İNGİLİZCEYİ YABANCI DİL OLARAK ÖĞRENEN İŞİTME ENGELLİ ÖĞRENCİLERE KELİME ÖĞRETİMİNDE GÖRSEL MATERYALLERİN ETKİLİLİĞİ

THE EFFECTIVENESS OF VISUAL MATERIALS IN TEACHING VOCABULARY TO DEAF STUDENTS OF EFL

Fatma Gülengül BİRİNCİ

Eğitim Bilimleri Enstitüsü Müdürlüğü'ne,

Fatma Gülengül BİRİNCİ'nin hazırladığı "The Effectiveness of Visual Materials in Teaching Vocabulary to Deaf Students of EFL" başlıklı bu çalışma jürimiz tarafından **Yabancı Diller Eğitimi Anabilim Dalı, İngiliz Dili Eğitimi Bilim Dalı'nda Yüksek Lisans Tezi** olarak kabul edilmiştir.

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ONAY

Bu tez Hacettepe Üniversitesi Lisansüstü Eğitim-Öğretim ve Sınav Yönetmeliği'nin ilgili maddeleri uyarınca yukarıdaki jüri üyeleri tarafından 10 /01/2014 tarihinde uygun görülmüş ve Enstitü Yönetim Kurulunca ...../...../......... tarihinde kabul edilmiştir.

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Fatma Gülengül BİRİNCİ

ÖZ

Bu çalışmanın amacı işitme engelli öğrencilere kelime öğretiminde çeşitli görsel materyaller kullanılmasının etkililiğini araştırmaktır. Bu amaçla Kemal Yurtbilir Özel Eğitim Meslek Lisesi'nden 80 öğrenci çalışmaya katılmıştır. Çalışmaya katılan öğrencilerin hepsi yaşamları boyunca ilk defa İngilizce dersi almaktadırlar, bu yüzden ön test uygulanmamıştır. Öğrenciler iki gruba ayrılarak deney ve kontrol grupları oluşturulmuştur. Öğrencilere her hafta 10 kelime öğretilmiş ve bu çalışmada toplamda 50 kelime kullanılmıştır. Bu kelimeler deney grubuna öğretilirken işaret dilinden başka görsel materyallerden de yararlanılmıştır. Kontrol grubuna öğretirken ise herhangi bir görsel materyal kullanılmamış, yalnızca işaret dili kullanılarak öğretilmiştir. Uygulamadan hemen sonra her iki gruba da son test uygulanmıştır. Uzun dönemli hafızanın ölçülmesinde de altı hafta sonra geciktirilmiş son test uygulanmıştır. Uygulanan bu testlerin sonuçları Bağımsız örnek ve ikili örnek t-testleri kullanılarak hesaplanmıştır. Elde edilen sonuçlara göre işitme engelli öğrencilerin yabancı dil kelime öğreniminde görsel materyaller kullanımının hiçbir görsel materyal içermeyen işaret dilinden daha etkin olduğu gözlemlenmiştir.

Anahtar Sözcükler: Görsel materyaller, işitme engelli öğrenciler, kelime öğretimi, yabancı dil öğretimi, kelime öğrenim stratejileri

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THE EFFECTIVENESS OF VISUAL MATERIALS IN TEACHING VOCABULARY TO DEAF STUDENTS OF EFL

Fatma Gülengül BİRİNCİ

ABSTRACT

The aim of this study is to investigate the effectiveness of using all kinds of visual materials on teaching vocabulary to hearing impaired students. For the purpose of this study, 80 hearing impaired students from Kemal Yurtbilir Special Education Vocational High School took part in the study. All of these students have English classes for the first time in their lives, thus pre-test was not applied. The students were divided into two groups to form the experimental and the control groups. Students were taught 10 vocabulary items per week, and totally 50 target vocabulary items were used in the study. The vocabulary items were taught with visual materials to the experimental group, and the control group was not introduced with any visual items while teaching these words, they were taught with the help of sign language. *Immediate post-test* was applied to each group after the treatment. To measure long term retention, *delayed post-test* was given to the groups six weeks after the immediate tests. Independent Samples and Paired Samples T-test calculations were used with the results of the *immediate* and *delayed post-tests*. According to the results, visual materials are more effective than the sign language which does not include any visual materials in teaching vocabulary to deaf learners of EFL.

Key Words: Visual materials, hearing impaired students, vocabulary teaching, foreign language teaching, vocabulary learning strategies

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ETİK BEYANNAMESİ

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- ve bu tezin herhangi bir bölümünü bu üniversitede veya başka bir üniversitede başka bir tez çalışması olarak sunmadığımı beyan ederim.

Fatma Gülengül BİRİNCİ

TO MY BELOVED PARENTS...

ACKNOWLEDGEMENTS

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LIST OF ABBREVIATIONS

EFL: English as a Foreign Language

ESL: English as a Second Language

SLA: Second Language Acquisition

ASL: American Sign Language

BSL: British Sign Language

TSL: Turkish Sign Language

CAH: Critical Age Hypothesis

UG: Universal Grammar

LAD: Language Acquisition Device

DLDs: Developmental Language Disorders

SNHL: Sensorineural Hearing Loss

ASHA: American Speech-Language-Hearing Association

SL-SPL: Sign Language-Spoken Language

MoNE: Ministry of National Education

dB: decibel

N: Number

M: Mean

SD: Standard Deviation

1. INTRODUCTION

The main aim of this study is to investigate the use of visual materials in teaching vocabulary to deaf learners of EFL. This chapter presents relevant background to the study in order to emphasize vocabulary teaching in foreign language education especially for deaf learners, the purpose of the study, and the significance of the study. Afterwards, research questions are stated, limitations and the definition of terms are presented.

1.1. Introduction

Deafness means a hearing impairment that is so severe that the learner is impaired in processing linguistic information through hearing that negatively affects his/her educational performance. For the deaf learners, the age at which hearing loss occurs is crucial for the acquisition of a spoken language. The deaf can be categorized into two categories; *Pre-lingual* and *Post-lingual*. When hearing impairment is sustained prior to the acquisition of language, it is called as *pre-lingual*, and when it occurs after the acquisition of language, it is called as *post-lingual*. In *pre-lingual deafness*, acquiring a spoken language is almost impossible; on the contrary, *post-lingual* may have a chance. Parents of deaf students are also very important in their language skills. Deaf child of hearing parents has more difficulty in learning English than deaf child of deaf parents. Deaf child of deaf parents learns sign language as their native tongue at home, but deaf child of hearing parents learns it at the school age. Delaying first language learning until school age appears to have a permanent negative effect on children's language capabilities, which supports Critical Age Hypothesis (CAH) (Charrow & Fletcher, 1973).

Although some deaf children use lip-reading to enhance oral communication, most of them usually use sign languages as primary means of communication. Sign languages use visually transmitted sign patterns to convey meaning. They have complex spatial grammars which are totally different from the grammars of spoken languages. Furthermore, all of them have their manual alphabet which can be used with finger spelling (Pfau, Steinbach, & Woll, 2012). *Finger spelling* is mostly used for proper names, and technical vocabulary items, and it is sometimes used for the items of which sign language equivalent is not known by the user. All

countries have their own sign languages, some of which have obtained legal recognition and some of which have not had as *Turkish Sign Language*. There are also various signed codes of spoken languages such as *Signed English*. *American Sign Language (ASL)* and *British Sign Language (BSL)* are the most famous sign languages with legal recognition.

Berent and Clymer (2007) state that in English-speaking countries "Deaf learners' English language acquisition is quite similar to the acquisition of English by hearing second language (L2) learners" (p.4). Sign languages are regarded as the mother tongue of the deaf children; therefore, acquiring some forms of a spoken language will be their second language acquisition. Although there are some similarities between deaf learners' English learning and learning of English by hearing L2 learners, deaf learners of English have more difficulties in learning English. For example, listening and speaking skills are almost omitted from their curriculum because of not hearing and speaking even their native tongue. Besides, it is difficult for them to learn abstract items, and to write and read efficiently.

In today's world, learning English, which is lingua franca, is very significant for all people including deaf people. Berent and Clymer (2007) explain the necessity of learning English for deaf students by saying that "In non-English-speaking countries the numbers of deaf students entering post-secondary degree programs at colleges and universities are rapidly increasing. Due to the prominent role of English as an international language, students must satisfy English language course requirements in order to develop the skills to access English-language academic materials, the World Wide Web (www), and other resources"(p.5).

Learning vocabulary is one of the most important aspects in foreign language learning. One cannot be said to know a foreign language without learning its vocabulary. Wilkins (as cited in Sarıçoban, 2001:23) claims "without grammar very little can be conveyed, but without vocabulary nothing can be conveyed". Mastering target vocabulary items has many advantages in forming sentences and communicating in the target language. As Pohl (2003) states, "Teachers may wonder why it is important to teach vocabulary. First of all, comprehension improves when you know what the words mean. Secondly, words are the currency

of communication. Last but not least, when children and adolescents improve their vocabulary, their academic and social confidence and competence improve, too" (p.5). Therefore, language teachers should give sufficient significance to teaching vocabulary items effectively in their classrooms. For deaf learners of English, vocabulary learning is crucial as well because they can acquire only reading and writing skills, and these skills cannot be totally acquired without adequate vocabulary knowledge. As Fowlkes (2009) reports, "one prevalent area of difficulty is vocabulary" in teaching deaf students" (p.2). In view of the fact that vocabulary is the basis of language and directly affects an individual's life in all aspects from childhood to adulthood, and the building block for literacy, deaf students should be taught necessary vocabulary items effectively. However, teaching vocabulary to deaf and hard of hearing children is a struggle because of the number of repetitions these children need in order to understand and use words correctly. They need visual supports for learning. As Dotter (2008) states, "As the acoustic channel is more or less closed to the deaf people, all acoustic data have to be presented in a visual form in order to be accessible" (p.99). Deaf students' L2 acquisition of English will also be constrained by restricted auditory access to the L2 input and the necessity of relying heavily on compensatory visual input (Berent and Clymer, 2007, p.5).

1.2. Background to the Study

Deaf education in Turkey is categorized at three levels; *kindergarten, primary and secondary*. At the secondary level, hearing impaired vocational high schools are the most preferred schools types by deaf learners and their parents because in such schools they will have chance to find a job on their subjects after graduation. Also, some of these students can attend certain universities without any examination. Kemal Yurtbilir Special Education Vocational High School, at which this experimental study was carried out, is one of these eighteen vocational high schools for deaf students (Appendix-1). It has seven vocational departments which are information technologies, beauty and hair care services, jewellery design technologies, furniture and decoration, metal technology, clothing technology, and also graphic and photography. In these schools instructions are given with the help of sign language in the classrooms. Because of the fact that there is no sign language which has obtained some form of legal recognition in Turkey, there are

some differences in using. English is not taught as a compulsory course in special education schools in Turkey. If deaf students do not want to have English courses, they have right to reject it. Optional English Classes for 9th and 10th grades and vocational foreign language classes for 10th grades are available at special education vocational high schools. However, it is a certain fact that learning English is crucial for deaf people to be up-to-date, to access the online materials and to communicate with the deaf people in other countries. Therefore, foreign language skill development is a critical educational need for them.

Foreign language teaching consists of teaching lots of parts of a language such as vocabulary, grammar, reading, listening, writing, speaking etc. None of these parts is alone sufficient for successful communication. Vocabulary is one of these important parts. As stated by Milton (2009), "Words are the building blocks of language and without them there is no language" (p.3). Knowing vocabulary means knowing what to say and how to say. Without enough vocabulary knowledge, one is not likely to have the command of a language and communicate effectively although she or he knows other parts like grammar. It should be kept in mind that foreign language learners can communicate in direct proportion to their vocabulary knowledge. For this reason, vocabulary teaching should be of capital importance in foreign language teaching as well, and foreign language learners should be provided with well-developed vocabulary knowledge for the great success in foreign language learning.

Foreign language teachers use different teaching strategies while teaching target vocabulary items. Among all teaching strategies, teaching vocabulary items with visual materials and real objects are the most effective ones because many students use their visual memories to learn and remember words while learning their target languages. "Visual aids" is a term used to cover and extremely flexible range of materials which can be tailored by the teacher to fit the exact requirements of a particular group of learners in their teaching process. The significance of the visual in foreign language teaching was first noted by Comenius in 1658. In the late nineteenth and early twentieth century, teaching with visuals was given importance as well. There are many materials which can be used as visual aids, such as flashcards, board drawing, overhead projectors, wall pictures, and cartoons (Byram, 2004, p.663).

Deaf or hard of hearing learners are limited learners in foreign language teaching because they cannot be taught verbal language skills such as speaking, listening and pronunciation. They can be taught only vocabulary, reading and writing; that is, written forms of the target language. It explains why much more importance should be given to vocabulary for deaf learners of English. Using visual materials is again the best way to teach foreign language vocabulary to deaf learners because of the fact that people with hearing impairment have more powerful visual memory than other people. This advantage can be made use of while teaching foreign languages to them as well as other subjects. This study aims to prove that language learners with hearing impairments can learn vocabulary better by being taught with visual materials and emphasize the crucial importance of using them while teaching deaf learners.

1.3. Purpose of the Study

Deaf and hard of hearing learners can communicate with other deaf people via sign languages, and they also can communicate with deaf people in different countries on the internet by using sign language, and also with the help of reading and writing skills. Therefore, they should be taught English vocabulary effectively so as to give them chance to be contacted with deaf community in other countries. Due to the fact that there is no study available on teaching English to deaf students in Turkey and there are no course books and materials designed for them. That is, it is very difficult for the teachers to teach English vocabulary to them, and they might encounter many difficulties. This research aims to find the best possible ways to eliminate these difficulties. Furthermore, the purpose of this experimental study is to see the effectiveness of using visual materials in teaching English vocabulary to deaf learners than using only sign language instructions, and also to identify the significance of visual techniques in helping learners' recognition and retention of vocabulary in short and long term memory.

Also, two post-tests (immediate and delayed) of this experimental study were conducted to see the short-term and long-term effects of visual materials and sign language in teaching selected vocabulary items. A comparison was made to identify the performances of learners while learning their target vocabulary items.

1.4. Significance of the Study

In Turkey, there are 18 vocational high schools for deaf and only one of them has English classes for their students. Ministry of National Education (MoNE) in Turkey states that English classes are not obligatory for deaf learners; these classes can be taught only if they want to learn. It depends on authorities' hopelessness about their learning abilities, and not believing their abilities to learn a foreign language. It is true that it is really difficult. However, it is not impossible. This experimental study proves the fact that deaf students can learn a foreign language though some limitations stem from their disabilities. They can learn the written forms of foreign language especially vocabulary items easier than other parts of their target language. Thus, emphasis should be on vocabulary teaching while teaching deaf and this study tried to find the most effective way of teaching them. At the end of the study, it was clearly proved that deaf learners of English can learn target vocabulary items by using different kinds of visual materials.

1.5. Research Questions

In this study, it is aimed to see if visual technique is more effective on vocabulary retention and recognition than only using sign language for the hearing impaired students of English. For the purpose of this study, the following research questions are formulated:

1. Is there any statistically significant difference between the experimental and the control groups as for the immediate post-test?

2. Is there any statistically significant difference between the experimental and the control groups as for the delayed post-test?

3. Is there any significant progress between the immediate post-test and delayed post-test scores of the control group?

4. Is there any significant progress between the immediate post-test and delayed post-test scores of the experimental group?

5. Is there any statistically significant difference between males and females in terms of vocabulary learning by visuals as a result of the scores obtained in

a) immediate post-test?

b) delayed post-test?

1.6. Limitations of the Study

This study was carried out with the 9th grade deaf learners of English at Kemal Yurtbilir Special Education Vocational High School and limited to 80 students in this school and grade. Therefore, it is not proper to make generalizations about other grades and other special education schools.

All the students took part in this study started to learn English at the same time in that year. For this reason, they were at the *starter* level and this study could not be applied to the other levels of deaf learners, which is the other limitation of this study.

Moreover, this study is limited only to vocabulary teaching although a language consists of many components such as grammar, reading, writing etc. Other components and skills could also be studied for further research.

In addition, opinion test could not be applied to these students because of their inability to understand complex sentences utterly.

1.7. Definition of Terms

Deaf: Deafness means the condition of not being able to hear and detect some frequencies of sound. It can be caused by some injuries or diseases or a child can be born with this impairment. Deaf people cannot understand spoken language because they have prelingual, stable, severe to profound, bilateral hearing impairment that severely or completely impairs the acquisition of vocal/auditory language (Braden, 1994, p.26). Deafness should be described from two broad perspectives, which are *clinical* and *cultural*. Within the *clinical* perspective, dimensions of hearing are discussed in terms of audiological variables such as decibels and frequency, location of the hearing loss and age at which the impairment occurs. Within the *cultural* perspective, deafness is described as a natural and ethnic condition. Individuals with deafness are said to be members of a cultural group that uses *American Sign Language* (ASL) as the major or only means of communication. Indeed, there is what can be called a *Deaf* identity

(Paul, 2009, p.12-14). Deaf people have a profound hearing loss and they cannot benefit from hearing aids, so their linguistic status cannot change.

Hard of Hearing: Hard of hearing people have a prelingual, stable, bilateral hearing impairment (mild to severe) that interferes with, but does not prevent, the acquisition of vocal/auditory language (Braden, 1994, p.26). When hard of hearing people are given the current level of technological development and provided with hearing aids, they can enter the hearing society although they experience difficulty in hearing. Hearing aids cannot cure the hearing loss, but they help these people communicate better. By this way, hard of hearing people can understand spoken language.

Deafened: Deafened people are those whose hearing loss onset is postlingual, and who retain and rely on internalized vocal/auditory language (Braden, 1994, p.26).

Hearing Impaired: Hearing impaired people are those who have any chronic hearing loss outside normal limits (i.e., mild or greater), regardless of severity, onset, etiology, or prognosis (Braden, 1994, p.26). Similarly, Paul (2009) explains the hearing impairment (or hearing loss) as "a general audiological term that pertains to all degree of loses, regardless of etiology and location. Hearing acuity is measured in decibels (dB) across a range of frequencies, typically from 125 to 8000 Hertz (or cycles per second)" (p.11). He also emphasized the pervasive effect of the age at which hearing impairment occurs on the language development of deaf or hard of hearing people. Furthermore, he focuses on the other factors such as the hearing status of the parents and the location of the hearing loss.

Sign language: Sign language which is used by Deaf community is a language of movement, space, the hands and the eyes. It is a naturally occurring form of communication among people who do not hear. It shares features and grammatical processes with other spoken languages (Kyle & Woll, 1998, p.5).

Finger Spelling: Finger spelling is the use of finger shapes to convey meaning. It consists of a direct alphabetic representation of the language with fingers (Kyle & Woll, 1998, p.249). Deaf people use finger spelling especially for proper names

and technical terms. Moreover, hearing sign language users can use it when they do not know the sign language equivalent of any words.

Sign Language Acquisition: Sign language acquisition of deaf children is similar to first language acquisition of hearing children. The primary difference is that deaf children acquire their first signs 2 to 3 months earlier than hearing peers' first words. Deaf children of deaf parents are more advantageous than deaf children of hearing parents because they are exposed to sign language in the early years (Carroll, 2008, p.279-281).

Manual Alphabets: A manual alphabets represent the letters of a written language directly, and thus 'foreign' words may be spelled. The finger positions in most manual alphabets suggest the form of the letters they represent (Kyle & Woll, 1998, p.123). Sign language users use it while fingerspelling.

Lip Reading (Speech Reading): Lip reading, which is supported by oral approach, is used by deaf people as a means of communication by watching the mouth of speaking person and trying to understand what he says. As Nitchie (2007) suggests "Even to a greater degree can the deaf man train his eye to substitute his deaf ears" (p.8). If deaf people are trained, they can understand what is spoken by observing the movements of lips and tongue.

Facial Expressions: Facial expressions are habitual configurations of facial muscle movements that communicate some thought, emotion, or behavior. According to Ekman (2003) this is because not all recurring facial muscle configurations express specific messages. For example, some facial muscle actions that accompany spoken words—such as raising one's eyebrows when emphasizing a particular word—may modify those words, but are not messages in and of themselves (p.87-89). The face can also express lots of emotions. For instance, people express happiness by raising lip corners into what is commonly called a smile. Similarly, sadness is expressed by frowning. These expressions are very significant in using sign languages because they can change the meaning of signs.

Second Language Acquisition (SLA): Second language acquisition refers the study of individuals learning a language aftermath of their native tongue as young

children, and to the process of learning that language. Although that language can be third, fourth, or tenth, it is commonly called as target language. The scope of second language acquisition includes informal, formal second language learning, or a mixture of these settings. To be able to understand the process of second language acquisition, one should know that how learners acquire that language, what learners come to know, and that why some learners are more successful than others (Saville-Troike, 2006, p. 2).

Third Language Acquisition: Third language acquisition generally refers to learning a third language in addition to a person's first and second language. However, third language acquisition is different from second language acquisition qualitatively and quantitatively regarding psycholinguistics, sociolinguistics, neurolinguistics, cognitive and metacognitive levels of the learners (Doughty & Long, 2003, p.258-259z) .

Bilingual Deaf Education: Bilingualism refers to the acquisition of two languages simultaneously. Education of deaf people are commonly regarded as bilingual because they acquire their sign language and the spoken language of the country they live in simultaneously or they are exposed to sign language at home and spoken language when they go to school (Carroll, 2008, p.311) .

Language Learning Styles of deaf learners: Language learning styles refer to the preferences of deaf learners while learning languages. As it is known, learning styles of deaf learners are usually visual and kinesthetic to compensate for their inability to hear (Marschark, Lang, & Albertini, 2000, p.1).

Language Learning Strategies of deaf learners: Deaf learners usually use strategies which profit by visual images when they learn languages. In order to meet the deficit of their ears, they use their eyes. Moreover, they use strategies which are looking for information from different clues (Dotter, 2008, p. 106).

Visual Materials: Visual materials in teaching refer to the materials that present information visually such as pictures, real object, computer, posters, films, slides, blackboards etc.

Aphasia: As suggested by Fava (2002), "Aphasia is a language disorder caused by neurological damage" (p.279). Similarly Benson & Ardila (1996) state that

"Aphasia is the loss or impairment of language function caused by brain damage" (p.3). Because of the fact that it is a product of the brain damage, it falls within the scope of neurologists, and it is the most important example of neurologically based behaviour disorder. It can be said that aphasia is mostly associated with left hemisphere damages. Approximately 99% of all right-handed individuals are said to have language functions in the left hemisphere (Benson & Ardila, 1996, p.30). Therefore, any damage to the left hemisphere may cause language difficulties in listening, speaking, reading and writing; and most people with aphasia make errors in speech (paraphasia), impaired comprehension, and word-finding difficulties (anomia).

a) **Wernick's Aphasia:** Wernicke's area is responsible with the comprehension, and the abilities like reading and writing. It is most common of fluent aphasias and also known as semantic aphasia as the major impairment is semantic. The most basic problem of Wernicke's Aphasia patients is associated with language comprehension. They have difficulty in comprehending spoken or written languages or both. In addition to this impaired comprehension abilities, they exhibit poor naming and poor repetition abilities. Despite being fluent, the content of the spoken and written languages is abnormal. Although in their writing, the individual letters are often arranged in the appearance of words, the letters are often combined in a meaningless manner. It is believed to result from a temporal parietal lesion which invariably involves Wernicke's area itself (Murdoch, 2010, p.59). They usually have great difficulty in understanding the speech of both themselves and others and are therefore often unaware of their mistakes. It is very difficult to teach them a foreign language because they cannot even use their mother tongue efficiently.

b) **Broca's Aphasia:** Broca's area is located in the left hemisphere and it is associated with speech production and articulation. Our ability to use words accurately in spoken and written language has been attributed to this crucial area. Broca's Aphasia results from the damages to this area. It is characterized by non-fluent speech output and poor repetition abilities. People with Broca's Aphasia use words repetitively and long pauses may occur between words and phrases. Their writing ability is similarly impaired.

They generally misspell and omit the letters or small words such as "is", "and", and "the" (Murdoch, 2010, p.57). However, they can be taught foreign languages in spite of some difficulties in articulating words accurately.

Developmental Language Disorders (DLDs): DLDs often lead to communication problems at an early age. Eye contact, listening attitude, imitation, and symbol development are the issues that people with DLDs face with. DLD children are different from normal children regarding a number of characteristic aspects such as nonverbal acts, speech and language problems. They have difficulties in understanding class instruction and communicating efficiently in a classroom situation (Verhoeven & Balkom, 2004, p.4-5).

Autism: Autism is a disorder that affects the development of the brain. Symptoms appear when a child is very young. It affects all aspects of the child's development. People with autism have difficulty in talking and understanding and they have poor social skills. Learning to speak is difficult for them and they cannot use the language properly (Freedman, 2009, p.4).

Dyslexia: It is a neurologically based disorder. Dyslexic people have difficulty in reading. Learning to read is the most difficult part of language learning. They have also poor spelling, slow or immature handwriting, or an inability to deal with numbers (Doyle, 2002, p.1).

Visual Impairment: Visual impairment refers to total absence of vision. However, people with very low vision are also considered to have visual impairment. Due to their impairment, these people have some language difficulties especially in reading and writing.

American Speech-Language-Hearing Association (ASHA): ASHA is the national professional, scientific, and credentialing association for more than 166,000 members and affiliates who are audiologists, speech-language pathologists, speech, language, and hearing scientists, audiology and speech-language pathology support personnel, and students. Audiologists specialize in preventing and assessing hearing and balance disorders as well as providing audiologic treatment, including hearing aids. Speech-language pathologists

identify, assess, and treat speech and language problems, including swallowing disorders (http://www.asha.org/about/).

2. REVIEW OF LITERATURE

The review of literature part firstly focuses on the impairment in language acquisition and gives information about the various types of hearing impairments. Then, it emphasizes the acquisition and development of language in general and then it deals with the first (sign) language acquisition of deaf learners. Sign languages, the differences between sign and spoken languages, manual alphabets, finger spelling, lip reading, and facial expressions in sign languages are explained in detail. Approaches to education of deaf children are stated in detail as well. The second and the third language acquisition of deaf learners are the other issues which are studied. Lastly, bilingual deaf education, language learning styles and strategies of deaf learners, multiple intelligence of deaf learners, vocabulary development in deaf education and strategies and techniques of vocabulary teaching are discussed.

2.1. Impairment in Language Acquisition

In acquiring languages, there are many impairments that people can face with. These impairments can stem from many different factors such as hearing loss, neurological disorders, physical impairments, brain injury and intellectual disabilities. Some individuals are born with such impairments. For example, when a child has problems with language abilities or there is a delay in speaking, specific language impairment, which is also called as *developmental language disorder*, can be in question. Children with this impairment are generally late to talk and they cannot utter any new words until two years old (Verhoeven & Balkom, 2004). Another language impairment is caused by a disease that is called as *Aphasia*, which results from a brain injury or a disease that attacks the brain tissue such as tumors and dementia. Depending on the type of aphasia, people have different difficulties. In *Wernicke's Aphasia*, for instance, people cannot understand the language because they do not hear words correctly. In *Broka's Aphasia*, people can understand the language but they cannot speak properly because of stuttering and halting (Benson & Ardila, 1996). *Autism* is another disease that can be cause of language impairments. In addition to many social and behavioral symptoms, these people also have apparent language and communication impairments. They have difficulty in expressing basic needs and answering the

questions, their speech and vocabulary development is often limited. Furthermore, *Dyslexia* is another disease that causes language impairments. It is a neurologically based disorder which hinders the attainment of language skills in spelling, reading, and writing (Doyle, 2002). *Visually impaired* people also have some difficulties in using language because of their hindrance of reading and writing. To sum up, language impairment is a very general term and many diseases and disorders can be causes of this kind of impairment.

As can be deduced, there are many types and causes of language impairment. Along with them, *hearing impairment*, which is the main concern of this thesis, can be regarded as one of the most significant cause of language impairment because of the fact that individuals can speak properly as long as they hear properly. Therefore, only issues about hearing impairment will be discussed in the next sections.

2.1.1. Types of Hearing Impairments

There are several different types of hearing losses, and all of them should be known by teachers and parents of deaf or hard of hearing children because they may help to determine the educational settings. The type of hearing loss depends on many factors such as the place and cause of the loss, the degree of the hearing loss, and the age at which it took place. The following types of hearing losses are categorized in terms of *the place and cause of the hearing loss* by American Speech-Language-Hearing Association as follows:

a) **Conductive Hearing Loss:** It occurs when sound is not conducted efficiently through the outer ear canal to the eardrum and the tiny bones (ossicles) of the middle ear. Conductive hearing loss usually involves a reduction in sound level or the ability to hear faint sounds. This type of hearing loss can often be corrected medically or surgically.

b) **Sensorineural Hearing Loss (SNHL):** It occurs when there is damage to the inner ear (cochlea), or to the nerve pathways from the inner ear to the brain. Most of the time, SNHL cannot be medically or surgically corrected. This is the most common type of permanent hearing loss. SNHL reduces

the ability to hear faint sounds. Even when speech is loud enough to hear, it may still be unclear or sound muffled.

c) **Mixed Loss:** Sometimes a conductive hearing loss occurs in combination with a sensorineural hearing loss (SNHL). In other words, there may be damage in the outer or middle ear and in the inner ear (cochlea) or auditory nerve. When this occurs, the hearing loss is referred to as a mixed hearing loss (http://www.asha.org/public/hearing/Types-of-Hearing-Loss/).

Another categorization is applied in terms of the degree of the hearing loss. Paul (2009) discusses five *audiological categories of hearing impairment* as follows: slight (27-40 dB), mild (41-55 dB), marked or moderate (56-70 dB), and extreme or profound (91 dB or greater). Moreover, he thinks that only people with a degree of hearing impairment in the 90+ or profound range should be regarded as deaf. Hyjánková (2010) also discuss these categories as follows;

a) **The Hard of Hearing (Mild):** These people can understand loud speech from at least 4 meters. They usually find difficult to hear sounds or speech under unfavorable conditions (i.e. noise, rain, theatre, etc.).

b) **The Hard of Hearing (Moderate):** They can perceive loud speech from the distance of 2 to 4 meters. There are no significant difficulties with speaking „face to face„, nevertheless, it is necessary to use hearing aids at school.

c) **The Hard of Hearing (Moderately-Severe):** They have the threshold of hearing within 2 meters. The conversation with these pupils seems to be very problematic, although they use efficient hearing aids. There is no doubt that these students need a professional approach at schools for the hearing impaired.

d) **The Hard of Hearing (Severe):** They need special education. They can hear even very loud sounds and speech only if they are close up. For that reason, they cannot manage the lessons without hearing aids.

e) **Profound Hearing Loss (Deafness):** It prevents learners from hearing despite using hearing aids. They are not able to perceive spoken language by ears, they can feel a vibration of loud sounds only. Their learning is

primarily associated with visual perception. As they cannot hear even their own voice, it is obviously difficult to understand their speech. Figure 2.1 illustrates this categorization as follows (http://www.pedsent.com/problems/aud_audiogram.htm):
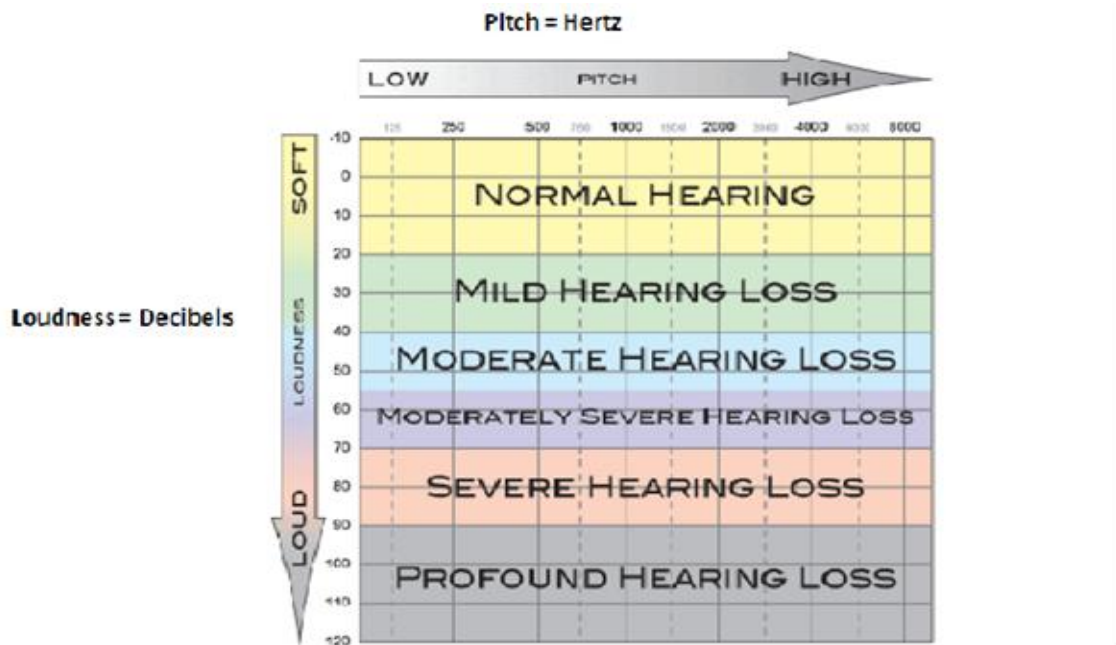
Figure 2.1. Categorization of Hearing Loss in Terms of the Degree of Hearing

Age is also another factor which affects the categorization of the hearing loss. There are two types of deafness regarding on *the age* at which hearing loss took place.

a) **Pre-lingual Deafness:** This term is used when someone was born with the hearing loss or it occurs before the acquisition of the speech and language. Many researchers believe that during the first several years of life, acquiring a language is very easy because of the elasticy of the brain. Approximately at the age of six, this open period ends. When this opportunity for learning is closed by deafness during this critical period, language learning does not occur in the usual way. Therefore, pre-lingually deaf persons are deprived of any auditory language input, and cannot acquire a language as others.

b) **Post-lingual Deafness:** If hearing loss takes place after the acquisition of the speech and language, it is called as post-lingual deafness. Post-lingually deaf persons have an aural/oral communication problem, not a language problem. Depending upon the age of the hearing loss, their

language skills can be similar hearing persons, but with a bit of a delay in new idioms of the language. Hearing aids and speech reading instruction are often very beneficial for these people.

2.2. Acquisition and Development of Language

Language acquisition is a process which has been discussed for so many years and by lots of approaches such as behavioristic, nativist, and functional. All these approaches have a common idea that all children have exceptional ability to communicate and acquire a language in childhood, but they differ in the ways how children do this great job. A behaviorist claims that a child acquires its mother tongue by responding the stimuli surrounding them, and emphasizes the importance of reinforcement. Skinner constructed a behavioristic model of linguistic behavior, and he is the most famous pioneer of *behaviorism*. He constructed research on *operant conditioning* in 1937, and emphasized the effects of reinforcement. Fromkin, Rodman, and Hyams, (2011) state that "Behaviorism focused on people's behaviors, which are directly observable, rather than on the mental systems underlying these behaviors. Language was viewed as a kind of verbal behavior, and it was proposed that children learn language through imitation, reinforcement, analogy, and similar processes" (p.325). As understood, behaviourists deal with the observable process of the language acquisition, but what about the invisible processes? A nativists, Noam Chomsky is the one who believes that people have an innate capacity to learn languages and there is a complex cognitive system in people's minds. In his *Innateness Hypothesis*, Chomsky mentions this innate knowledge as Language Acquisition Device (LAD), which is also called as "black box", and he argues that every healthy child is genetically endowed with a linguistically specific system of principles and parameters, which refers to this device (Akmajian, Demers, Farmer, & Harnish, 1997).

Chomsky's Universal Grammar (UG) is the other issue which should be addressed at this point. According to White (2003), "The linguistic competence of native speakers of a language can be accounted for in terms of an abstract and unconscious linguistic system, in other words, a grammar, which underlies use of language, including comprehension and production. Native-speaker grammars are

constrained by built in universal linguistic principles, known as universal grammar (UG)" (p. 1). That is to say, UG can be considered as universal principles and parameters which constrain the acquisition of language. Figure 2.2 obviously shows how Language Acquisition Device works (Jordens & Lalleman, 1996, p.168).

```
                              ┌─────────────────┐
                              │    Language     │
                              │   Acquisition   │              Output
Input --->    .               │     Device      │  --->     (a grammar of
(language datà)               │                 │            a language)
                              └─────────────────┘
```
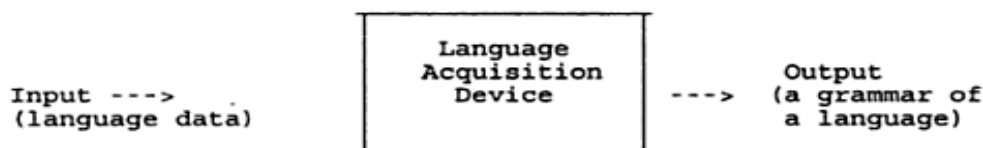
Figure 2.2. The LAD Model of L1 Acquisition

The principles of UG are supported by the *Principles and Parameters Theory*. According to this theory, all of the linguistic knowledge can be described in terms of a few universal principles and language-specific parameters. It is asserted that almost everything about grammar is universal and variation can be described in terms of parameters. (Hoff, 2009, p.256)

Cognitivisim is the next approach which should be mentioned in first language acquisition. According to this approach, language development goes hand in hand with the cognitive development, and it can be said that it is somewhere in the middle between behaviorism and nativism. This approach combines the idea of the innate abilities and the observation that communication itself is a way of interaction that leads to the gathering of language data which then is turned into intake and can be analyzed cognitively (Gebhardt, 2006, p.14). Piaget, who was not a linguist but a psychologist, was the pioneer of this approach. He notes that the interaction between children's linguistic experience, their developing cognitive capacity and their relationship with their environment result in the overall development (Brown, 2000, p.28).

The role of meaningful social interaction is also very significant in first language acquisition. *Social interactionists* think that children acquire languages by interacting with the environment. Vygotsky (as cited in Doughty and Long , 2003) emphasizes that "Children develop higher-order cognitive functions, including linguistic skills, through social interaction with adults or more knowledgeable peers

('scaffolding'), eventually internalizing these skills and functioning independently" (p.159). Moreover, social constructivism emphasizes the role of culture and context in developing personal and shared interpretations of reality. As is known, Piaget, Vygotsky and Bruner are the pioneers of this approach. *Social Constructivist Approach* emphasizes the social factors as crucial in learning. It is believed that learners create their own understanding as a result of the interaction of what they already know and believe, which makes them lifelong learners (Beck & Kosnik, 2006, p.1-3).

As can be deduced from above, the ability to acquire a language cognitively and socially is a gift for human, and what is the most amazing is that even deaf people can acquire a language. To be able to understand deeply how deaf people acquire languages, the meaning, types and the other related factors should be noted.

2.3. Deafness and Language Acquisition

Deaf or hard of hearing people can learn languages; however, the process of their language learning is not the same as the process of hearing people. According to Chomsky's innate hypothesis, people have innate capacity for language learning regardless of being deaf or blind. All people learn some languages, but impaired people learn languages slower than normal people. Especially deaf people have many difficulties while learning languages because of their lack of auditory input. It is a proven fact that listening first is vital for acquiring languages. However, deaf people cannot take this input, and so their acquisition process is different from their hearing peers. Such people acquire even their native tongue by using different methods such as finger spelling, sign language, gestures etc., that is to say, they acquire their native tongue through visual modality (Fromkin, Rodman, & Hyams, 2011, p.19). Moreover, cochlear implants are placed in the inner ear and they can hear with the help of it. However, it should be noted that the age at which this device is placed is very important for the language acquisition.

The inability to hear does not affect an individual's native intelligence or the physical ability to produce sounds. They generally cannot have a good academic performance, but it is not related to their intelligence. As Kirk and Gallagher (1989) state "deaf children have normal cognitive abilities and their poor academic performance actually stems from their difficulty in reading and writing the English

language, not their intelligence" (p.312). Because of the fact that to be able to speak, we should listen and imitate the sounds we hear first. Most deaf learners cannot speak properly, and this situation affects their academic performance. People who became deaf after first language acquisition can usually speak properly, and they have better academic performance. Moreover, some of them may have speech impairments as well. Except for them, teachers should also use spoken language while dealing with deaf learners so as not to hinder their speech developments.

Language development of deaf or hard of hearing people should be judged on its own merit because deaf or hard of hearing learners do not have auditory input as hearing people, and this fact affects their language development badly. McCoy and Masterman (1997) explain these difficulties by stating, "Perhaps the worst difficulty for the deaf learner is that s/he has little or no understandable input in the language s/he is attempting to acquire" (p.48). According to Dimling (2007),"hearing loss has its greatest effect on the ability to communicate, often due to inaccessibility of verbal language. Resulting from this loss, the linguistic model is incomplete, and a normally spoken message may be disorted" (p.11). Similarly, he says "Many students with hearing loss are delayed in language development, which can lead to further complication in literacy achievement" (p.5). As understood, deaf or hard of hearing people will not be able to communicate effectively like hearing people, and their literacy development will not also be the same as hearing people's. Berent and Clymer (2003) conclude that "For deaf students, restricted linguistic access to auditory-based languages such as English, Russian, Czech, etc., often results in lower-than-desired levels of spoken-language literacy. These low literacy levels can have serious negative effects on the educational and career attainments of deaf individuals" (p.2).

There are many factors that affect their language developments such as the age at which hearing impairment occurs, and hearing or deaf parents. Dimling (2007) explains these factors as follows;

    1. language development,

    2. instructional programming,

3. textual features, and

4. linguistic developmental and cognitive considerations (p.10).

It is proven that deaf children of deaf parents have some advantages than deaf children of hearing parents. Especially for first language acquisition depending on the great importance of parents' roles in acquisition process, deaf children of deaf parents are quite lucky. Fromkin, et al., (2011) explains this fact by saying, "Deaf children who are born to deaf signing parents are naturally exposed to sign language just as hearing children are naturally exposed to spoken language. Language development in these deaf children parallels the stages of spoken language acquisition" as is stated on page 26 (p.355). On the other hand, deaf children of hearing parents have a big problem because they are not the same as their parents and these parents generally do not exactly know how they should contribute to the acquisition process of their children. It is difficult for these children to acquire a language, and maybe it is a very long process. However, it is not impossible, which support the biological basis of language acquisition of humans. Fromkin, et al., (2011) also states that "Deaf children of hearing parents who are not exposed to sign language from birth suffer a great handicap in acquiring language. It may be many years before these children are able to use a spoken language or before they encounter a conventional sign language. Yet the instinct to acquire language is so strong in humans that these deaf children begin to develop their own manual gestures to express their thought and desires" (p. 356). These manual gestures can be regarded as the sign of humans' splendid drive to communicate.

Interaction with parents is also an important factor for the language development of deaf or hard of hearing people. A hearing baby starts to imitate its parents and learn its native tongue as a result of hearing them and interaction with them. However, a deaf baby does not have the opportunity to hear its parents and because of this lack of auditory input and interaction, it does not start to communicate with people at an early age like hearing peers. If their parents are deaf, there is no problem, but if they are hearing parents, they should learn the sign language of that country in order to support their children's acquisition of their first language. Malmker (1995) states that "Not all deaf people have the

opportunity to acquire sign language from birth because many of them are born to hearing parents who do not know sign language, and because the use of sign language has been discouraged in the past" (p.545). This late exposure of linguistic input makes deaf children have many linguistic difficulties. Malmker (1995) also finds out that,

> "Visual signing, on the other hand, seems to be a natural way of communicating for deaf people. As mentioned above, sign language appears naturally among groups of deaf people, for whom it provides everything that speech provides for people who can hear. Since such sign languages are now standardized within the communities which use them, they could profitably be viewed as natural first languages which should be firmly established in an individual required to learn another language, particularly a language which employs a medium, sound, which is alien to that individual" (p.547).

Moreover, this delay of language development influences their literacy developments. Wilbur (2000) states, "By the time hearing children begin to learn to read, they already have conversational fluency in their native language and can be taught to transfer this knowledge to reading. Deaf children who have lost their hearing at an early age do not have this knowledge; thus, they do not come to the reading task with the same skills in sentence formation, vocabulary and world knowledge as hearing children" (p.82). Therefore, parents and teachers of deaf children should contribute to their language acquisition as much as possible. Otherwise, their late language development will profoundly affect their literacy development, which is also significant for academic achievement.

2.3.1. Deafness and First (Sign) Language Acquisition

First language acquisition of deaf children is so complex issue because sign language becomes their mother tongue, not the spoken language or the language of their parents. However, acquiring the sign language has similar steps. Bussmann (1990/2006) makes it clear that "Deaf children exposed to the language from infancy acquire sign language at a rate and through a process similar to their hearing peers' acquisition of spoken language" (p.1076). That is to say, deaf children have the same stages during language acquisition as their hearing peers. These stages can be categorized as follows:

1.	**Listening Stage (0-6 months):** Hearing children listen to the world surrounding them at this stage. Deaf children cannot hear but they observe the signs and gestures around them.

2.	**Babbling Stage (6-12 months):** At this stage hearing children try to utter some words which are similar to the sounds they hear around them. They utter some letters vocally. Deaf children also babble vocally, but the onset of their vocal babbling is quite delayed in comparison with that of hearing children. Moreover, children of deaf parents often have been observed to babble manually. These young sign learning children produce numerous sign-like gestures prior to making their first recognizable lexical signs. It should be kept in mind that language modality, as manual babbling shows, is not an important factor in humans' language learning capacity (Barrett, 1999, p.281).

3.	**One-word Stage (12-18 months):** At this stage, hearing children start to understand that sounds are related to meanings and they begin to utter some words repeatedly to mean something. Deaf children also have this stage; however, it is quite interesting that deaf babies develop their first signs earlier than hearing children speak their first words (Fromkin, et al., 2011, p.325-336).

4.	**Two-word Stage (18-24 months):** The variety of word combinations begins to appear, and at this stage, the child not only produces speech, but receives feedback confirming that the utterance worked as a contribution to the interaction.(Yule, 2006, p.153) When comparing to the hearing children, deaf children at the two-word stage use sign order, not morphology, to signal meaning. This is similar to the first multiword utterances of young speakers. Therefore, children acquiring ASL do not initially exploit the morphology of ASL when beginning to put signs together. Instead, they primarily use signs in order to convey meaning, just as children do in diverse spoken languages" (Carroll, 2008, p.281).

5.	**Multi-word Stage (25-30 months):** This period is also called as the *telegraphic speech.* The child starts producing a large number of utterances and the variation in the word forms begins to appear. By this stage, the child has clearly developed some sentence-building capacity and can know the correct word

order (Yule, 2006, p.153). At this stage, both hearing and deaf children acquire grammatical and semantic developments.

Studies indicate that there are more similarities than differences between the acquisition of spoken and sign languages. The most important difference is that deaf children acquire their first signs earlier than hearing children acquire their first words. Many studies on this issue support this earlier producing of first words of deaf children. For instance, John D. Bonvillian and his colleagues (1983) at the University of Virginia have reported that 13 signing children of deaf parents had amassed a-10 sign vocabulary by a mean age of 13.2 months. However, in a study of Katherine Nelson of the City University of New York, 18 English speaking children had reached the same milestone by a mean age of 15.1 months (Meier, 1991). Thus, it can be concluded that acquiring a sign language as a native tongue is not a disadvantage for deaf children. Meier (1991) suggests that, "The same sequence of milestones seems to characterize the acquisition of ASL and of spoken language. Nor is there any evidence that language acquisition is delayed in deaf children. Although human beings may have highly evolved mechanisms for the production and processing of speech, those mechanisms are apparently sufficiently flexible that the acquisition of signed languages is not disadvantaged" (p.64).

Lenneberg's Critical Period Hypothesis (1967) should also be mentioned in the acquisition of sign languages. He gathered a variety of evidence from studies of brain growth and clinical studies of cases of brain damage, mental retardation, and deafness to support the hypothesis. According to this hypothesis, children can gain a native speaker's linguistic competence only if they are exposed to linguistic stimuli during a critical period which is roughly between the age of 2 and 13. With the hearing population it is very hard to find any examples in terms of first language. Some historical cases such as Victor and Genie can be seen as distinct examples of delayed exposure to a first language. Regarding deaf people, Chelsea is a distinct example of this hypothesis (Han, 2004, p.46). When she was young, her parents took her to a series of doctors, and they diagnosed her as being retarded. She was brought up in a very loving environment, but she could not learn how to speak. Then, at the age of 31, a neurologist recognized that she was, in fact, deaf. She was given hearing aids, and she began acquiring ASL as a

first language. After six years exposure, she had good lexical and semantic abilities, but impaired morphology and syntax (García Mayo & García Lecumberri, 2003, p.7). Furthermore, deaf children born into hearing families have similar situations in acquiring their native tongue because of the fact that their parents do not know any sign languages. These children are not exposed to any spoken or signed language during early childhood. They begin acquiring their mother tongue from similar peers when they go to school where a sign language is used, so they encounter many linguistic difficulties. Figure 2.3 illustrates the comparison of populations of children with different linguistic experiences in terms of vocabulary, word order and morphology, and it can be deduced that some aspects of language are extremely robust, whereas others are more fragile (Meier, 1991, p.69).

	Acquisition of English: hearing children	Acquisition of ASL: deaf children of deaf parents	Minimal linguistic input: deaf children of hearing parents	Delayed exposure to a spoken language: Genie	Delayed exposure to a sign language: deaf, late learners of ASL
Vocabulary	First word at 12 months	First sign at 12 months (or somewhat earlier)	Gestural vocabulary developed	Successful acquisition of a large vocabulary	Large sign vocabulary
Word Order	Reliable English word order early in two-word period	Reliable ASL sign order early in two-sign period	Reliable gesture-ordering tendencies	Reliable English word order acquired	Age of first exposure has no effect on knowledge of sign order
Morphology	English morphology begins to emerge at roughly 30 months	ASL morphology begins to emerge at roughly 30 months	Some spontaneous morphological development (?)	Very poor control over English morphology	Age of exposure has significant effect on knowledge of ASL morphology

Figure 2.3. Comparison of Populations of Children with Different Linguistic Experiences

Mayberry and Eichen (1991) conducted a similar study on the effects of critical period in the acquisition of sign languages. Forty-nine deaf adults were the participants of their study. Each person had been using ASL for a minimum of 20 continuous years after first learning it. One group was native learners; the second group first learned ASL between the ages of 5 and 8; the third group first learned ASL at age 11. There were no significant differences in chronological age among the groups and no differences in length of sign experience so that age of ASL acquisition was the primary factor on which the groups differed. The subjects

watched 30 long and complex, videotaped ASL sentences; half were presented at a normal rate and half were presented at a rate that was 68 faster. Even after 20 or more years of continuous experience with ASL, the normative learners performed less well than the native learners. Performance accuracy declined as a linear function of age of acquisition. The speeded condition was more difficult for the native and childhood learners than the normal–rate condition. This was not true for the adolescent learners who performed equally poorly on ASL sentences given at the speeded and normal rate. Emmorey (2002) also found out that "The evidence from Deaf children acquiring ASL at different points during development provides strong evidence for a critical period for language acquisition in humans. Skilled comprehension and production of language in adulthood is dependent on the age of exposure during development – earlier the acquisition, the better the performance, even after 30 years of experience" (p. 218).

In conclusion, acquisition of sign languages has lots of similarities than differences when it is compared to the acquisition of spoken languages. Deaf children experience similar stages as hearing peers in the language acquisition process. Critical period is also very significant for sign language acquisition which explains the importance of hearing status of their parents.

2.3.1.1. Sign Languages

Sign language is a language used by deaf people which includes hand and body movements to communicate. Malmker (1995) describes that, "Sign language is usually meant a visual-gestural, non-vocal language used primarily by the deaf and not based on the language of the surrounding hearing community" (p.545). Bussmann (1990/2006) also states "'Sign language' refers to the natural languages which have evolved over time in deaf communities throughout the world and used for the same wide range of communicative purposes as spoken languages" (p.1075). Sign languages are developed for deaf people and these languages are based on the hands and the eyes rather than the vocal track and the ear. Sign languages are not universal but there is an international sign language which helps deaf people communicate in international level. This international sign system was developed by the World Federation of the Deaf and it is also called as Gestuno. It is not a natural sign language, but it is used by the

people who use different sign languages. As Janzen (2005) explains, "This system includes the combination of gestures, loan signs from various existing singed languages, and pidgin signs created specifically for particular interpreted situations such as international conferences (e.g., Deaf Way II), Deaflympics, or international meetings where Deaf individuals using various signed languages are involved" (p.334).

American Sign Language (ASL) and British Sing Language (BSL) are the most famous sign languages. They are natural, visual languages having their own syntax and grammatical structures. Signed English is also very famous, but it is the signed form of English and it matches each spoken words of English. In our country, there is not a common legal sign language accepted by authorities yet. However, there is a sign language used by the deaf community in Turkey because sign language exists wherever groups of deaf people exist, and it is called Turkish Sign Language (TSL). Because it is not legally recognized, there are many local differences in TSL, and instructions are given in sign language accompanied with Turkish in hearing impaired schools. Nowadays, linguists are studying to determine a common and legal sign language in Turkey, and Turkish Language Society and Ministry of Education prepared a dictionary of TSL which can be found in their website, which is a big step to have a common sign language in Turkey.

Almost all countries have their own legal sign languages. However, it should be mentioned that sign languages are not the visual versions of spoken languages. These are completely different from spoken languages although they are influenced by the native language and culture of the countries they are used. That is, there is not a Turkish form of sign language, but Turkish Sign Language. Figure 2.4 shows the differences between sign languages.

Thank you- American Sign Language   Thank you- Turkish Sign Language

    (http://www.lifeprint.com)   (http://www.turkisaretdili.org)

Figure 2.4. Differences Between ASL and TSL

Furthermore, each sign language has its own linguistic rules as spoken languages. There are a lot of differences and similarities between sign and spoken languages. Modality is the most striking difference between signed and spoken languages. In contrast to the fact that sign languages are perceived visually by users, spoken languages are perceived both visually and auditorily. Figure 2.5 summarizes this modality difference clearly (Pfau, Steinbach, Woll, 2012, p.6).

ACTION	SIGNAL	PERCEPTION
Hearing communication bodily actions	→ Sound light	→ → Auditory perception Visual perception
Deaf communication bodily actions	→ light	→ Visual perception

Figure 2.5. The Modality Difference

All sign languages have their own complex spatial grammar, and almost all of them have rich inflectional systems that free up constituent order. For example, in American Sign Language, there is no grammatical expression of tense and verbs

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can inflect for both subject and object agreement as well as a variety of aspects such as habitual, continuous, and inceptive (Marschark & Spencer, 2003, p.319).

a) Sign Languages and Spoken Languages

Like all spoken languages, all sign languages have signs which belong to grammatical categories and they have many similar morphological patterns. Fromkin, Rodman, and Hyams (2011) explain "They have root and affix morphemes, free and bound morphemes, lexical content and grammatical morphemes, derivational and inflectional morphemes, and morphological rules for their combination to form morphologically complex signs. The affixation is accomplished by preceding or following a particular gesture with another affixing gesture" (p.103). As can be deduced, sign languages have also their own morphology which is provided by the movements and gestures. Figure 2.6 illustrates the derivationally related sign in ASL.

COMPARE   'comparison'   MEASURE   'the activity of measuring'
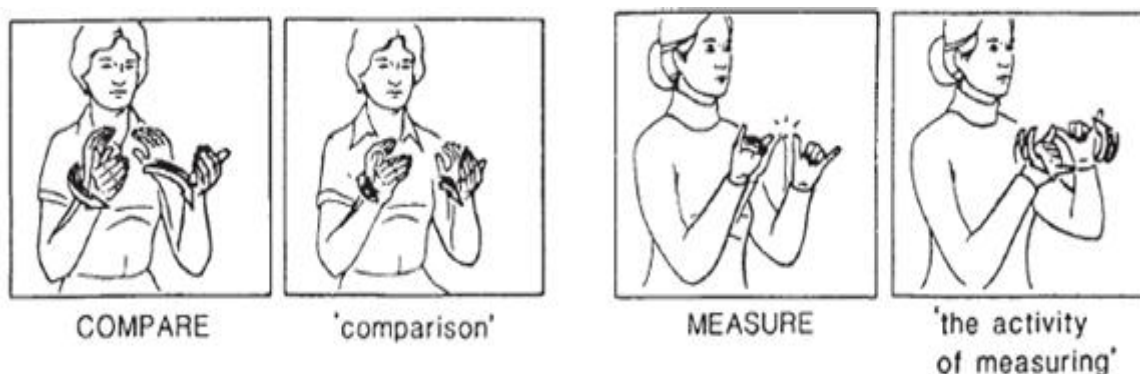
Figure 2.6. The Derivationally Related Sign in ASL (Fromkin, Rodman, & Hyams, 2011, p.104)

Sign languages also have rules of syntax like all spoken languages. As Fromkin, Rodman, and Hyams (2011) state, "Signed languages have phrase structure rules that provide hierarchical structure and order constituents. A signer distinguishes *the dog chased the cat* from *the cat chased the dog* through the order of signing" (p.167). They also emphasize the movements of eyebrows and head. Like intonation in spoken languages, facial expressions and the motions of head function as markers of the special word order. Furthermore, all sign languages also show an interaction of universal and language-specific properties. The rules are structure-dependent and movement rules are confined in different ways.

Unlike spoken languages, the facial gestures are an integral part of the sign language grammar. (Fromkin, et al., 2011, p.167-168).

As for phonetics, it should be stated that signs are distinguished according to the place and manner of hands because in sign languages signs are articulated by hands just as sounds are articulated by mouth and its parts. It is also noted that not all sign languages share the same hand shapes like spoken languages because each sign language use its own formation differently. To illustrate, the signs of ASL are formed by three major features:

1. the configuration of the hand (hand shape),

2. the movement of the hand and arms toward or away from the body, and

3. the location of the hands in signing space (Fromkin, et al., 2011, p.257)

As widely known, voicing and tone are the most important parts of language because a difference in them can result in different words in spoken languages. It is the same for sign language due to the fact that a difference in location, hand shape or movement can also result in different signs with different meanings. (Fromkin, et al., 2011, p. 258). Consequently, it is a certain fact that all sign languages have their own rules on syntax, morphology, phonetics etc. and they do what spoken languages do nonverbally.

b) Manual Alphabet and Finger Spelling

All sign languages also have some mechanisms for representing the material of oral languages. Fingerspelling is one example of such a representational system. All sign languages have their own different manual alphabets, and fingerspelling uses the manual alphabet so as to spell words. Figure 2.7 shows the differences between the manual alphabets of Turkish and American Sign Languages.
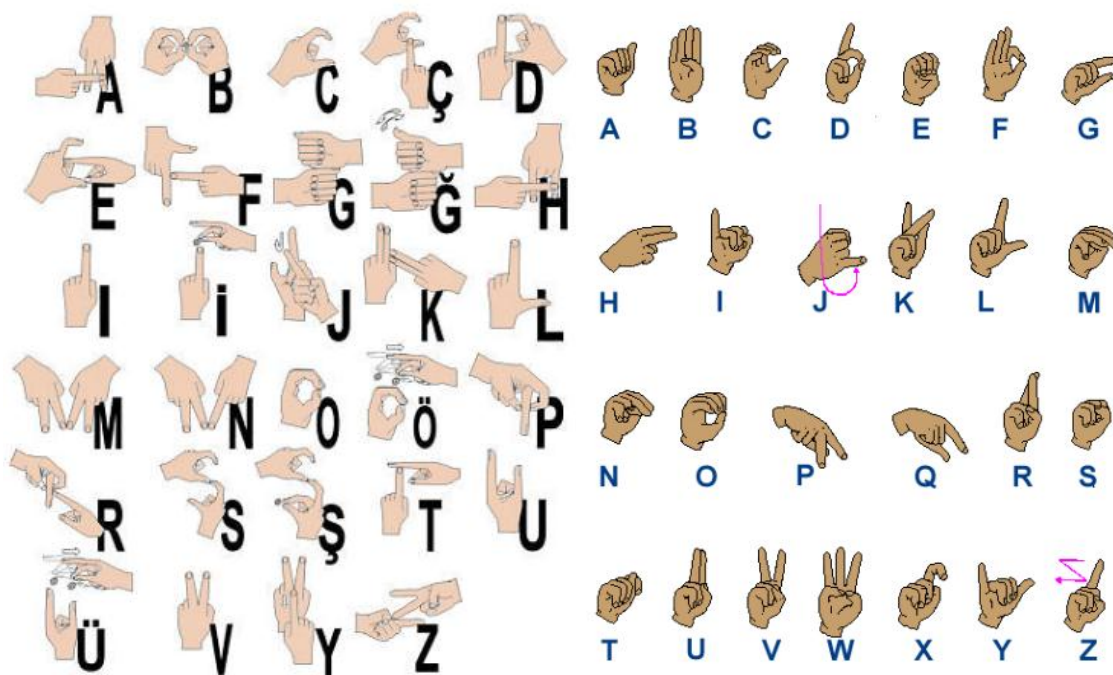
Turkish Sign Language   American Sign Language

(http://www.lafsozluk.com)   (http://www.iidc.indiana.edu)

Figure 2.7. Manual Alphabets of TSL & ASL

Each letter is represented by a hand shape in these manual alphabets. Deaf people or hearing people who need to use a sign language usually use fingerspelling for the words that they do not know the sign language equivalent, for people's names and proper names, and also for technical vocabulary items. Moreover, people use finger spelling for slang or profession-specific jargon of the spoken language that do not have a designated sign. Figure 2.8 illustrates the fingerspelling of the word "read" using ASL. As stated by Wilcox (1992), "Fingerspelling is often used for verbatim representation of English words, phrases, or sentences. It is also used to convey personal names, place names, names of months and holidays, and words for which no conventional signs yet exist such as technical English vocabulary" (p.9). Furthermore, in a language classroom, fingerspelling can be used to teach spelling skills and phonics skills to the students.

Figure 2.8. *Fingerspelling of "read* (http://emmoreylab.sdsu.edu/fingerspelling.php)

c) Lip Reading

Lip reading (also known as **speech reading**) is very important for deaf or hard of hearing people. Deaf children begin to reading lips even from the birth and it replaces their first language input. Paul (2009) states that lip reading "refers to the process of understanding a spoken message through observation of the speaker's face" (p.138). That is, lip reading or speech reading involves deriving meaning about what is being said by watching the talker. Although we will use the two terms interchangeably, "speech reading" is the preferred term because information is obtained from not only the lips but also the visible movements of the speakers, facial expressions, gestures, etc. Speech reading involves the visual channel of speech communication. It is a natural means of communication that we all use to supplement hearing, especially when listening conditions become difficult. (Gelfand, 2009, p.468). That is to say, eyes are used to substitute for ears with speech reading and it can be regarded as a big chance for deaf people. They can watch the movements of lips and tongue of anyone who is speaking and understand what is said by this way. As Figure 2.9 indicates, movements of lips and tongue can make what is said clear. However, there are some important problems of speech reading such as rapidity and obscurity of the movements. If deaf people are trained, they can overcome these difficulties and their minds begin grasping a complete impression subconsciously, which is aimed at training programs. It should be noted that speech reading cannot thoroughly replace what good ears do, but it is a very significant issue for deaf people. Nitchie (2007) explains, "Lip-reading, then, is not a cure for deafness, nor is it even a cure for all

the ills of deafness; but from some of the worst ills it is true alleviation. ….under any circumstances, lip-reading has in it the power to make deafness of whatever degree much easier to bear" (p.13).

Figure 2.9. Examples of Sound and What Mouths Look Like When Saying Them (http://deafgeoff.com/category/social-media/)

d) Facial Expressions in Sign Languages

Besides all of these issues, body movements, facial expressions and gestures are also used in company with sign languages. They are almost the most important elements of such languages because visual parts of communication are considered as primary means of communication. For example, different sings can mean different things with different facial expressions and body movements. Therefore, learning a sign language does not mean using it properly without appropriate body movements. Figure 2.10 illustrates how facial expressions go hand in hand with sign languages (http://www.theatlantic.com/health/archive/2012/11/why-great-sign-language-interpreters-are-so-animated/264459/http://www.theatlant).

Figure 2.10. One of the Facial Expressions Used in Sign Languages

As can be seen from the figure, she is making a sign for SPILL in American Sign Language while at the same time making what is known as the 'th' mouth adverbial. This mouth position modifies the verb to mean "sloppily done." If you attach it to WALK, WRITE, or DRIVE, it means "walk sloppily," "write messily," or "drive carelessly".

All in all, it should be kept in mind that not only the movements of the hands but also the shape, placement the hands, facial expressions and body movements play important parts in conveying information while using sign languages.

2.3.1.2. Approaches to Education of Deaf Children

There are lots of claims about the means of instruction when teaching deaf students such as oral approach, sign language approach, and total communication approach. Each approach will be discussed below.

a) Oral Approach

Some authorities do not accept the superiority of sign languages for deaf people and they support the substantial use of lip reading. They are called as oralists and argue that deaf people should be given all the advantages that hearing people have in order to enter mainstream life. They believe that if deaf people use only sign languages as means of communication, they are able to communicate only with deaf people. Alexander Graham Bell was the first person who advocated the

oral approach to instruction and support the use of spoken languages in all deaf people. Monaghan and Schmaling (2003) explain, "Pure oralism involves communication entirely by means of speech and lipreading; in cases of complete breakdown in communication, reading and writing are used. Signing and fingerspelling are never used, and pantomimic gesturing is minimal." (p.28). That is to say, oralism supports the use of speech in every situation no matter it is useful or not, and it aims to show deaf people as hearing people in the society. Brueggemann (2004) also explains that, "Oralists emphasized speech – and lip reading for communication by and among deaf people; strict adherents sought the exclusive use of speech over any signed communication. As a group, oral advocates generally agreed that their method best facilitated deaf people's assimilation into mainstream society" (p.60). They are right in one sense, but researches show that if deaf children are not taught any sign languages, they have many communication difficulties even with similar peers. The most important advantage of oral approach is explained by Hyjánková (2010) as "The oral method of communication has its highest and the most significant functions in social integration of the hearing impaired. It enables the hearing impaired to adjust a majority and their maximum self-fulfillment" (p.18).

b) Sign Language Approach

The sign language approach was spearheaded by Thomas Hopkins Gallaudet in the United States and he founded the first school for deaf in Hardfort. He insisted on the use of the sign languages by deaf people in their normal life and also as a means of instruction at schools. According to Edwards (2012), who can be regarded as "manualist", "It was as natural for the deaf body to sign as it was natural for the hearing body to speak" (p. 158). Sign Language Approach (SLA) advocates the use of manual languages by deaf people and almost all deaf people, especially profoundly deaf ones from birth, find this philosophy better. Baynton (1996) summarizes that "Most recent research has concluded that the oralist approach was devastating for generations of deaf people. Although most deaf children eventually would learn sign language on their own, their early language development and their education in the classroom were often severely stunted. The difficulty of learning spoken English for a person profoundly deaf from an early age has been likened to a hearing American trying to learn spoken

Japanese while locked within a soundproof glass cubicle" (p.5). Similarly, George Veditz, president of National Association of the Deaf, argued in 1910, deaf people could never abandon sign language: "They are facing not a theory but a condition, for they are first, last, and all the time the people of the eye" (cited in Baynton, p10). That is to say, this approach supports the use of sign languages in educational settings.

c) Total Communication Approach

This manualist-oralist controversy also affect the philosophy of education of deaf children. The debate was very firm and there were many firm believers on both sides. Finally, Bob Holcomb advocated the use of both systems, oral and manual, and he coined the term the total communication method in 1970s. In this method, some type of manual communication is used simultaneously with speech. In addition, many people realized that the main aim should be teaching the deaf child a communication system that a deaf child can master regardless of whether it is oral, manual or a combination of both (Kirki, Gallagher, Colleman, & Anastasiow, 2012, p.319). It is a combination of different methods which are used at the same time. Hyjánková (2010) describes this approach as "The Total communication approach, which is sometimes called the simultaneous or combined method, combines fingerspelling, signs, speech or lip reading, speech and auditory amplification" (p.19). Consequently, the main aim of this method is to help, and moreover, to make easy a demanding communicative situation while learning verbally formulated knowledge and new concepts, and it is obvious that it supports the differences in the classroom and uses the advantageous parts of each method. According to a study conducted by Hyjánková (2010), total communication approach is the one which is found to be the best way of teaching deaf children. Figure 2.11 shows the preferences of deaf learners on this issue (Hyjánková, 2010, p. 60).
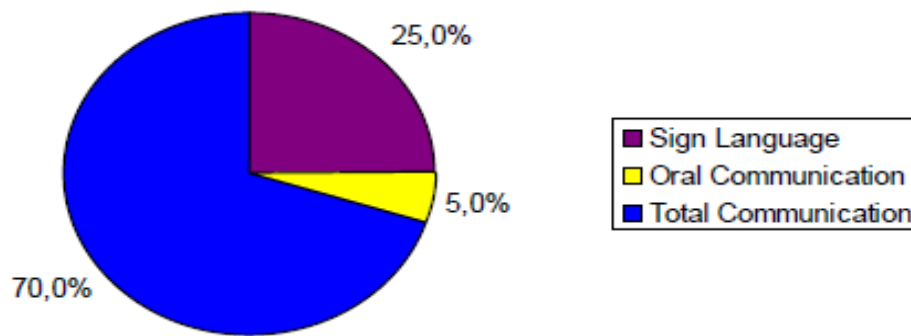
Figure 2.11. Communication Preference of Deaf Learners

2.3.2. Deafness and Second (Turkish) Language Acquisition

The second language of deaf people, especially the ones born to deaf parents, becomes the spoken language in their country due to the fact that sign language of their country becomes their native tongue. Therefore, second language acquisition of deaf people refers to the acquisition of spoken languages, which means acquiring a different language mode. It should be noted that deaf children are in a very unique language learning situation because they are not only working with two languages but with two very different language modes (a visual/spatial and a linear/spoken/written mode). When acquiring their second language, they have many difficulties because of their hindrance of auditory input and also modality differences between these two languages.

In Turkey, second language of deaf people is Turkish. Deaf learners' Turkish language acquisition process can be regarded as similar to the acquisition of Turkish by hearing second language learners. These two language acquisition processes have some similarities although they have also differences. Berent and Clymer (2007) compare and contrast the acquisition of English by deaf learners and by second language learners. Besides syntactic acquisition orders, they explain that the similarities are also quite apparent in students' English language output. English essays written by deaf learners are generally indistinguishable, content and cultural perspective notwithstanding, from essays written by hearing students of English as a second language (ESL) at a comparable proficiency levels English language output (p.3). They also mention another similarity by

discussing that the observed similarity between hearing ESL learners and deaf learners results from similar restrictions on "noticing" English language input (Berent, 2007, p.4). Furthermore, the differences are also stated in terms of overriding environmental factors. It is explained that deaf learners' English language acquisition in English-speaking countries is modulated by severely restricted auditory access to spoken language input. As a result, for deaf learners, available English language input comes almost only through the visual channel and it delays their language development and results in a lifelong struggle to attain high English literacy skills (p.3-4). That is, deaf learners cannot notice and process the spoken language input which is through the auditory channel, so it is a very problematic issue for their acquisition of second (spoken) language. Figure 2.12 illustrates how auditory and visual input can affect the language acquisition (Berent, 2004, p.78).
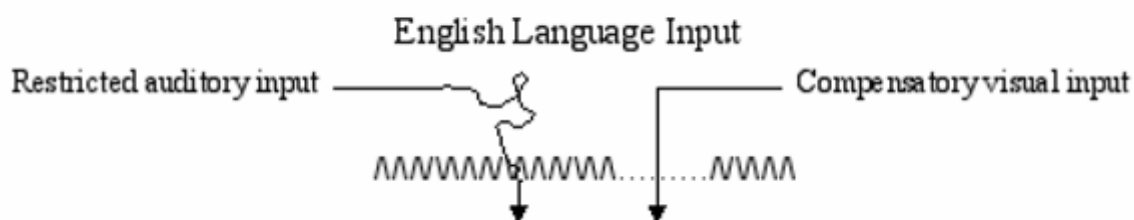

Figure 2.12. English Language Input Available to Deaf and Hard of Hearing Learners

Macurova (2004) also discusses these difficulties by saying, "The deaf are deprived of all sensory perception of sounds. The absence of this rudimentary prerequisite of spoken language makes the mastering of any language very difficult, even in the written form" (p.30).

Deaf people generally do not use the spoken language of their country as a primary means of communication. They mostly use their second language especially for academic purposes at school and with their hearing teachers. They always prefer using sign language with their peers. At this point, it can be said that they are associated with the notions of bilingualism and biculturalism, which will be discussed in detail in the next chapter.

The acquisition process of deaf people's second language which can also be majority language is quite similar to hearing people. Both learners have similar difficulties in the acquisition process in terms of processing the target language input. However, deaf children of hearing parents, which constitute the majority of deaf culture, are not lucky because of the fact that most of them do not have the opportunity to acquire their first language at home and even they can be called as languageless. As Cummin (as cited in Paul, 1998) states "The developmental interdependence model suggests that the linguistic skills already developed in the first language may influence the potential development of skills in the second language" (p.151). Therefore, because of being languageless, for the deaf children of hearing parents, this positive influence of first language skills in the second language is nearly impossible. Similarly, Meyer and Wells (1996) say "Since their first language (ASL) has no written form, profoundly deaf students cannot acquire literacy skills in their first language; consequently, they do not have literacy skills to transfer to the written form of a second, spoken, language such as English" (p.94). Agrawal (2005) concludes "There is a lack of ability in deaf children to effectively acquire spoken language. So, it is almost impossible that profoundly deaf children acquire spoken language effectively in spite of repetitive training" (p.4) and also it is very difficult for them to be literate like their hearing peers. However, it does not mean that nothing can be done for them. Teachers of deaf learners should do their best and help them in this problematic process as much as possible and try different teaching methodologies until finding the one best suits them. McCoy and Masterman (1997) identify the best solutions by saying "Direct, personalized interaction in a non-threatening (non-human) package, coupled with constructive input in the form of specific example utterances that address issues the student is currently learning, could go a long way toward bringing satisfactory English literacy within reach of the deaf population" (p.53). Therefore, teachers of deaf learners have to develop their knowledge and skills so that they can enable them to be successful and independent second language learners.

2.3.3. Deafness and Third (English) Language Acquisition

In non-English speaking countries, third language of deaf people is their foreign language. For example, for almost all of the deaf people in Turkey, third language is English. Dotter (2008) acknowledges that "Taking a sign language as the first or

preferred language of deaf people, a written/spoken national one is already their second language; any other written/spoken language becomes the third one. As there is very little instruction on structure/grammar of sign languages for many deaf people, it is difficult for them to grasp all the linguistic information on a second or third language. English, the lingua franca of the European community, therefore, in the best case is the third language of deaf people" (p.100). Learning a foreign language is very significant for not only hearing people but also deaf people. In today's world, knowing a foreign language, especially English, which is called as lingua franca, is a necessity so as to communicate with people from different countries, and also to use technological devices such as computers effectively. According to Cole (as cited in Bidoli & Ochse, 2008), the reasons of learning a foreign language are as follows;

-learning about different cultures,

-communicating with different people,

-getting a better understanding of one's own language, and

-having better opportunities in the job market (p.179).

However, in English speaking countries, it is quite different because in these countries, deaf people learn English not as a foreign language, but as a second language. As Macurova (2004) states, "The specific circumstances of English teaching to the deaf in English-speaking countries differ from those in non-English speaking countries, the differences also affect such aspects as the orientation and goals of the teaching process" (p.31). Thus, language teachers should take it into consideration, and they should not forget that teaching a foreign language to deaf people should be evaluated and judged in its own merit.

It is a proven fact that the skills developed in the first and the second language influence the development of skills in the third language. In the deaf individual, the literacy skills developed in the majority language could be transferred to the third language (Martin, 2009, p.32). For this reason, the acquisition of second language has a great influence on the foreign language of deaf people, and deaf children of deaf parents can be regarded as the most advantageous group due to their better cognitive skills in first language acquisition. Furthermore, language teachers

should know the first (visual) language of the deaf learners to be able to help them in the acquisition process. Hyjánková (2010) explores "Knowledge of sign language in all its aspects can help especially the language teachers of deaf to find the best approaches enhancing the teaching of the second or the third language with respect to a mother tongue or the first language of the deaf – sign language" (p. 21).

Foreign language learning is one of the most crucial issues in language learning, and lots of factors affecting better learning process have been discussed by linguists so far such as motivation, affective filter, learning styles and strategies, cognitive style etc. In addition to them, there are many considerations for deaf individuals. Martin (2009) explain these factors as follows: First of all, "The degree and onset of hearing impairment are one of the key factors determining the peculiarities of the process of language acquisition and indeed language learning" (p.32). Because of the advances of amplification technology, hearing and hard of hearing people have almost the same opportunities, and even some of them can notice the auditory input. Secondly, as stated above, "The hearing status of parents, being directly related to the question of family language, seems to have a definite impact on primary language acquisition and thus on the general language learning abilities" (p.33). That is, deaf children of deaf parents are obviously superior to deaf children of hearing parents regarding language learning ability. Moreover, the quality and quantity of foreign language input and its penetrability are essential issues for effective third language learning of deaf people. Consequently, it should be kept in mind that deaf people can learn written or spoken foreign languages if appropriate techniques and methods are used. A pilot study which was carried out by Hilzensauer and Skant (2004) proves this fact. In their study, they developed a computer-assisted program called *Signon!* primary objective of which is to help deaf users to use the electronic learning materials autonomously although they can be used in the context of the classroom. It provides sign language as a means of instruction, multiple repetitions which are not suitable at the classroom settings, sign translations, videos and many visual elements which help deaf learner to process the foreign language input and so they can use their target language effectively (Bidoli & Ochse, 2008, p.173). Consequently, it is certain that deaf people can be taught foreign languages, but

what the most important thing is the teaching process because of the fact that they need special attention due to their lack of hearing. Therefore, language teachers of deaf learners should do their best and use appropriate techniques which contain visual elements so as to help them process the target language input.

2.4. Bilingual Deaf Education

As stated in the previous section, deaf education is a form of bilingual education because it prefers the sign language as the leading means of communication throughout school education. In this type of education, spoken language of the hearing society is taught as a second language, especially its written and also spoken form. The main reason for bilingual education is the fact that most of the deaf children will have to live in a society of both hearing and non-hearing people, so it is considered that knowing only sign language will result in the isolation in society.

2.4.1. Bilingualism and Biculturalism

Bilingualism refers to the mastery of two distinct language systems. That is, bilingual people have the ability of using these two languages as their mother tongue. As Walters (2005) states "For a bilingual, speaking in two languages and flipping between them is easy as natural as breathing" (p.1). Similarly, Bussmann (1990/2006) describes bilingualism as "A speaker's competence in two or more languages and their use in everyday communication" (p.130).

As for deaf people, it appears appropriate to state that almost all sign language users are bilingual all over the world because of the fact that they learn a sign language as a first language, and learn the spoken/written language (Turkish in our country) as a second language. This kind of bilingualism can be called as *sign language-spoken language bilingualism.* Sign language is used as the primary language of face-to-face communication, spoken/written language is taught and used in its written form. Thus, it is clear that a bilingual deaf person is the one who is a fluent signer and who has fully literate competence in two reading and writing spoken/written language proficiently (Erting & Pfau, 1997, p.7).

Biculturalism is also an important part of this issue because deaf people are not only bilingual but also bicultural. Marschark and Spencer (2003) assert that "Life

for a deaf person will involve the negotiation of two languages (signed and spoken/written) and two cultures (those of the Deaf community and the hearing world)" (p.45). Therefore, it can be said that deaf people are in a very different linguistic and cultural manner. Moreover, deaf education can be regarded as a form of bilingual and bicultural education. It is obvious that the main objective of these programs is to prepare deaf students for life in two cultural and language communities. In such programs, sign languages are used as a medium of instruction and spoken/written language literacy is tried to be taught by using learner's first language. That is to say, new languages are taught through what they already know in a bilingual concept, and sign languages contribute to successful language learning by providing a typical bilingual learning environment. Evans (2004) also determines the bilingual education of deaf learners as "The thing that the teachers were doing well included consistently using ASL as the language of instruction, providing conceptually accurate translations between the two languages, and presenting meaningful language in a multi-modal way through signs, spoken words, print, and pictures" (p.141).

2.4.2. Pros and Cons of Bilingual Deaf Education

It is an obvious fact that successful implementation of bilingual education depends on the effective use of a sign language as the language of instruction. Bilingual education for deaf people has many advantages. Erting and Pfau (1997) describe the advantages of using sign language (ASL in the USA) as a medium of instruction as follows:

1. it provides language input that is comprehensible because it is visible,

2. it provides the children with the linguistic foundation and background knowledge necessary to make the second language more comprehensible,

3. it facilitates the ability to use language to solve problems and to participate in the types of interactions which promote higher order thinking, and

4. it enhances the development of basic literacy (p.6).

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Furthermore, Baker and Baker (1997) state "It is an early access to comprehensible language fosters early cognitive development which, in turn, promotes increased literacy and greater academic achievement" (p.4). They also mention the psychological affects by saying "Students in bilingual-bicultural programs have increased self-esteem and confidence due to the healthy view of Deaf children, acceptance of who they are as human beings, and increased confidence to function in bilingual-bicultural environments" (p.4). Deuchar (as cited in Malmker, 1984) also stresses the importance of sign language instruction by saying, "the recognition and use of sign language in schools would probably increase deaf people's confidence and their desire and ability to learn English, 'and would ultimately aid their integration as bilingual, bicultural adults, into both the deaf and the hearing communities.

In spite of its advantages, many scholars still do not agree with the bilingual deaf education. Some of them, the manualists, assert that deaf people use only signs and sign languages, and some of them, the oralists, claim that deaf people should rely on speech and speech reading for communication. Moreover, there are also people who think that cued speech is the best way. Cued speech is visual representation of spoken languages, and it is not really speech at all. All in all, negative effects of bilingual education can be explained as follows;

  - the children are not motivated to use their oral speech,

  - they often refuse to use hearing aids,

  - they have less comprehensible speech so they are not able to communicate

    with the hearing society, and

  - the effects of teaching the spoken language through the visual sign language

    are not widely discussed among specialists (Hyjánková, 2010, p. 21, 22).

In addition to all these negative effects, it is a clear fact that bilingual education systems are more effective for the academic achievement of deaf children. Evans (2004) suggests the use of bilingual education by using sign language as a language of instruction and he explains the differences between bilingual deaf programs and others in terms of;

1. language modality,

2. the absence of written form of the first language, and

3. the inconsistent exposure of deaf children to the first language (p.18).

In bilingual deaf education, there are lots of factors that affect the achievement of learners. Firstly, the emphasis should be on explicit teaching methods. Ma (2009) notes that, "Explicit learning is learning with awareness of what is learned" (p.104). As understood, explicit learning is intentional and thus teachers should be well-organized while teaching explicitly. Because deaf education needs great effort due to learners' impairments, explicit or intentional learning is a must for them. Secondly, word-based skills such as spelling and vocabulary should be emphasized in bilingual deaf education as well. These skills are mechanistic features of language and they are easy to teach deaf language learners. Moreover, number of students should also be an important factor in bilingual deaf education because students should need assistant by the teacher and it is not possible for crowded classrooms. They should also see their teachers and peers for an effective communication via sign language.

For deaf children who are raised with two languages, with one spoken language and one sign language, setting up this bilingual system is much more complicated. Firstly, deaf children have restricted access to the spoken language as a result of their hearing loss. They have to acquire spoken languages mainly through the visual channel such as speech reading. Learning a spoken language is a slow process for deaf children and this requires exceptional efforts by the child and his or her parents. Consequently, the spoken language development of deaf children is usually delayed when compared to hearing children. Secondly, many deaf children have limited sign language input because of the fact that their parents, family members, and teachers usually do not have fluent signing skills. Hearing parents often do not learn sign language themselves until the deafness of their child has been detected. Therefore, hearing adults are limited in their ability to respond intuitively to deaf children due to their limited signing skills, so many deaf children of hearing parents will be delayed in the acquisition of sign language (Hermans, Knoors, Ormel, & Verhoeven, 2008).

Critical period hypothesis should be considered in bilingual deaf education as well. As it is widely known, first language has a great effect on second language, and this advantage should be used in second language classrooms. Bhatia and Ritchie (2006) explain "As with the study of *sl-spl bilingualism*, critical period effect for language acquisition influence the determination of which language is the SL-SPL bilingual's first language(L1) and which is the second language (L2)" (p.317). Therefore, language teachers should determine and be aware of the influence of first language acquisition and carry it to the teaching atmosphere.

There are many reasons for the implementation of bilingual deaf education. In addition to advantages explained above, one of the most important reasons of this implementation is not to isolate deaf people from the society. If deaf people are taught only communicating via sign languages, they will not have chance to communicate with hearing people. Evans (2004) concludes that, "The ultimate goal in a bilingual/bicultural approach to educating deaf students is to maximize the student's potential for participating in both the Deaf community and society as a whole" (p.148). Thus, all deaf people should be taught spoken languages as much as possible in order to be able to communicate with hearing people.

Furthermore, most of the deaf people around the world are multilingual. The schools of deaf which have foreign language classes are increasing because of the necessity of learning English, lingua franca, in today's world. In these schools, sign language and the spoken language of that country become their first and second language, and English becomes their foreign language in non-English speaking countries.

2.5. Language Learning Strategies for Deaf

Learning strategies are defined by O'Malley and Chamot (1990) as "the special thoughts or behaviours that individuals use to help them comprehend, learn, or retain new information" (p.1). Oxford (1990) also expands this definition by saying, "specific actions taken by the learner to make learning easier, faster, more enjoyable, more self-directed, more effective and more transferable to new situations" (p.8). As can be understood, learning strategies are the actions of the learners to make their learning better. These actions can change according to the learners' individual preferences. Therefore, it is a certain fact that the best learning

strategy is not possible for all learners, but some learning strategies are better for some learners.

Strategy is a general term which is used in many fields of life. In language learning, research into strategies used by language learners began in the 1960s. Since then, many good surveys of this field have been provided by Wenden and Rubin (1987), O'Malley and Chamot (1990), Ellis (1978) and Oxford (1990). It is obvious that language learning requires cognitive, social and communicative skills because of the nature of languages.

Rubin (1987) points out three major types of strategies used by learners which can contribute directly or indirectly to language learning. The first group she mentioned is *learning strategies*. This group includes both *cognitive* and *metacognitive* strategies which contribute directly to learning. *Clarification/Verification, Guessing/Inductive Inferencing, Deductive Reasoning, Practice, Memorization, and Monitoring* are the cognitive learning strategies, and a variety of processes such as *planning, prioritizing, setting goals, and self-management* are the examples of metacognitive learning strategies. The second group is *Communication strategies*. These strategies are used to promote communication with others, and when they come across a difficulty in their communication. The third of Rubin's groups is *Social strategies*. These strategies contribute to language learning indirectly like communication strategies (Williams & Burden, 2000, p.149-150).

The categorization of language learning strategies was further developed by Rebecca Oxford (1990). She believes that these strategies help learners develop their language system and participate in communication. She divides language learning strategies into two main groups which are *direct* and *indirect*, and they are subdivided into six groups which is illustrated in Figure 2.13 and 2.14 (Williams & Burden, 2000, p.149-153). In Oxford's system, direct strategies include memory, cognitive and compensation strategies. While learning and storing the new information, learners use memory strategies. Cognitive strategies are those they use to make sense of their learning, and compensation strategies help them to continue the communication. Indirect strategies consist of metacognitive, affective and social strategies. Metacognitive strategies assist learners to regulate their

learning, affective strategies are directly related to their emotional requirement, and lastly social strategies help them to interact with other people by using their foreign language (Hişmanoğlu, 2000).
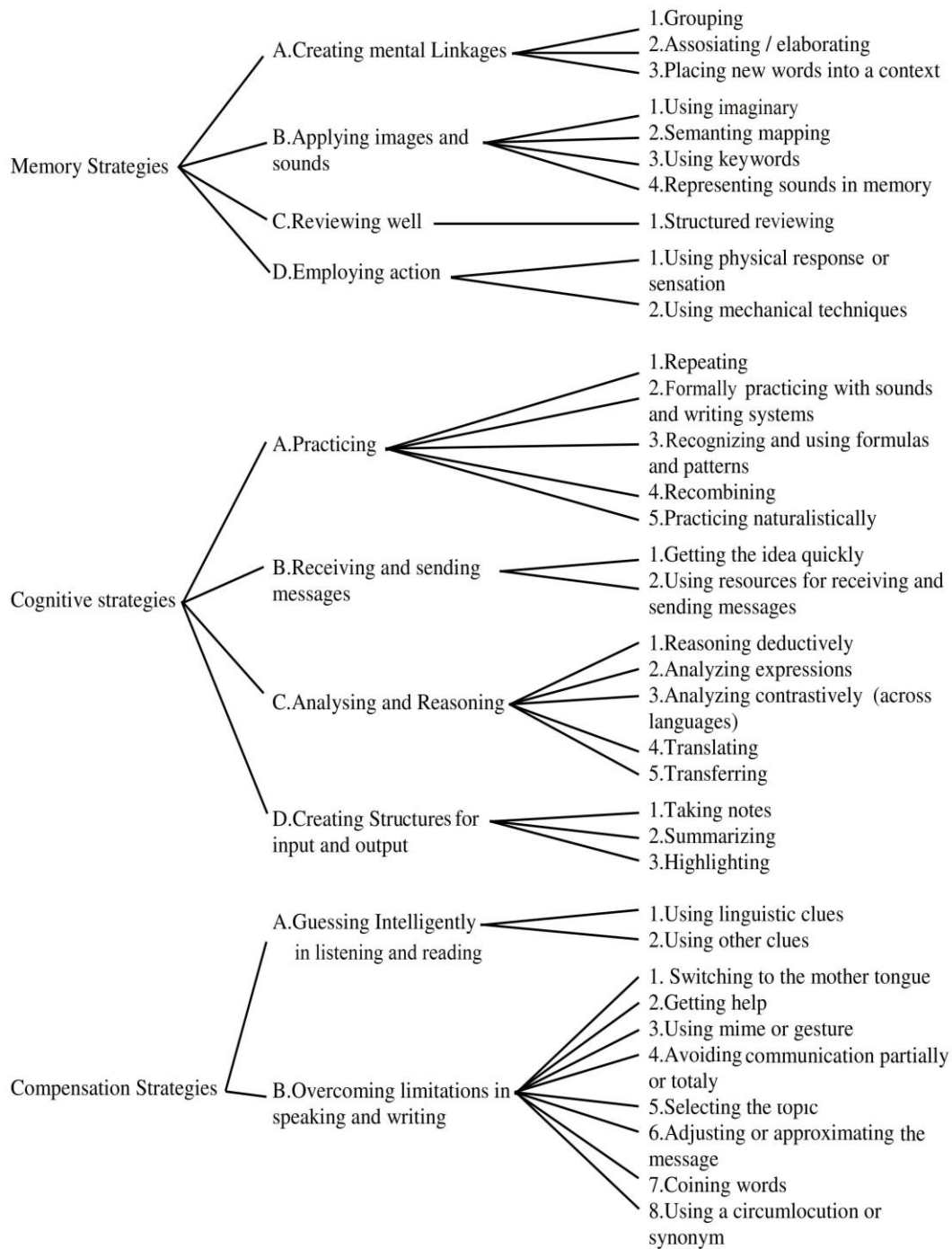
Memory Strategies

A.Creating mental Linkages
1.Grouping
2.Assosiating / elaborating
3.Placing new words into a context

B.Applying images and sounds
1.Using imaginary
2.Semanting mapping
3.Using keywords
4.Representing sounds in memory

C.Reviewing well
1.Structured reviewing

D.Employing action
1.Using physical response or sensation
2.Using mechanical techniques

Cognitive strategies

A.Practicing
1.Repeating
2.Formally practicing with sounds and writing systems
3.Recognizing and using formulas and patterns
4.Recombining
5.Practicing naturalistically

B.Receiving and sending messages
1.Getting the idea quickly
2.Using resources for receiving and sending messages

C.Analysing and Reasoning
1.Reasoning deductively
2.Analyzing expressions
3.Analyzing contrastively (across languages)
4.Translating
5.Transferring

D.Creating Structures for input and output
1.Taking notes
2.Summarizing
3.Highlighting

Compensation Strategies

A.Guessing Intelligently in listening and reading
1.Using linguistic clues
2.Using other clues

B.Overcoming limitations in speaking and writing
1. Switching to the mother tongue
2.Getting help
3.Using mime or gesture
4.Avoiding communication partially or totaly
5.Selecting the topic
6.Adjusting or approximating the message
7.Coining words
8.Using a circumlocution or synonym

Figure 2.13. Oxford's Classification of Direct Strategies (Oxford, 1990)

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Figure 2.14. Oxford's Classification of Indirect Strategies (Oxford, 1990)

O'Malley and Chamot (1990) divided learning strategies into three main subcategories: *Metacognitive, Cognitive and Socioaffective Strategies.* Metacognitive strategies refer to the strategies that involve planning for learning, thinking about the learning process as it is taking place, monitoring comprehension, and evaluating learning. Advance organizer, selective attention, self-management and functional planning are the examples of metacognitive strategies. Cognitive strategies can be defined as specific learning tasks and they involve direct manipulation of the learning material. Repetition, resourcing, translation, grouping and note taking are the most frequently used cognitive strategies. Socioaffective strategies are more related to the interaction with other people and social mediating activity. Among the most important socioaffective strategies are cooperation with others, and questioning for clarification (Brown, 2000, p.124-126).

Learning a language means learning its all components. Because of the fact that deaf and hard of hearing learners cannot take auditory messages, they cannot learn its some components such as listening, speaking, and pronunciation, and language learning is one of the most difficult subjects they should learn. They do not use the same learning strategies as hearing peers. Dotter (2008) notes that "deaf people are forced from childhood to develop strategies to overcome incomplete/defective information, much more than hearing people are. One of these strategies is systematically looking for information from different clues in a text or scene. Another one is to try out all possible combinations of actions or hints" (p.106). Because of their visual preferences, they usually use strategies that benefit from the visual images. Deaf learners are compelled to learn and process new concepts in a different manner than auditory learners, which processes information from what they hear. Visual learners prefer to see a demonstration or some type of process of how things are done. They learn mainly with the help of their eyes and rely on them to understand concepts better (Marschark, Lang, & Albertini, 2002). Thus, deaf or hard of hearing learners have lots of responsibilities for their learning, and teachers of deaf learners; therefore, should help them to use their own strategies that use visual clues. That is, suitable techniques and strategies for them should be used while teaching languages to deaf learners regarding their strengths and weaknesses.

2.6. Language Learning Styles for Deaf

Strategy and style are confusing terms, and should be discriminated from each other before dealing with the language learning styles. As stated above, strategy can be regarded as a tactic used by a player, and it involves an ability to monitor the learning (Williams & Burden, 2000, p.145). On the contrary, according to Ellis (1978), learning styles are "*internally* based characteristics, often not perceived or consciously used by learners, for the intake and comprehension of new information" (p.9). However, she points out that language strategies refer to "*external* skills often used consciously by students to improve their learning" (p.9). In addition, Brown (2000) defines the learning styles as "consistent and rather enduring tendencies or preferences within an individual", and he defines the learning strategies as "specific methods of approaching a problem or task, modes of operation for achieving a particular end, planned designs for controlling and manipulating certain information" (p.113) and he likens the strategies to "battle plans". Furthermore, Keefe (1979) defines a learning style as "composite characteristic cognitive, affective, and physiological factors that serve as relatively stable indicators of how a learner perceives, interacts with, and responds to the learning environment" (p.4). That is, learning styles are internal characteristics of learners, whereas learning strategies are external skills which are consciously utilized by learners.

Learning styles refer to the preferences that learners have. There may be many preferences of learners, but it is a proven fact that some preferences are more dominant than others. Up to now, many researchers have studied on the learning styles such as Myers and Briggs (1962), Kolb (1984), Felder and Silverman (1988), Fleming (2001) and Grasha and Riechmann (1974). Fleming's VAK model and Grasha and Riechmann's Scale are dealt with below regarding deaf learners.

According to Fleming's VAK model (2001), there are three main learning styles which are visual (V), auditory (A) and kinaesthetic (K), and they can be described as follows;

Visual learners learn best with the help of visuals. They think in pictures and depend on the teacher's nonverbal cues such as body language to help with understanding. (Gilakjani & Ahmadi, 2011). Visual learners like looking at maps,

charts, pictures, videos, diagrams, handouts, real objects and everything that include visual images because of the fact that they learn through seeing. These learners have two sub-channels—*linguistic* and *spatial*. *Visual-linguistic* learners like learning through written language, such as reading and writing tasks. They remember what has been written down better. They like writing directions, and pay better attention to teachers when they watch them. Learners who are *visual-spatial* usually have difficulty with the written language and do better with charts, demonstrations, pictures, videos, and other visual materials. They can easily visualize faces and places by using their imagination.

Auditory learners learn better through listening and interpreting information by means of pitch, emphasis and speed. Written information may not be fully understood by these learners because they gain knowledge from reading out in the classroom (Gilakjani & Ahmadi, 2011). They think in words rather than pictures. Therefore, the best way to learn for them is through verbal lectures, discussions, listening and talking. They have very developed auditory skills and that explains why they are good at speaking and presenting. Auditory learners often talk to themselves. They may have difficulty in reading and writing tasks.

Kinaesthetic learners learn best with an active "hands-on" approach. They prefer interaction with the physical word. They usually have a difficult time staying on target and can easily become unfocused effortlessly (Gilakjani & Ahmadi, 2011). The best way to learn for kinaesthetic learners is through doing, touching and moving because they can express themselves through movement. Using body language is also a good way to express themselves through the body. It also has two sub-channels which are kinesthetic (movement) and tactile (touch). If there is no external stimulation or movement, they tend to lose their concentration. They may want to take notes even for the sake of moving their hands when listening to their teachers.

In addition, VAK model is sometimes known as VAKT (Visual, Auditory, Kinesthetic, & Tactile) or VAKOG (Visual, Auditory, Kinesthetic, Olfactory, and Gustatory). VAKOG refers to the five senses through which people experience the world, and it is also called as representational systems in Neuro-Linguistic

Pragramming (NLP). Olfactory refers to smelling, and Gustatory refers to tasting in this model.

As for deaf learners, it is not so difficult to guess their dominant learning style. Due to the fact that they do not have auditory skills, visual style is the most dominant preference for deaf leaners. Moreover, some of them may also have kinaesthetic, olfactory and gustatory learning styles. Marschark, Lang and Albertini (cited in Marschark, Lang and Albertini, 2000) also discuss the learning styles of deaf learners as "Deaf students are inherently visual learners to a varying degree. Because they lack the ability to hear, they rely more on vision to compensate for their lack of hearing" (p.1). Similarly, Strnadova (cited in Hyjánková, 2010) states that "our brain is adapted to changes in a way that gradual fall of auditory abilities is balanced by intensifying reception of visual perception" (p.18). Moreover, Roach (2005) explains the preferences of deaf learners as follows:

1. a predominately visual learning style,

2. a preference for working with texts that are socially salient, and

3. a preference for task-orientated methodology (p.10).

It is apparent that they are all visual learners. As stated above, visual learners refer to the learners who always use their eyes to see information. All visual materials used in the classroom are effective aids to learn for them. Golon (2008) describes visual learners as "Visual spatial learners are people (kids and adults) who think in images" (p.9). While teaching such learners, teachers should give visual directions as much as possible, give demonstrations, use color coded systems and dictionaries, give visual symbols for sounds, and use matching games, charts and graphs.

Multisensory or *Multicogitive Approach* can be regarded as the most important approach in language teaching for deaf learners because this approach supports the use of three senses. It is student-centered and its techniques also give opportunity to learn for learners with different learning styles. Especially for learners with language impairments, this approach should be used effectively and properly so that the needs of such learners will be met by the help of this approach due to the fact that it includes the use of different parts of the brain.
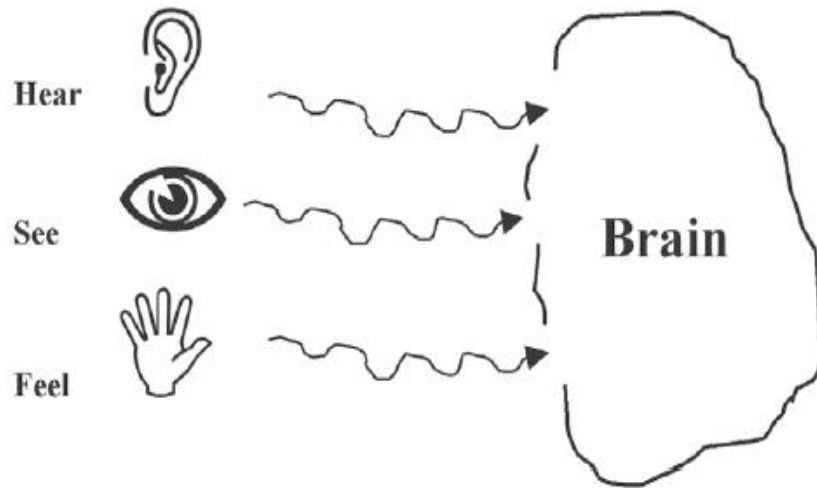
Figure 2.15. Multisensory Teaching on the Auditory, Visual, and Kinesthetic Sensory Modalities (Odisho, 2007)

As Odisho (2007) states, "Teaching with a multisensory approach means the instructor has to approach the learner via more than one sensory modality (Figure 2.15) and the learner should be prepared and encouraged to behave likewise" (p. 5). Thus, it is obvious that this approach and its techniques may be a good way in teaching deaf learners because it encourages the use of different and suitable teaching methods.

Hyjánková (2010) studied hearing loss and learning styles in her diploma thesis. In her study, there were twenty participants who were the students of Kindergarten, Primary and Secondary School for Hearing Impaired in Valašské Meziříčí. They were in two groups – 8th and 9th graders. The participants were 15 boys and 5 girls. She focused on the most used – VAK questionnaire. As a consequence, she found out that "Most of the learners have dominant visual learning style and the second place belongs to kinesthetic learners and nearly the same percentage of auditory learners" (p.61). Figure 2.16 shows the results of her study (Hyjánková, 2010, p. 59).
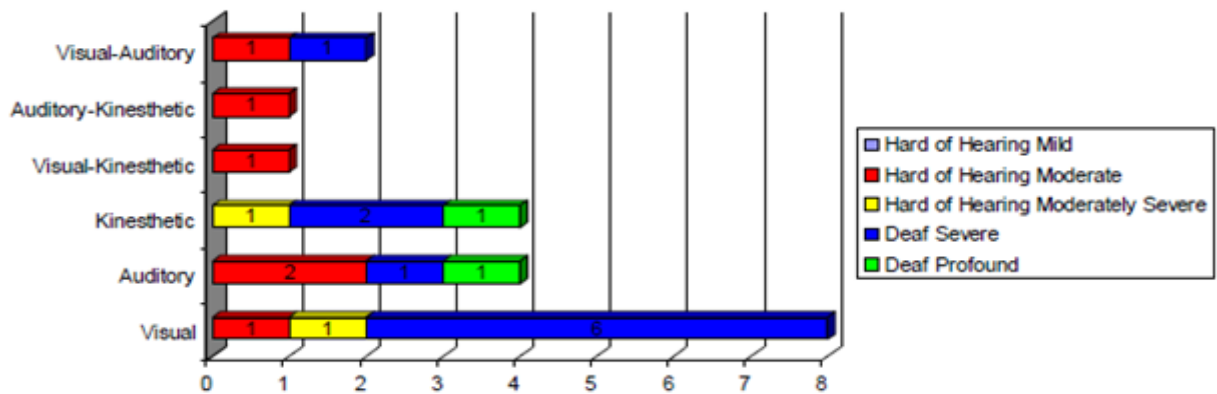
Figure 2.16. Hearing Loss and Learning Styles

There were four hypotheses before she began her study. According to the results, she evaluated these hypotheses as follows; the first hypothesis which states that there is a connection between the learning style and the degree of the hearing loss was confirmed by our findings, too as it is given in this chapter. The serious hearing losses are connected with visual and also kinesthetic learning style, while the hard of hearing categories are often auditory learners. The second hypothesis which says the majority of the hearing impaired are visual learners was also proven by the outcomes of our study because there are more than 40% learners with dominant visual style. The third hypothesis considers that the learning styles to influence the process of learning and teaching English. The results support that the learning as well as the teaching process is strongly influenced by the knowledge of the learning style teaching and learning strategies. The last hypothesis deals with the importance of the choice of the suitable visual communication with the hearing impaired learners. Regarding the research outcomes, 70% of the respondents foregrounded the total communication approach during the English language lessons, 25% chose sign language and only 5% of the participants accept purely oral communication during the English language lessons. All in all, teachers should focus on more than one learning style and make use of the preferences of their students during the teaching process (Hyjánková, 2010, p.63).

Grasha and Riechmann (1974) developed a model for student learning styles as well. They divided learning styles into six different subcategories; *competitive, collaborative, participative, dependent, independent*, and *avoidant*. Their model

based on the students' responses to actual classroom activities rather than on a more general assessment of personality or cognitive traits, and it is designed to help to identify the teaching techniques that address particular leaning styles. This scale is based on the social interaction model. Figure 2.17 illustrates the general characteristics and classroom preferences of the Grasha-Riechmann Student Learning Style Scales (Montgomery & Groat, 1998).

Style	Characteristics	Classroom preferences
Competitive	Compete with other students	Teacher-centered, class activities
Collaborative	Share ideas with others	Student-led small groups
Avoidant	Uninterested, non-participant	Anonymous environment
Participant	Eager to participate	Lectures with discussion
Dependent	Seek authority figure	Clear instructions, little ambiguity
Independent	Think for themselves	Independent study and projects

Figure 2.17. Characteristics of the Grasha-Riechmann Student Learning Style Scales

As can be understood from Figure 17, according to Grasha - Riechmann (1974) Student Learning Style Scales, learners with competitive styles are good at competing with other learners. Collaborative learners like exchanging ideas with other learners and avoidant learners are not interested and do not like participating in most of the activities. On the other hand, participant learners are often eager to participate in learning activities. Dependent ones need authority during the learning process, and lastly independent learners think for themselves.

Lang, Stinson, Kavanagh, Liu, and Basile (1999) conducted a study to determine the learning styles of deaf individuals according to the Grasha-Riechmann Student Learning Style Scales (GRSLSS). 46 female and 54 male students participated in their study. Subjects responded on a 10-point Likert scale to indicate how much they agreed with the statements for a particular course. They found out that deaf college students preferred certain learning styles more than others. The student rated themselves relatively high in the dependent style. It followed by the participative, collaborative, and independent scales, which had similar ratings; students scored lower still on the competitive and the lowest on the avoidant scale

(Lang, Stinson, Kavanagh, Liu, & Basile, 1999). With the results of their study it is apparent that deaf learners need authority figure in their learning process, so teachers should be the authority in the classroom and give clear instructions. Furthermore, they are very eager to participate in the given activities and tasks in the classroom, so teachers should organize suitable activities for them that allow them to take part.

Learning style has a vital role in the life of individuals because of the fact that when learners know their own learning styles, they will integrate their styles into the learning process, so they will learn more easily and be more successful. Moreover, knowing their own learning styles will help them to become an effective problem solver, and because they will take control of their learning, become more confident and autonomous in the learning process. Discovering learning styles will help them to determine their strengths and weaknesses, and so they will take responsibilities of their own learning (Gilakjani & Ahmadi, 2011). For teachers, knowing the learning styles of their students has a vital place as well. If teachers know the styles of their students, they will organize the educational settings, prepare the activities and tasks according to their styles which will result in successful and effective teaching. All in all, learning styles are very significant in all areas of people's life, especially in educational settings. Both learners and teachers should determine and be aware of these styles and shape the classroom settings regarding these educational preferences. Identifying styles is useful in two ways; for learners, it helps understand and become aware of how they learn and study best, for teachers, it helps achieve a more holistic approach to selecting and designing teaching strategies, lessons, and activities that maximize student learning and understanding (Hyjánková, 2010, p.27). Additionally, styles and strategies help determine a particular learner's ability and willingness to work within the framework of various instructional methodologies. Second language teachers could benefit by assessing the learning styles and the strategy use of their students because such assessment leads to greater understanding of styles and strategies. Teachers also need to assess their styles and strategies so that they will be aware of their preferences and of possible biases (Oxford, 2003, p.17).

In conclusion, following strategies can be suggested so as to enhance the accessibility of course instruction, materials, and activities while teaching deaf or hard of hearing learners.

1. Teacher should face the class while speaking, learners should see all the movements of the teacher and the interpreter, if available.

2. Seating should be arranged in order to make the learners see all the class participants.

3. Teachers should use visual materials and real object as much as possible as instructional tools because visual information is a deaf learner's primary means of receiving information.

4. Teachers should be flexible and give the students enough time, which is longer in comparison with their hearing peers, for the class activities.

5. If it is possible, teachers should provide transcripts of audio information.

Dotter (2008) also describes pedagogical solutions while teaching deaf or hard of hearing learners as follows:

1. As deaf people cannot utilize the visual and the auditory channel simultaneously, but have to use the visual one more or less exclusively, education becomes more time-consuming than for hearing people. If something is presented visually, one then needs enough time afterwards to use an external memory system like writing or typing or signing.

2. Information gets lost if more than one source of visual information is given at the same time (adequate sequencing of visual info.)

3. Fruitful education needs a fully functional symmetrical communication between educators and learners.

4. Several signing deaf people like to see also the mouthing of a foreign language or to hear what they are able to hear of it (p.108).

2.7. Multiple Intelligences for Deaf

Howard Gardner (1983) advanced a controversial theory of intelligence and he asserts that people have at least seven different intelligences as follows; *verbal/linguistic,* *logical/mathematical,* *musical/rhythmic,* *bodily/kinesthetic,* *visual/spatial, interpersonal/social,* and *intrapersonal/introspective.* Then, he added two more intelligences which are *naturalist* and *existential* intelligence. He suggests that each person has all these intelligences to a lesser or greater degree, and the learning styles of people can be defined by the combination of how they work together (Ersöz, 2007). Verbal/Linguistic intelligence refers to the ability to use language effectively. Logical/mathematical intelligence consists of the ability to analyze and manipulate abstract relations. Musical/rhythmic intelligence refers to the ability to create, communicate and understand music. Furthermore, bodily/kinesthetic intelligence means the ability to use the body expressively or skilfully. Visual/spatial intelligence can also be defined as the ability to perceive visual and spatial patterns and represent visual and spatial images. Interpersonal/social intelligence signifies the ability to interpret moods, motivations and feelings of others, and to act accordingly. Intrapersonal/introspective intelligence makes reference to the ability to interpret personal feelings and build accurate self-representations. Naturalist intelligence expresses the ability to classify and use features of the environment. Lastly, existential intelligence refers to the ability to consider questions of ultimate values and meaning (Jordan, Carlile & Stack, 2008, p.104-105).

Broadly speaking, considering these types of intelligences, it can be said that musical/rhythmic intelligence cannot be the concern for profoundly and pre-lingual deaf people. Although there are famous deaf musicians such as Beethoven and Ron Tan, it should be noted that they were not born deaf. Existential intelligence should also be weak because deaf people are not good at abstract concepts. It is obviously deduced that visual/spatial and bodily/kinesthetic intelligences should be dominant ones for most deaf people. Moreover, other intelligences can also be among the dominant intelligences depending on the personality factors of deaf individuals.

2.8. Importance of Vocabulary in Foreign Language Learning for Deaf

Vocabulary, which can also be called as lexicon, has been defined in many ways. Bussmann (1990/2006) defines it as, "Total set of all the words in a language at a particular point in time" (p.1268), and "An alphabetically or semantically ordered list of words for a language, dialect, or sociolect, or a list of terminology for a specific discipline" (p.684). In addition, according to Moats (as cited in Luckner and Cooke, 2010), vocabulary is "the storehouse of word meanings that we draw on to comprehend what is said to us, express our thoughts, or interpret what we read" (p.38). To conclude, vocabulary of a language refers to the set of words that people use to comprehend and communicate effectively.

Languages consist of many components such as grammar and vocabulary. Although grammar may be thought as the most important component, it is an obvious fact that without enough vocabulary knowledge, one cannot communicate naturally and effectively. Especially in foreign language learning, vocabulary can be regarded as the core aspect from the beginning stages. Furthermore, vocabulary knowledge is vital for reading comprehension because without knowing the meaning of words, it is impossible for learners to understand what they read. Besides reading comprehension, an adequate stock of vocabulary often helps learners to achieve more efficient communication. Consequently, neither minimal knowledge of structures nor a restricted amount of vocabulary is desirable (Celce-Murcia and Rosensweig, 1989, p.242). Flohr (2008) also notes "In order to be able to speak in a foreign language properly, students need to learn vocabulary because otherwise they will not be able to express and articulate themselves in a way that other students or native speakers of English can understand them" (p.2). Vocabulary is an important aspect of learning a foreign language which links to four basic skills of language: listening, speaking, reading and writing. To be able to have these four skills in a foreign language, sufficient vocabulary knowledge is a must. As Wilkins (1972) concludes, "without grammar very little can be conveyed, without vocabulary nothing can be conveyed" (p.111).

As stated above, vocabulary knowledge is crucial so as to speak, listen, read and write in a foreign language. Especially for deaf or hard of hearing learners, it is more important because vocabulary knowledge is one of the limited things they

could learn in a foreign language. However, there are a lot of research which suggest that the vocabulary knowledge of students who are deaf or hard of hearing is quantitatively reduced when compared to that of hearing peers. More specifically, it is a proven fact that students who are deaf or hard of hearing are delayed in their acquisition of vocabulary knowledge, they have fewer lexicons. In addition, they acquire new words at slower rates, and have a narrower range of contexts that result in word learning (Lucker and Cooke, p.40, 2010). Trezek, Wang and Paul (2010) also explain "Most children who are deaf or hard of hearing experience significant auditory and oral language delay and have 'fewer' vocabularies than their hearing peers even with the use of amplification, sign language and special intervention" (p.124). All these facts clearly explain how much importance should be given to the teaching of vocabulary while teaching deaf or hard of hearing students.

2.9. Vocabulary Development of Deaf people

Like the other linguistic aspects, vocabulary development of deaf learners is also different from hearing peers. As Kirk and Gallagner explain, "the average vocabulary amount of deaf learner during the period from age 8 to 18 is as much as the average hearing learner does between the beginning of kindergarten and the latter part of the second grade" (as cited in Hyjánková, 2010, p.313). Due to their hearing loss, deaf and hard of hearing learners have great difficulty acquiring vocabulary through the same incidental learning processes as hearing peers. In their experimental study, Singleton, Morgan, DiGello, Wiles and Rivers (2004) measured vocabulary use by low, moderate, and high ASL-Proficient writers compared to hearing ESL and monolingual speakers. The participants in this study were divided into five groups as deaf students with different levels of ASL proficiency, (low, moderate, high ASL-proficient level), hearing ESL speakers, and hearing monolingual speakers of English. Each student was shown a three-minute silent cartoon of the classic tale "The Tortoise and the Hare". All students watched the video in groups of five to eight students and were asked to write the tortoise and the hare story without helping each other. The deaf students were asked by a deaf native ASL signer to retell "The Tortoise and the Hare" story in sign. Approximately one week later, the deaf students viewed the videotape again in groups of 5 to 8 and were asked by a hearing native ASL signer to retell the story

in written English. In order to match the procedure that was used with the deaf students, the ESL students were also asked to write the story twice: first they wrote it in their native language and then one week later, after viewing the videotape again, they wrote the story in English, their second language. The hearing monolinguals were only administered the writing task once, following the same video elicitation procedure described above. The focus of the current study was an investigation into vocabulary use in the writing samples they collected from deaf and hearing students. The vocabulary analysis included the following measures: total words, frequent words, unique words, and function words. Besides the specific results of four vocabulary measures, they found out that for all deaf children, access to the distributional frequencies of English vocabulary is most likely reduced, and they have distinctly more difficulties in learning and using vocabulary than hearing peers. However, it is also noted that proficiency in ASL may provide a new entry point into the learning and use of English vocabulary. Adults play a crucial role in vocabulary development of deaf learners, as well. Goldin-Meadow and Mayberry (2001) mention that "the frequency of informal, everyday language interactions between parents and children is the best predictor of language development, and by age 3, at least 95% of a child's vocabulary has come from his parents" (p.94). Moreover, educators have also significant affects in vocabulary development of deaf learners. Therefore, parents and teachers should know the development procedures of vocabulary learning and do their best to support the development process even through informal communication.

2.9.1. Vocabulary Learning Strategies

Vocabulary learning strategies are one of the most significant part of vocabulary learning. Learning strategies are specific techniques, methods or activities which learners use to study vocabulary. Vocabulary learning will be effective and efficient whether learners use these strategies systematically. Vocabulary learning is the easiest observable type of language learning. When learners use the effective strategies which suit their learning style, they can learn a considerable number of new words in a short time, and it motivates them to learn more words (Ma, 2009, p.165-166). Learners are able to facilitate and develop their vocabulary knowledge if they use appropriate learning strategies which are personalized for their individual use. For an effective learning, they should be encouraged to learn how

to learn, and to be autonomous. Being aware of the vocabulary learning strategies is so significant for language teachers. Teachers should know the challenges their learners facing, and understand how learners deal with new information, what classes of strategies they use to understand the meaning, also how do they learn and recall the information. There are numerous factors that have a part in learning strategies; they are "motivation, gender, cultural field, beliefs and theories, types of learning paper work, age and second language level, learning style, tolerance in ambiguity and risk". (Lavasani and Faryadres, 2011, p.195).

Schmitt (1997) took advantage of Oxford's classification of learning strategies and he suggests his own taxonomy for vocabulary learning strategies with five dimensions which are determination, social, memory, cognitive and meta-cognitive; and with two fields; discovery and consolidation. He categorizes vocabulary teaching and learning techniques in terms of learning strategies. The taxonomy is as follows:

Dimension	Discovery	Consolidation
Determination	Analyze part-of-speech Analyze affixes, roots Check for L1 cognate Guess from context Consult dictionary Use Word list	-
Social	Ask teacher Ask classmates Group work	Group study/practice Teacher checks Word lists Interact with L1 speakers
Memory	-	Image of word meaning Connect to related words Group words together Study Word sound/spelling Keyword Method Use physical action Use cognates Paraphrase word meaning Underline initial letter
Cognitive	-	Verbal/written repetition Note-taking Put L2 labels on objects
Meta-cognitive	-	Use L2 media Test yourself Continue study over time Skip/pass new word

Figure 2.18. Taxonomy for Vocabulary Learning Strategies (Schmitt, 1997)

Determination strategies are the strategies which are used to discover a new word's meaning without asking anyone. By using this kind of strategy, learners often use a dictionary, analyze any available pictures or gestures or guess meaning from textual context. Social strategies are used to ask someone who knows. Learners can ask teacher or classmates about information in different ways, such as a synonym, paraphrase, or L1 translation of new word. Moreover, memory strategies involve connecting the word to be retained with previously learned vocabulary items by using some form of imagery, or grouping. Cognitive

strategies are not so different from memory strategies. The difference between them is that they are not focused on manipulative mental processing. They include repetition and using mechanical means to study vocabulary. Note taking is the most common aspect of this kind of strategies and it encourages learners to create their own personal structure for new words, and also helps them for additional exposure during review. Lastly, learners use metacognitive strategies to control and evaluate their learning.

Deaf and hard of hearing learners do not learn vocabulary items incidentally. They use some of the strategies of hearing peers as mentioned above. Determination strategies can be regarded as the most common strategy used. Such learners encounter lots of unknown vocabulary items throughout their daily life, so they develop this kind of strategies to overcome their limited lexicon. Social strategies are also used commonly. They are aware of the fact that they need each other, so they like helping similar peers. Especially they ask their teacher or friend for sign language equivalent of the unknown words. The other strategies given above are not usually utilized by deaf and hard of hearing learners.

2.9.2. Vocabulary Teaching Techniques

There are two main ways of teaching vocabulary. First of all, it is taught directly. According to Mancini (2006), "Direct instruction should include repeated exposure to vocabulary, extended instruction that promotes active engagement, and explicit teaching of novel words prior to reading" (p.28). That is, teaching vocabulary directly includes conscious teaching of vocabulary items in educational settings. Especially difficult and complex vocabulary items and the ones that learners will not have chance to learn in their everyday lives should be taught directly. Trezek, Wang and Paul (2010) mention the two ways of direct instruction by saying, "Direct vocabulary instruction for children should provide students with specific word instruction and teach word-learning strategies (p.121-122). Specific word instruction includes the teaching of individual words. It serves to deepen students' knowledge of word meanings. It is mostly used before reading and to provide repeated exposure to vocabulary in different contexts. In addition to direct vocabulary instruction, word-learning strategies are very significant to foster the vocabulary development. After learning these strategies, students are able to

develop effective strategies to determine the meaning of words that are new to them but not taught directly to them. Word-learning strategies include using dictionaries and other reference aids, information on within-word parts (prefixes, suffixes, base words, root words) and context clues to determine the meanings of words (Trezek, Wang, & Paul, 2010, p.123)

Secondly, vocabulary can also be taught indirectly. Indirect instruction generally takes the form of conversation between adults and peers, print-rich environments, listening to stories, and experimenting with books by the children. It is obvious that most vocabulary items are learned indirectly through everyday experiences with oral and written language (Mancini, 2006, p.28). According to the National Reading Panel (2000), scientific research on vocabulary instruction concludes that although some vocabulary must be taught directly, the majority of vocabulary is learned indirectly because of the fact that indirect vocabulary learning occurs in various contexts such as children's listening to adults read to them, reading on their own, and through daily oral language (Trezek, Wang, & Paul, 2010). Indirect learning occurs in three different ways. Firstly, learners learn new words through the conversations with other people via oral language. The second way to learn new words is learners' being read to. Reading aloud is so powerful when the reader pauses during reading to define unknown words. The last way is through learners' own reading. Daily independent reading is, therefore, very significant in learning foreign language vocabulary. All in all, as can be deduced, there are many ways to teach vocabulary. Indirect teaching methods can be seen more useful for many learners, but direct methods of teaching vocabulary cannot be denied as well. However, it should be kept in mind that the best way should be the mixture of different ways. Pohl (2003) also states that "vocabulary instruction which requires active student involvement seems to improve comprehension more than passive vocabulary activities. Other than free voluntary reading and the teaching of words that are essential to the learning of specific concepts, there seems to be no strategy that is consistently superior. Methods using a variety of techniques seem to be advantageous" (p.8). Thus, language teachers should use both instruction types according to their objectives and what they should teach.

Vocabulary is one of the most significant aspects of language learning, so the most appropriate technique should be used for effective and meaningful

vocabulary teaching. Vocabulary teaching techniques can also be categorized as teacher-centered and student centered. First of all, teacher-centered techniques are traditional techniques which are Verbal, Translation, and Visual. As can be understood from their names, verbal techniques refer to the ones in which the teacher is the source and focus for students in teaching process. They include definitions, Synonyms and Antonyms, Hyponyms, Word Formation, Cognates, Series, Semantic Field, and Concept forming. Translation techniques refer to the techniques that use translation tasks and oral translation. In modern language teaching, translation has been considered as a responsible factor for interference of L1 and lack of communicative competence (Heltai, 1989, p. 288). However, it can also be effective in some cases especially in terms of time. Visual techniques refer to the techniques in which the teacher uses a number of visual materials such as pictures, photographs, drawings, flashcards, wall charts, wheel charts, puppets, flannel-board, figurines, picture stories, diagrams, graphs, maps, forms, advertisements, crossword puzzles, magazine and newspaper cut-outs, realia in the classroom, films, mime, gestures and facial expressions. These visual demonstrations help students associate presented material in a meaningful way and help to fix the vocabulary in students' minds. It should be noted that with the help of technological developments, it is easier to reach and use the visual and authentic materials in the target language, and so visual materials can easily be combined with the audial elements. Thus, audiovisual materials start to be the most available materials for both teachers and learners. Secondly, student-centered techniques are the ones which encourage students to be autonomous and learn by themselves such as asking others, using   dictionaries, and contextual guesswork. In these techniques, the role of the teacher is to coach and monitor the students to support their learning process. To sum up, vocabulary is apparently one of the most essential elements within a language, and learners should be aware of its importance in the learning process. The language teachers are responsible for choosing the effective teaching techniques according to the preferences of their students and the items which should be taught. Furthermore, teachers should help learners develop different systems of organizing lexical items to encourage them to be independent from the teacher and to be autonomous (Campillo, 1995, p.47-48).

With regard to deaf or hard of hearing learners, as Dotter (2008) states, "Because of its immediate connection to cognition and communication, language learning is the most crucial issue for deaf or hard of hearing" (p.97). In addition, vocabulary learning is also the most important component of foreign language learning. Thus, vocabulary teaching should be regarded as the most important aspect of foreign language learning for deaf learners. It is obvious that sign language translation and visual techniques are the most suitable techniques considering their learning preferences. As mentioned in the previous sections, they need to see in order to learn. Because of not hearing, they should see the forms of what they should learn. Dotter (2008) makes it clear that "As the acoustic channel is more or less closed to deaf people, all acoustic data have to be presented in a visual form in order to be accessible" (p.99). Hyjánková (2010) supports this view by saying, "Material stimulating visual perception is thought to be essential for education of the hearing impaired pupils. A serious hearing loss totally prevents handicapped pupils or students from auditory perception during lessons and that is why visuals have evidently a dominant role in language teaching to deaf learners" (p. 26). They should learn concrete vocabulary items easily with the help of visual aids, but abstract items are the most difficult things for teaching to deaf learners because for abstract items visual representation is not always possible. For such items, using sign language translation and drama techniques can be useful. Moreover, there are some other factors that influence vocabulary development of deaf learners. Dimling (2007) suggests three factors which are "frequency of word use by parents, visual accessibility (signs, facial cues, or lips for speech reading need to be seen in order to be learned), and contingency (contingent naming or labeling objects when the child is attending to them)" (p. 21). As stated before, parents are the first and most important factors for the first language acquisition. For the deaf or hard of hearing people, it gains more importance because their first language is not the common language in the society they were born, and if parents know or learn the sign language which will be the native tongue of their deaf son/daughter, they will pave the way for their first language acquisition. Visual accessibility is also the most significant factor because of their lack of acoustic input. The other factor, contingency is one of the most important factors as well. And additional factor affecting size of a child's lexicon includes the age at which hearing loss is identified. This factor is very crucial according to Lenneberg's Critical Age

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Hypothesis (1967). Teaching foreign language vocabulary is so significant in deaf education that language teachers should use effective and suitable teaching techniques for their deaf learners. Davis (2000) summarizes what foreign language teachers should do while teaching languages to deaf students. According to him, they should:

1. use visual materials as much as possible,

2. focus on what the students can do,

3. set up a positive language experience,

4. break down the titles into small parts,

5. use multiple examples,

6. provide cultural comparisons,

7. use different colours so as to attract the students' attention,

8. try computer assisted language learning programs, and

9. make use of cognates (Davis, 2000).

As understood, using visual aids whenever possible is a must for teachers of deaf learners. Vision becomes a hearing impaired student's primary means for receiving information. Thus, they should consider using posters, charts, flashcards, pictures, manipulatives, graphic organizers, or any visual items which they may find helpful. That is, visual learners like visual stimulation such as films and videos. Whether some large chunk of information is presented orally, their understanding is considerably enhanced by a handout and various visual aids, such as overhead transparencies, as well as by taking extensive notes (Dörnyei, 2005, p.146).

2.10. Conclusion

Throughout this chapter, the main objective is to define the characteristics of deafness, language development and learning procedures of deaf learners, sign languages and their acquisition processes in detail. Furthermore, second and third language acquisition processes are also described. Bilingual deaf education,

language learning strategies and styles of deaf learners, and their vocabulary development are the other issues which are mentioned in this chapter. In doing so, reference has been made to the aspects of language learning of deaf and hard of hearing learners.

It is clear that the process of acquisition and learning languages of such learners should be given special emphasis because their acquisition and learning are not the same as their hearing peers. From the beginning of their lives, deaf children face with communication problems due to their impairment. They try to acquire sign languages, but deaf children of hearing parents are not so lucky as deaf children of deaf parents because of the fact that hearing parents do not know sign language and have difficulty in communicating with their children. Therefore, parents should be educated so as to be aware of the different characteristics of their children.

Sign languages are the most common means of communication among deaf population. It includes visual representation to convey messages. Each sign language has its own rules and they are different from each other. Each has a manual alphabet which is used for finger spelling. Lip or speech reading is also possible for such learners, but it is only possible with the help of special training. There are three approaches to education of deaf children in school which are oral approach, sign language approach and total communication approach. Each has its own advantages, but total communication approach may be regarded as the one that gather the advantages.

Second language acquisition is another complicated issue in educating deaf learners. Second language is generally the spoken language of the country they live in. Therefore, they acquire not only a second language but also different language modality. Third language of deaf learners is usually English all around the world because of being "Lingua Franca", so it may be called as a foreign language for deaf people. Moreover, almost all deaf people are bilingual all over the world because they learn a sign language as a first language, and spoken language of their country as a second language. The main objective of such programs is to prepare deaf learners for life in two cultural and language communities.

Language learning styles and strategies in general are not very different from the hearing learners. Due to their hearing impairment, almost all of them are visual and kinesthetic learners, so strategies they can use is limited. Teaching vocabulary is very significant in deaf education, especially in foreign language learning. They cannot acquire listening and speaking skills, so reading, writing, grammar and vocabulary should be emphasized. It is obvious that without vocabulary, they cannot develop reading and writing skills. It explains why vocabulary development should be the most important objective in foreign language teaching. In teaching vocabulary there are lots of techniques that teachers use. With regard to the characteristics and styles of deaf learners, visual representation is crucial in teaching.

3. M ETHODOLOGY

In the previous chapter, literature review on characteristics of deaf learners and their language learning and vocabulary development, and also related studies about the topic are presented in accordance with the purpose of the study, which is searching the effectiveness of visual materials in teaching vocabulary to deaf students of EFL. This chapter initially presents the overall design of the study in detail; after that, it focuses on the participants of the thesis. Then, data collection instruments along with data collection procedures are clarified. Finally, analysis of data gathered in this experimental study is explained.

3.1. Research Design

This thesis is an experimental study, and it is based on two post (immediate and delayed) tests of the experimental and the control group. The study aims at exploring the effectiveness of visual materials in teaching vocabulary to deaf students of EFL. Teaching English vocabulary through visual materials was compared to the teaching through sign language so as to understand which one of them is more effective in teaching deaf learners. The results of *the immediate post-test*, which is given after the presentation of the chosen vocabulary items and *delayed post-test*, which is given six weeks later, will help us to assess the effectiveness of visual materials on students' short term and long term retention. The aim of the researcher was to show whether visual materials are more effective on vocabulary learning than sign language instruction for the starter level deaf learners of English, and also whether there is a gender factor by comparing the scores of the experimental group and the control group from the *immediate* and *delayed post-tests*.

3.2. Participants

First of all, an experimental and a control group were formed to find answers of the above research questions. There were 40 students in the experimental group, and 40 students in the control group. They were all volunteer participants. The students in this investigation are a group of 49 (61.2%) female and 31 (38.8%) male Turkish deaf learners. Table 3.1 indicates the percentage of participants regarding their gender.

Table 3.1: Number of Participants and Percentage of Males and Females

		Count	Table N %
group	cg	40	50.0%
	eg	40	50.0%
gender	female	49	61.2%
	male	31	38.8%

All of the students were at the starter level because hearing impaired primary schools do not have English classes. The students ranged between 15 - 18 years of age, and they were 9th grade students. Optional English Classes for 9th and 10th grades and vocational foreign language classes for 10th grades are available at special education vocational high schools. Therefore, the participants took 3 hours of English classes a week, which are not compulsory. Before the application of the methods students were informed about the experiment that would be conducted in their classrooms and their participation was asked for. The researcher prepared some new vocabulary items and introduced them to the experimental group with the help of different visual materials; and the control group was introduced new vocabulary items only by using sign language, they were not given any visual materials, just given sign language equivalents.

3.3. Data Collection Instruments

Pre-test could not be applied to the participants of this study because it is known fact that deaf students do not take English classes in primary schools. The subjects were informed about the study and their participation was asked for. After the treatment, they were given an *immediate post-test*. The test consists of five parts, all of which are contextual. As Table 3.2 shows, Cronbach Alpha Test was applied so as to reveal the reliability of tests, and according to the test results, these tests are highly reliable. (Cronbach Alpha coefficient is > .70.)

Table 3.2: Reliability Statistics of Immediate and Delayed Post-tests

Cronbach's Alpha	N of Items
.974	2

The same test was given to students six weeks later in order to measure six week retention of the vocabulary items both for recall and recognition. The test was given to the subjects by the researcher and they received sign language instruction about how to do the test. The test took 40 minutes to complete.

3.3.1. Instructional Material

In this study, 50 new vocabulary items were used in the experiment (Appendix-2). None of the students have learned these words before. All the target vocabulary items were concrete nouns to be able to use visual materials and real objects while teaching. There were five categories. For the experimental group, all vocabulary items were introduced with visual materials and real objects. During the teaching process, teacher used these materials as much as possible. For the control group, the same target vocabulary items were taught using the sign language. No visual material is used.

3.3.2. Testing Material

Testing material used in this experimental study included a test, which was used both as an *immediate* and *delayed post-test*. The researcher developed the testing material, used for this study, and other two colleagues crosschecked it. This test consisted of five sections (Appendix-3). In the first part, the students were asked to match the vocabulary items with the pictures given. In the second part, they were asked to complete the vocabulary items with the suitable letters. In the next part, there were multiple choice questions to choose the correct vocabulary item for the pictures given. In the fourth part, scrambled words were given, and the students were asked to unscramble them. In the last part, they were asked to look at the pictures and write the correct vocabulary items. The first three parts were given 1 point, and the last two parts were given 2 points in grading. Distractors were chosen from the remaining target vocabulary items regarding the validity of the study. 50 target vocabulary items were asked to the students. The *delayed post-*

test was conducted to measure 6 week-retention of the vocabulary items. The researcher herself gave the tests each time and she graded the tests. Students were not informed about the results of the tests.

3.4. Procedures

For this experimental study, the comparison of the effects of using visual materials and sign language was investigated. This study was carried out in two groups with the attendance of 80 students. Two groups were randomly chosen for the experimental group and the control group. There were 40 students in each group. 50 vocabulary items were planned to teach. The students did not took English lesson before the study, they were at the starter level. Thus, pre-test was not conducted. Different visual materials were used in the experimental group to teach target vocabulary items (Appendix-4), and sign language was used for the control group. The same test was used to evaluate immediate and delayed effects of the treatment. The *immediate post-test* was applied just after the treatment, and the same test was given 6 weeks after the treatment as the *delayed post-test* to evaluate the long term retention.

The students were informed about the experiment before the application and their participation was asked for. The treatment process lasted for 5 weeks. Each week, 10 vocabulary items were taught to each group. The teacher provided a number of visual materials while teaching these vocabulary items to the experimental group. The control group was taught only through sign language, visuals materials were not used for them so as to compare the effectiveness of visual materials. The researcher divided 50 vocabulary items into ten groups which are fruits, vegetables, animals, feelings, drinks, clothes, kitchen, body parts, jobs, and food. Two of these groups were chosen to teach in each week. In the first week, the teacher presented fruits and vegetables to the experimental group. She brought pictures and real objects to the classroom such as onion, pepper, apple, orange, and taught 10 target vocabulary items by showing them (Figure 3.19).

Figure 3.19. Teaching Fruits and Vegetables

Then, she encouraged the students to play a game, in which the teacher showed the pictures or real objects, and the students tried to fingerspell the correct words. At the end of the week, she recognized that almost all of the words were learned. The students in the control group were taught the same vocabulary items by using the sign language. The second week consisted of animals and drinks. The teacher used pictures of animals and drinks to present the target vocabulary items. She wrote the words on the board, showed the pictures and match them with the words (Figure 3.20). Sign language was used to teach the same vocabulary items for the control group.

Figure 3.20. Teaching Animals

In the third week the teacher presented feelings, and objects used in the kitchen. First of all, she mimed five different feelings by herself and encourage the students to guess what she felt (Figure 3.21). After the students guessed the words, she showed the pictures and want them to fingerspell so as to check their learning. For the objects used in the kitchen, she brought some real objects and pictures to the classroom and used them to present the target vocabulary items.

Figure 3.21. Teaching Feelings

In the fourth week, clothes and jobs were presented through pictures. The teacher wrote the new vocabulary items on the board, and wanted to the students to match them with the pictures. She showed the clothes that she was wearing and wanted them to fingerspell the clothes. Then she gave some examples about the jobs such as teacher, fireman etc. In the last week, body parts and food were the categories that should be taught with the help of visual materials. The teacher brought some pictures to the classroom such as chicken, salad, ice-cream and encouraged the students to guess their names in English because she told them that these words were very similar to their Turkish equivalents before.

After the groups were taught 50 target vocabulary items, *immediate post-test* was conducted to the experimental and the control group in order to assess the recognition of the words by the students. 6 weeks later, the same test was applied as the *delayed post-test* to measure long-term retention of the students. The students were given 40 minutes for each test, and then the results of the tests were collected and evaluated by the researcher. All the training and the tests were given in the original classroom setting by the researcher because she was English teacher of those students who teaches 3 hours a week. At the end of the 5-week teaching period she realized that using visual materials in teaching vocabulary to deaf students was more effective than only using sign language instruction since the experimental group showed better advancement on learning which could be easily realized by any teacher. Moreover, the students in the experimental group were more successful than the students in the control group regarding their long term retention.

3.5. Data Analysis

Immediate and *delayed post-tests* results gathered in this study were evaluated systematically by a computer program called "Statistical Package for the Social Sciences" (SPSS) Version 20.0. Independent Samples t-test was used to analyze parametric samples; that is, the comparison of the experimental and the control group in terms of *immediate* and *delayed post-tests*. Paired Samples t-test was used to analyze the performances of the control group regarding *immediate* and *delayed post-tests* scores. This test was also used to analyze *immediate* and *delayed post-test* scores of the experimental group. Finally, so as to analyze

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gender differences, Independent Samples T-test was used. The results of the two groups, the control and the experimental, were compared in order to see the effectiveness of visual materials statistically.

Independent Samples t-test was specifically used for research questions 1, 2, 5 and Paired Samples t-test was particularly used for research questions 3 and 4. While testing the research questions, the level of significance was set at .05. In the tables, N shows the number of the participants took part in this study; Mean Rank gives the average obtained by dividing the sum of the marks of the tests to the number of subjects for each group. Although positive and negative values can be obtained from the tests, they do not affect the results significantly.

For the experimental part of this thesis, an *immediate post-test* was prepared and applied to both the experimental and the control group after 5-week treatment. Fifty vocabulary items were scored. 1 point was given for the correct answers of the first three parts, and 2 points were given for correct answers of the last two parts. The incorrect answers were not penalized and also no point was given for incorrect answers. Since the participants did not take English classes in the primary school, there was no need to use a pre-test in order to gauge the levels of the subjects when the study started. After the treatment *immediate post-test* was given to both groups and the same scoring procedure was applied and findings were compared in order to see the difference of the short-term vocabulary learning. *Delayed post-test* was given to both groups 6 weeks later. Then the scores of *the delayed post-test* of the experimental and the control group were collected and compared in order to see the difference of the long-term retention of the target vocabulary items.

4. RESULTS and DISCUSSION

The major aim of this thesis is to explore to what extent using visual material is useful in teaching vocabulary to deaf students of EFL, and to gauge whether they are superior to sign language instruction in Kemal Yurtbilir Special Education Vocational High School. The results of *the immediate* and *delayed post-tests* have great importance in the improvement of the vocabulary learning processes of the learners. The motivation of this chapter is on the analysis and discussion of the data collected through *immediate* and *delayed post-tests.* Furthermore, the results of the *immediate* and *delayed post-test* scores gathered at the beginning and end of the study are discussed, and interpretation and explanation of the results are presented.

4.1. Results

This section presents the comparison of the students' success in both of the groups. The scores were evaluated regarding the research questions formulated at the beginning of the study. Since there are five research questions, this part has been divided into five sections.

Research Question 1

Is there any statistically significant difference between the experimental and the control groups as for the immediate post-test?

The first research question is about the analysis of the data concerned the comparison between the experimental and the control groups in terms of the *immediate post-test* scores of the students. To be able to answer this question, the scores of the students have been analyzed through Independent Samples T-test. Findings to this respect are best depicted in Table 4.3 and 4.4.

Table 4.3: Independent Samples T-test for Immediate Post-test Regarding Both Groups

		Levene's Test for Equality of Variances		t-test for Equality of Means							
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
immpt	Equal variances assumed	,078	,781	-2,666	78	**.009**	-5,95000	2,23222	-10,39400	-1,50600
	Equal variances not assumed			-2,666	77,887	**.009**	-5,95000	2,23222	-10,39410	-1,50590

Table 4.4: Comparison of the Immediate Post-test Results of Both Groups

	Group	N	Mean	Std. Deviation	Std. Error Mean
immpt	**cg**	40	28,1250	9,79060	1,54803
	eg	40	34,0750	10,17132	1,60823

As Table 4.3 and 4.4 show, there is a statistically significant difference between the control group and the experimental group in terms of *immediate post-test* (Sig. 2 tailed < .05). According to these results, the experimental group (M=34,07, SD=10,17) is more successful than the control group (M=28,12, SD=9,79). As it is mentioned in the previous chapters, *immediate post-test* was applied to both groups after the treatment. That is to say, the experimental group was taught 50 vocabulary items with the help of visual materials, and the control group was taught via sign language. The results support the effectiveness of visual materials in teaching vocabulary to deaf students of EFL, which is the main concern of this thesis.

Research Question 2

Is there any statistically significant difference between the experimental and the control groups as for the delayed post-test?

The second research question asks whether there is a significant difference between the experimental and the control groups in terms of the *delayed post-test*. So as to test this research question, Independent Samples T-test was applied and the results of this test is given in Table 4.5 and 4.6 below.

Table 4.5: Independent Samples T-test for Delayed Post-test Regarding Both Groups

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
dlypt	Equal variances assumed	,037	,848	-4,264	78	.000	-9,37500	2,19873	-13,75233	-4,99767
	Equal variances not assumed			-4,264	77,766	.000	-9,37500	2,19873	-13,75254	-4,99746

Table 4.6: Comparison of the Delayed Post-test Results of Both Groups

	group	N	Mean	Std. Deviation	Std. Error Mean
dlypt	cg	40	24,5750	9,55923	1,51145
	eg	40	33,9500	10,09938	1,59685

According to the tables presented above, statistically significant difference has been observed between the control group and the experimental group in terms of *delayed post-test* (Sig. 2 tailed < .05). Therefore, it can be claimed that students in the experimental group (M=33,95, SD=10,09) did not forget the target vocabulary items in 6-week-time. They are found more successful in remembering what they

learnt than the control group (M=24,57, SD=9,55). It appears that using visual materials in vocabulary teaching is effective in the long-term retention.

Research Question 3

Is there any significant progress between the immediate post-test and delayed post-test scores of the control group?

The third question asks whether there is a significant difference between the *immediate post-test* and *delayed post-test* scores of the students in the control group. Six weeks after the application *delayed post-test* was applied in order to see the effects of sign language in teaching vocabulary to deaf learners on long term retention. In order to test this research question, Paired Samples T-test was applied (Table 4.7) and the mean difference is given in Table 4.8 below.

Table 4.7: Paired Samples T-test for Immediate and Delayed Post-tests of the Control Group

		Paired Differences				t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
cg immpt - dlypt	3,55000	3,31237	,52373	2,49065	4,60935	6,778	39	**.000**

Table 4.8: Comparison of the Immediate and Delayed Post-test Results of the Control Group

		Mean	N	Std. Deviation	Std. Error Mean
CG	**immpt**	28,1250	40	9,79060	1,54803
	dlypt	24,5750	40	9,55923	1,51145

When Paired Samples T-test results are taken into consideration, the control group is less successful (sig 2 tailed < .05). The statistical results indicate that there is a change in the results of the *immediate* (M=28,12, SD=9,79) and *delayed post-test* (M=24,57, SD=9,55). This difference is considered to be statistically insignificant. This is a meaningful result as the score of *delayed post-test* is lower

than scores of *immediate post-test*. Thus, it can be claimed that deaf learners are less successful in terms of long-term retention when only sign language is used as instruction.

Research Question 4

Is there any significant progress between the immediate post-test and delayed post-test scores of the experimental group?

The forth research question asks whether a significant difference exists between the *immediate post-test* and *delayed post-test* scores of the students in the experimental group. Paired Samples t-test was used so as to find an answer to this research question. Table 4.9 and 4.10 below illustrates the statistical values obtained through *immediate* and *delayed post-tests*.

Table 4.9: Paired Samples T-test for Immediate and Delayed Post-tests of the Experimental Group

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
EG	immpt - dlypt	,12500	2,51343	,39741	-,67883	,92883	,315	39	.755

Table 4.10: Comparison of the Immediate and Delayed Post-test Results of the Experimental Group

		Mean	N	Std. Deviation	Std. Error Mean
EG	immpt	34,0750	40	10,17132	1,60823
	dlypt	33,9500	40	10,09938	1,59685

According to Table 4.9 and 4.10 presented above, the experimental group demonstrates statistically similar performances on the *immediate* (M=34,07, SD=10,17) and *delayed* (M=33,95, SD=10,09) *post-tests*, and no statistically

significant difference among the students' scores can be found (sig 2 tailed > .05). Therefore, it can be claimed that students did not forget the target vocabulary items in 6-week-time. It appears that visual based vocabulary teaching techniques are effective in the long-term retention of deaf learners of EFL.

Research Question 5

Is there any statistically significant difference between males and females in terms of vocabulary learning by visuals as a result of the scores obtained in

a) *immediate post-test?*

b) *delayed post-test?*

The fifth and the last research question asks whether there is a significant difference between males and females regarding both tests. In order to test this research question, Independent Samples T-test was applied to the mean scores of both groups and statistical data is given in the tables below.

Table 4.11: Independent Samples T-test for Gender Differences

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
PD	Equal variances assumed	,010	,920	,677	78	.501	,52864	,78109	-1,02640	2,08367
	Equal variances not assumed			,695	69,284	.490	,52864	,76114	-,98968	2,04696

Table 4.12: Comparison of Males and Females

	gender	N	Mean	Std. Deviation	Std. Error Mean
PD	**female**	49	-1,6327	3,54550	,50650
	male	31	-2,1613	3,16330	,56815

The data shows that there is no statistical difference between males (M=-2,16, SD=3,16) and females (M=-1,63, SD=3,54) (sig 2 tailed > .05). So it can reveal the fact that gender is not an important factor in learning foreign language vocabulary for deaf learners of EFL.

4.2. Conclusion

The results obtained from a computer program called "Statistical Package for the Social Sciences" (SPSS) Version 20.0. are scope of this chapter and they were discussed in detail with the tables in this part. However, so as to evaluate the performance differences of both groups, Independent Samples T-test was used. The overall statistical differences of the performances of the experimental and the control group are depicted more clearly with the tables below.

Table 4.13: Independent Samples T-test for Performance Differences of Both Groups

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
PD	**Equal variances assumed**	2,159	,146	-5,210	78	.000	-3,42500	,65744	-4,73386	-2,11614
	Equal variances not assumed			-5,210	72,729	.000	-3,42500	,65744	-4,73536	-2,11464

Table 4.14: Comparison of performance differences

	group	N	Mean	Std. Deviation	Std. Error Mean
PD	cg	40	-3,5500	3,31237	,52373
	eg	40	-,1250	2,51343	,39741

According to these results, there is a significant statistical difference between the experimental (M=-,12, SD=2,51) and the control (M=-3,55, SD=3,31) group in terms of performance (sig 2 tailed < .05). It means that the experimental group showed better performances for both recognition and long term retention of the target vocabulary items. Additionally, these results confirm that using visual materials is more effective than using sign language in teaching deaf learners of EFL.

5. CONCLUSION and IMPLICATIONS

The main objective of this thesis is to provide insight into the use of visual materials in teaching foreign language vocabulary to deaf learners, and to vindicate that in teaching vocabulary to deaf learners visual materials can be adopted in order to ensure both short-term and long-term retention. Initially, a brief summary of the study is presented in this chapter. Then, five research questions are discussed respectively with the results obtained from the study. Next, implications for further research are discussed. Consequently, conclusion part is presented.

5.1. Summary of the Study

Vocabulary is one of the most significant components of language, and learning vocabulary is vital for foreign language learners. Without adequate vocabulary knowledge, foreign language learners cannot understand and use their language properly, and so they are not able to communicate effectively. Learning vocabulary is much more important for deaf learners as they cannot learn listening and speaking and they are limited in language learning. That is, learning vocabulary constitutes the most important part of effective foreign language learning for deaf learners of EFL.

In this study, the effectiveness of visual materials in teaching foreign language vocabulary to deaf learners has been investigated. There are not lots of studies available regarding deaf learners of EFL, but among the studies that were analyzed it was found that most studies focus on literacy, sign language, reading and writing because of the restricted language abilities of deaf learners. The major difference between this study and the previous ones is that this study is a more comprehensive one applying different visuals in vocabulary teaching. In order to ensure vocabulary learning of the students in the experimental group, different visual materials such as pictures and real objects have been applied in vocabulary teaching process. The students in the control group, on the other hand, studied the same vocabulary items through sign language instruction.

In the following part of the research, the experimental study was conducted to identify the effectiveness of visual materials in teaching vocabulary to deaf

learners of EFL and their long term effects. Sign language instruction and the use of visuals were compared so as to see what deaf learners perform in a classroom setting during vocabulary learning process.

The study was organized as immediate post-test and delayed post-test design. Pre-test was not used because all participants were attending their first English course in their lives. This research attempted to answer these research questions:

1. Is there any statistically significant difference between the experimental and the control groups as for the immediate post-test?

2. Is there any statistically significant difference between the experimental and the control groups as for the delayed post-test?

3. Is there any significant progress between the immediate post-test and delayed post-test scores of the control group?

4. Is there any significant progress between the immediate post-test and delayed post-test scores of the experimental group?

5. Is there any statistically significant difference between males and females in terms of vocabulary learning by visuals as a result of the scores obtained in

a) immediate post-test?

b) delayed post-test?

5.2. Discussions and Comments

In this section, the findings of the Independent Samples T-test and Paired Samples T-test results are interpreted and also the discussions about these findings are presented.

1. Is there any statistically significant difference between the experimental and the control groups as for the immediate post-test?

Both groups showed improvement after the treatment of using visual materials and sign language. The results of the analysis showed that the students in the control group had an improvement in their vocabulary level without receiving the treatment

which the experimental group received. However, according to the results of the *immediate post-test* applied on two groups, it is obvious that the experimental group got higher mean scores than the control group. This difference is obviously statistically significant. In the light of the above findings, it can be deduced that deaf learners of EFL can learn vocabulary items via sign language, but using visual materials in teaching vocabulary is superior to sign language instruction.

2. Is there any statistically significant difference between the experimental and the control groups as for the delayed post-test?

In order to reveal whether there was a significant relationship between the *delayed post-test* scores of the experimental and the control group, the mean scores of the subjects were compared through the program. The results reveal that there is statistically significant difference between their scores. That is to say, although both groups showed improvement in the *immediate post-test scores, the delayed post-test* scores of the experimental group were higher than the control group, which helps us to deduce the fact that using visual materials are more effective for long term retention of the deaf learners.

3. Is there any significant progress between the immediate post-test and delayed post-test scores of the control group?

The scores of the control group regarding *immediate* and *delayed post-test* were compared with the help of Paired Samples T-test, and the results reveal the fact that there is a statistically significant difference between the scores. Even though the control group had also remembered some vocabulary items in the *delayed post-test*, their scores were not as high as the scores of the experimental group. They forgot some of the vocabulary items in six weeks' time as their *immediate post-test* scores are higher compared to their *delayed post-test* scores. Thus, it can be said that sign language instruction can also help deaf learners increase their long term retention. Nevertheless, regarding the statistical results of the difference between *immediate* and *delayed post-tests*, which were obtained from SPSS, it can be deduced that sign language instruction, which was used in the control group, has not brought efficient results as visuals that have been used in the experimental group.

4. Is there any significant progress between the immediate post-test and delayed post-test scores of the experimental group?

Regarding the results obtained from the Paired Samples T-test results, there is not a statistically significant difference between *immediate* and *delayed post-tests* scores of the students in the experimental group. To sum up, these results indicated that using visual materials in vocabulary teaching to deaf learners were very effective for their long term retention because they showed almost no regression.

5. Is there any statistically significant difference between males and females in terms of vocabulary learning by visuals as a result of the scores obtained in

   a) immediate post-test?

   b) delayed post-test?

So as to reveal if there was a significant difference between males and females regarding both *immediate* and *delayed post-test* scores, scores of all students were compared employing Independent Samples T-test. The results indicated that there is no statistically significant difference between males and females in learning vocabulary. Consequently, it is concluded that gender differences are not of great importance in vocabulary learning of deaf students.

It can be said that using visual materials is more effective than using sign language in teaching vocabulary to deaf learners of EFL because the experimental group showed better advancement on learning the target vocabulary items. Furthermore, the experimental group were more successful in remembering vocabulary items, which proves the effectiveness of visual materials on long term retention. In addition, gender is found as unimportant factor in learning vocabulary. Finally, it is a certain fact that vocabulary is one of the most significant component of a foreign language for deaf learners due to their lack of hearing abilities. It explains why so much importance should be given to their vocabulary learning. Regarding their learning styles, using visuals as much as possible can be vital for their learning.

5.3. Implications and Recommendations

This experimental research involves very limited numbers of words to be learned. While this is entirely understandable, it does raise the question of the extent to which these findings are applicable to real world learning situations because of the fact that deaf people do not always have a chance to encounter visuals while learning vocabulary during their own lives. There should be some other techniques they use. Therefore, they should be encouraged to develop their own learning strategies which they can use in their real lives. Furthermore, in this study learners at the beginner level were investigated. For further studies about using visual materials and sign language, different levels and ages might be investigated. Moreover, the scope of this study was only on vocabulary. Visual materials can also be used in teaching other language skills such as writing, reading, grammar etc. How they can be used in teaching could be explored and fostered.

This experimental study can help curriculum planners organize their curriculum regarding the needs of deaf learners. Teachers of deaf students can organize their classroom activities with visual materials. It also encourages teachers to learn how they can integrate visuals to their teaching process.

5.4. Conclusion

Because of technological developments and globalization, foreign language learning is crucial for everybody to communicate effectively. Vocabulary can be regarded as one of the most significant elements of a language. Thus, vocabulary teaching should be given sufficient importance by language professionals and teachers. Regarding deaf people, vocabulary is more prominent on the ground that they cannot learn all components of a language due to their inability to hear. Hence, teaching foreign language vocabulary is vitally important and language teachers of deaf learners should attach particular importance to teaching it.

There are various ways of teaching vocabulary such as using visual materials, definitions, synonyms, guessing, opposites, mnemonics, etc. The learning styles of the target group of learners should be taken into consideration while selecting the best method of teaching. As for deaf learners, teachers have not various techniques since they cannot hear what is spoken, and cannot speak as well.

Therefore, they can use sign language instruction, or visual materials such as flashcards, real objects, etc. In this study, these two ways of teaching vocabulary to deaf learners of EFL were compared and it investigated which method is superior in learning new vocabulary items and long term retention. While using sign language, the instructor provided native language equivalents of the target vocabulary items in learners' sign language. For some people, learning native language equivalents is enough to learn target vocabulary items. However, for better vocabulary learning, especially people with hearing impairment, using visual aids is required. According to the statistical findings it can be said that using visual materials is a more effective vocabulary learning technique than using sign language since the experimental group showed better advancement on learning the target vocabulary and what's more they were more successful than the control group on long term retention. That is, it showed that visual technique produces better learning than using sign language for deaf students, and deaf students learn and recall better when they are taught with the help of visual aids, which can be proved by the applied tests of this study. It has also been proved that sign language instruction is also efficient in increasing the success level of the students. However, when they are compared, using different kinds of visuals is more effective for long-term memory. At this juncture, it can be claimed that in teaching foreign language vocabulary to deaf learners, new vocabulary items should be taught by using visuals because this method can be effectively used for deaf students who have better visual memory but poor linguistic memory in both learning foreign languages and other subjects.

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APPENDIX-1

No	İl	İlçe	Okul Adı
1	Ankara	Altındağ	Kemal Yurtbilir Özel Eğitim Meslek Lisesi
2	Bursa	Nilüfer	Nilüfer Özel Eğitim Meslek Lisesi
3	Çanakkale	Gelibolu	Anafartalar Özel Eğitim Meslek Lisesi
4	Çorum	Merkez	Çorum Özel Eğitim Meslek Lisesi
5	Denizli	Merkez	Denizli İbrahim Cengiz Özel Eğitim Meslek Lisesi
6	Elazığ	Merkez	Elazığ Özel Eğitim Meslek Lisesi
7	Erzurum	Yakutiye	Erzurum Özel Eğitim Meslek Lisesi
8	Gaziantep	Şehitkamil	Ali Süzer Özel Eğitim Meslek Lisesi
9	İstanbul	Ataşehir	Yeditepe Özel Eğitim Meslek Lisesi
10	İstanbul	Fatih	Fatih Özel Eğitim Meslek Lisesi
11	İzmir	Kınık	Mert Öztüre Özel Eğitim Meslek Lisesi
12	Kayseri	Kocasinan	Kocasinan Özel Eğitim Meslek Lisesi
13	Konya	Selçuklu	Konevi Özel Eğitim Meslek Lisesi
14	Mersin	Toroslar	İbni Sina Özel Eğitim Meslek Lisesi
15	Ordu	Merkez	Nuriye Halit Çebi Özel Eğitim Meslek Lisesi
16	Samsun	İlkadım	Samsun Özel Eğitim Meslek Lisesi
17	Trabzon	Merkez	Trabzon Çamlık Özel Eğitim Meslek Lisesi
18	Zonguldak	Merkez	Zonguldak Özel Eğitim Meslek Lisesi

(http://orgm.meb.gov.tr/alt_sayfalar/kurum.asp)

FOOD	pizza	chicken	salad	sandwich	ice-cream
DRINK	tea	fruit juice	water	milk	coke
ANIMALS	elephant	snake	spider	bird	fish
FEELINGS	sad	angry	happy	worried	bored
JOBS	teacher	engineer	dentist	fireman	farmer
CLOTHES	dress	hat	shirt	skirt	pullover
FRUITS	banana	apple	orange	grapes	pear
VEGETABLES	carrot	pepper	potatoe	onion	cucumber
KITCHEN OBJECTS	spoon	plate	fork	knife	glass
BODY PARTS	ear	eye	lip	eyebrow	nose

APPENDIX-3

Name, Surname:

Gender:

A.Match the pictures with the words. (1 point each)

1- banana__

2- carrot__

3- fish__

4- sad__

5- tea__
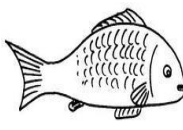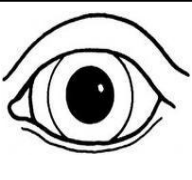
6- skirt__

7- knife__

8- eye__

9- farmer__

10- pizza__

A	**B**	**C**	**D**	**E**

F	**G**	**H**	**I**	**J**

B. Fill in the blanks with the suitable letters. (1 point each)

1- oran_e

2- cucum_er

3- sp_der

4- happ_

5- _ater

6- pull_ver

7- pla_e

8- no_e

9- e_gineer

10- ice-_ream

C. Choose the correct answer. (1 point each)

1-
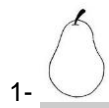
a) pear   b)apple   c)orange   d)mandarin

2-

a)chicken   b) sandwich   c)salad   d)ice-cream

3-
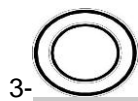
a) fork   b)plate   c)spoon   d)glass

4-

a)dress   b)shirt   c)skirt   d)hat

5-

a)elephant   b)spider   c)snake   d)fish

6-

a)sad   b)happy   c)worried   d)scared
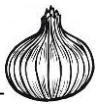
7-

a) onion   b)pepper   c)potatoe   d)tomatoe

8-

a)banana   b)apple   c)pizza   d)chicken

9-

a)spider   b)fish   c)bird   d)snake

10-

a)knife   b)plate   c)spoon   d)glass

D. Write the words correctly. (2 points each)

1- bnaana _____

2- skane_____

3- dsres_____

4- tawer_____

5- frok_____

E. Fill in the blanks with the suitable words (2 points each)

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1 ----------------- 2 ------------- 3 ---------------- 4 ---------------- 5 -------------------
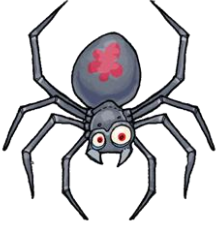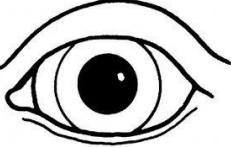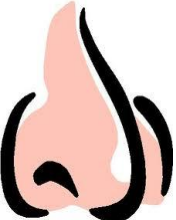
Pizza	Chicken	Salad	Sandwich	İce-cream
Tea	Fruit juice	Water	Milk	Coke
Elephant	Snake	Spider	Bird	Fish
Sad	Angry	Happy	Worried	Bored
Teacher	Engineer	Dentist	Fireman	Farmer

Dress	Hat	Shirt	Skirt	Pullover
Banana	Apple	Orange	Grapes	Pear
Carrot	Pepper	Potato	Onion	Cucumber
Spoon	Plate	Fork	Knife	Glass
Ear	Eye	Lip	Eyebrow	Nose

ÖZGEÇMİŞ

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