığı ve cümle kazanımı düzeyinde bir uygulamaya yer vermediği sayılabilir. Detaylı bir araştırma gerçekleştirebilmek için sadece belirli bir yaş grubuna ve bölgeye odaklanılması gerektiğinden ve sonuç olarak da bu araştırma belirli bir içeriğe bağlı kaldığından bu çalışma sonunda elde edilen sonuçların da hiçbir şekilde genellenemez olduğu hatırlatılmıştır.

#### **4. Bölüm: Bulgular**

Bu bölümde, araştırmada nicel ve nitel veri toplama araçları ile elde edilen bulgular bildirilmiştir. Elde edilen bulgular iki başlık altında incelenmiştir: BDDE'nin işitme engelli öğrencilerin İngilizce kelime dağarcığı gelişimi üzerine etkisi ve bu uygulamanın öğrencilerin motivasyonları üzerine etkisi. Öğrencilerin başarıları hakkında elde edilen bulgular, uygulamanın etkisinin İngilizce sınav kâğıtları ile etkili bir biçimde yansıtılmadığını göstermiştir. Öte yandan, İngilizce öğretmeni ve araştırmacı tarafından işaretlenen gözlem formu ve araştırmacının detaylı gözlem notları, öğrencilerin sınıf içerisindeki başarılarının genel anlamda olumlu sonuçlar içerdiğini göstermektedir. Yarı yapılandırılmış görüşmelerde, işitme engelli öğrencilerin almakta oldukları İngilizce eğitiminin onların gelecekteki akademik ve iş hayatlarında faydalı olabileceği ile ilgili öğretmenlerin düşüncelerinin altı çizilmiştir. Bunun yanında katılımcılar, yabancı dil eğitiminin etkili olabilmesi için öğrencilerin Türkçe dil becerilerinin geliştirilmesi gerektiğini söylemişlerdir çünkü öğrenciler Türkçe ve İngilizce arasındaki kimi benzerlikler sebebiyle

(Örneğin; “doktor” ve “doctor” kelimesi, iki dilin de yazılı bir alfabeye sahip olması vb.) İngilizce öğrenme süreçlerinde kimi zaman Türkçe dil becerilerini referans alabilmektedirler. Katılımcılar ayrıca sınıf içerisinde sadece Türk İşaret Dili değil farklı iletişim yöntemlerinin de (Örneğin; konuşma) kullanılması gerektiğini böylece sınıf içerisinde farklı işitme düzeylerinde öğrenciler olması durumunda daha etkili olunabileceğini söylemişlerdir. Ayrıca, işitme engelli öğrencilerin görsel öğrenenler olduklarını ve bu sebeple teknolojinin öğrencilerin başarıları üzerine olumlu etkiler yaratabileceğinin altını çizmişlerdir. Katılımcılar ayrıca BDDE'nin genel anlamda öğrencilerin hedef kelimeleri kavrama ve kullanma becerilerini geliştirdiğini çünkü dijital resimlerin öğrencilerin hafıza becerilerini güçlendirdiğini söylemişler ve dijital ortamda uygulanan aktivitelerin öğrencilere arkadaşlarını ve kendi cevaplarını gözleme ve hedef dildeki bilgilerini test etme şansını tanıdığını vurgulamışlardır.

Öğrencilerin motivasyonlarına yönelik toplanan bulgular ise BDDE'nin öğrencilerin İngilizce çalışma motivasyonları üzerine genel anlamda olumlu bir etkisi olduğunu ortaya koymuştur. Öncelikle, öğrencilere araştırmanın sonuna doğru uygulanmış olan Likert tipi anketten elde edilen sonuçlara göre öğrencilerin BDDE ile ilgili genel anlamda olumlu dönütler verdikleri ve derse karşı ilgilerinin arttığı görülmüştür. Örneğin, öğrenciler, bilgisayar kullanmayı sevindikleri ve bilgisayar kullanmanın zor olmadığı konusunda hemfikirler ve hedef kelimeleri bilgisayarda yazmanın kolay ve eğlenceli olduğu ifadesine de katılmışlardır. Ayrıca, ankette yer alan İngilizce dersini bilgisayar kullandıkları için sevindikleri ve İngilizceyi bilgisayar kullanarak öğrenmeye devam etmek istedikleri ile ilgili ifadeler de katılmışlardır. Öğrenciler uygulamanın özgüvenlerinde artış sağladığına da katılmaktadırlar. İngilizce öğretmeni ve araştırmacı tarafından doldurulan gözlem formları ile araştırmacının gözlem notları da yukarıda belirtilen ifadeleri destekler nitelikte sonuçlar ortaya koymuş ve ayrıca BDDE'nin öğrencilerin iletişim ve işbirliği becerileri üzerine olumlu etkileri olduğunu da göstermiştir.

Aile üyelerine araştırmanın başında sorulan açık uçlu anket sorular ile araştırmanın sonuna doğru uygulanan Likert tipi anketten elde edilen sonuçlar ise teknolojinin işitme engelli öğrencilerin motivasyonları üzerine olumlu etkileri olduğunun altını çizmiştir. Açık uçlu sorulara verilen yanıtlara göre öğrenciler teknolojiyi oyun oynamak ya da bilgi edinmek gibi farklı amaçlar için

kullanabilmektedirler ve öğrencilerin bilgisayar kullanma becerileri yeterlidir. Anket sonuçlarına göre aile üyeleri mevcut müfredatın yetersiz olduğunu altını çizmektedirler ve kullanılan materyallerin öğrencilerin seviyesinin üzerinde olduklarını vurgulamaktadırlar. Likert tipi anket sonuçlarından elde edilen verilere göre öğrenciler bilgisayar kullanma konusunda zorlanmamaktadırlar ve sınıf içerisinde gerçekleştirilen bilgisayar etkinlikleri konusunda heyecan duymaktadırlar. Aile üyeleri ayrıca, bilgisayar ortamındaki alıştırmaların öğrencilerin özgüven duyguları ve sınıf içerisindeki performansları üzerine olumlu etkileri olduğu konusuna ve bilgisayar destekli eğitimin öğrencilerin İngilizce öğrenme süreçlerini olumlu yönde desteklediği konusuna katılmışlardır.

Öğretmenler ile gerçekleştirilmiş olan yarı yapılandırılmış görüşmelerden elde edilen sonuçlarda katılımcıların mevcut müfredatı (hem genel anlamda hem de İngilizce dersi için) yetersiz buldukları ve öğrencilerin seviyeleri ve engel düzeylerine uygun olarak hazırlanmayan mevcut müfredatın bu öğrencilerin sosyal-duygusal gelişimleri üzerine olumsuz etkisinin olabileceğini savundukları görülmüştür. Öğretmenler ayrıca, işitme engelli öğrencilerin teknoloji ile iç içe olmaktan hoşnut olduklarını ve birçok işitme engelli öğrencinin de bilgisayar becerilerinin iyi olduğunu vurgulamışlardır. Bu sebeple, derslere dijital materyallerin de eklenmesinin onların çalışma isteklerinin artmasını sağlayabileceğinden bahsetmişlerdir. Son olarak, dijital materyaller öğrencilere farklı bir iletişim kurma seçeneği sunacağından, bunların öğrencilerin iletişim, işbirliği, özerklik ve kendine güven duyguları üzerine de olumlu etkiler yaratacağını eklemiştir.

## **5. Bölüm: Tartışma ve Sonuçlar**

Bu bölümde, araştırma süresince elde edilen sonuçlar alan yazın taramasında bahsedilen kimi konu ve araştırmalar referans alınarak tartışılmış ve bu bağlamda gelecekte yapılacak olan araştırmalara bazı yol ve seçenekler sunulmuştur. BDDE'nin öğrencilerin başarı ve motivasyonları üzerine etkisi ile ilgili elde edilen sonuçların tartışıldığı bu araştırmada, önceden gerçekleştirilmiş olan araştırmalar ve bahsedilen konulara genel anlamda paralel sonuçların elde edildiği görülmüştür.

Öte yandan, araştırma esnasında ortaya çıkan veya araştırmacı tarafından belirlenen sınırlılıklar dikkate alındığında, daha sonra bu alanda yapılabilecek olan

benzer bir araştırmanın uzun süreli etkisinin gözlemlenebilmesi için daha uzun süren bir uygulama gerçekleştirilebileceğinden bahsedilmiştir. Böylece, işitme engelli öğrencilerin uzun süreli hafıza becerilerinin de geliştirilebilmesi için farklı ve etkili yöntemlerin de denenebileceğinin altı çizilmiştir. Ayrıca, daha sonra gerçekleştirilme ihtimali olan benzer çalışmaların, eğer mümkünse, Türkiye'nin birden fazla yerinde ve daha fazla kişinin katılımıyla gerçekleştirilmesinin uygulamanın etkisini daha etkili bir biçimde ortaya çıkaracağından ve çalışmaya kontrol grubunun da eklenmesinin bu etkiyi daha net göstereceğinden bahsedilmiştir. Ayrıca, bu araştırma işitme engelli öğrencilerin sadece yabancı dil kelime kazanım süreçlerine odaklanmıştır; ancak bu çalışmada yabancı dil ile ilgili gelecekte gerçekleşme ihtimali olan başka çalışmalar için işitme engelli öğrencilerin hedef dil cümle yapısını kavrama ve kullanma becerilerine odaklanılabileceği seçeneği de sunulmuştur.