

Effects of Input Modality on L2 Listening Comprehension: A Multimedia Learning Theory  
Perspective

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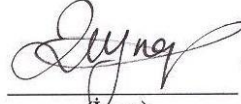
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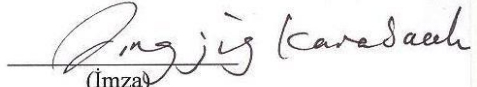
**KONU:** EFFECTS OF INPUT MODALITY ON L2 LISTENING COMPREHENSION: A  
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## ÖZET

İçerik sunu modlarının yabancı dil dinleme kavrayışı üzerindeki etkileri: Çoklu öğrenme ortamı teorisi perspektifi

Bu çalışma, farklı sunu modlarının, İngilizce'yi üniversite seviyesindeki akademik ortamlarda kullanabilmek amacıyla yabancı dil olarak öğrenen öğrencilerin dinleme kavrayışlarının üzerinde bir etkisi olup olmadığını ve varsa bu etkinin ne dereceye kadar etkili olduğunu incelemektedir. Daha belirgin olarak, çalışma tekli sunu modu olan sadece (a) ses modu ile çoklu sunu modları olan (b) ses-video, (c) ses-video ve hedef dil altyazı ve (d) ses ve PowerPoint sunumlarının dinleme kavrayışlarının üzerindeki etkisini bilişsel yük teorisi (Sweller, 1988) ve çoklu öğrenme ortamı teorisini (Mayer, 1997; 2001) dikkate alarak araştırmaktadır.

İstanbul, Türkiye'de bulunan bir vakıf üniversitesinin İngilizce öğretmenliği bölümünün hazırlık programında okuyan 10 öğrenci bu çalışmada yer almıştır. Sözcük bilgisi ve konu aşinalığı değişkenleri kelime alıştırıcıları ve konu aşinalığı soru listesi kullanımı (Pulido, 2004'ten adapte) aracılığı ile kontrol altına aldıktan sonra, her sunumda öğrencilere, içeriğe özel 10 soru ve her soruda 4 şıktan oluşan bir dinlediğini anlama testi dağıtılmıştır. Böylelikle öğrenciler dinleyecekleri ve/veya izleyecekleri sunumdan önce soruları okuma fırsatı elde etmişlerdir. Daha sonra, öğrenciler üniversite ortamında bir uzman tarafından verilen gerçekçi bir akademik dersin dinleyebildikleri ve/veya izleyebildikleri sunu moduna tabi tutulmuşlardır. Öğrencilere dinledikleri ve/veya izledikleri ders bitiminden sonra ek iki dakika daha süre verilerek cevaplarını tamamlamaları ve kontrol etmeleri fırsatı verilmiştir. Dinlediklerini anlama testinin tamamlanmasının hemen ardından seçilen öğrencilerden dersi dinlerken ne düşündüklerini dillendirebilmeleri amacıyla bireysel olarak sesli düşünme seanslarına katılmaları rica edilmiştir. Bunun ardından öğrencilerin farklı sunu modları ile

ilgili algılarını ortaya çıkarabilmek için aynı öğrencilerle yapılandırılmış ve odak gruplu bir mülakat gerçekleştirilmiştir.

Karma yöntem teknikleri kullanılarak toplanan hem nicel hem de nitel verilerin analizi öğrencilerin dinleme kavrayışlarının ses-video ve altyazılı sunum modunda diğer modlara göre önemli bir şekilde düşük olduğunu ve öğrencilerin en fazla bu modda karışıklık ve endişe yaşadıklarını gözler önüne sermiştir. Buna ek olarak, her ne kadar nicel datanın analizi öğrencilerin dinlediklerini anlamada en başarılı oldukları modun ses ve PowerPoint sunumlu mod olduğunu gösterse de, nicel datanın analizi öğrencilerin gerçekte bu slaytları pek yararlı bulmadıklarını ve bu nedenle dinleme esnasında onlara bakmadıklarını ortaya koymuştur.

Sonuçlar, ayrıca öğrencilerin üniversite öncesi dinleme sınıflarında/derslerinde edindikleri deneyimler tarafından etkilendiklerini, yani en çok sadece ses moduna alışkın olduklarını göstermesi açısından önemlidir.

Bilişsel yük (Sweller, 1988) ve çoklu öğrenme ortamı teorilerinin (Mayer, 1997; 2001) ışığı altında, bu çalışmanın bulgularının literatürde ortaya çıkarılanlarla uyumlu olduğu ve fakat bu sonuçların İngilizce'yi yabancı dil olarak öğrenen öğrencilerin o an dinlediklerini anlama süreçlerinde değişik sunu modları ile etkileşim içerisindeyken neler yaşadıklarının daha iyi anlaşılmasına yol açtığı söylenebilir. Bu, sunu modlarının o an dinlenenleri kavrama üzerindeki etkileri ile ilgili olarak öğretmenler, müfredat hazırlayanlar ve eğitim materyali geliştirenler için yeni anlayışlar sağladığı anlamına gelmektedir.

**Anahtar Kelimeler:** İçerik sunu modları; bilişsel yük; çoklu öğrenme ortamı; dinleme kavrayışı; orta-üst seviye İngilizce'yi yabancı dil olarak öğrenen öğrenciler

## ABSTRACT

### Effects of input modality on L2 listening comprehension: A multimedia learning theory perspective

The present study examines whether or not (and if so to what extent) different presentation modes have an effect on listening comprehension of students learning English as a foreign language (EFL) studying in academic settings at the university level. More specifically, it investigates the effect of one single mode, which is audio-only, and three dual content delivery modes, which are audio-video audio-video with target language subtitles and audio with PowerPoint presentation, on listening comprehension by taking the cognitive load theory (Sweller, 1988) and multimedia learning theory (Mayer, 1997; 2001) into account as the theoretical framework.

The participants of the present study (N=10) were studying in the preparatory class of a foundation university located in Istanbul, Turkey. Once the variables of vocabulary and topic familiarity were controlled through the use of vocabulary exercises and a topic familiarity questionnaire (adapted from Pulido, 2004), in each condition/treatment, participants were given a content specific multiple-choice listening comprehension test, which contained 10 questions with four options. By this manner, they could have the opportunity to read the questions before each lecture started. Then, the students were exposed to a content delivery mode in which they listened and/or watched a realistic academic lecture given by a specialist at a university setting. The students were also provided with additional time after the lecture came to an end to complete and check their answers. Immediately after the completion of the comprehension test, the selected participants were requested to participate in individual think-aloud protocols to verbalize what they thought while they were listening to

the lecture. Next, a semi-structured focus group interview was carried out with the same participants to explore the students' perceptions of different content delivery modes.

Analysis of both qualitative and quantitative data collected by using mixed-method techniques, demonstrated that the students' listening comprehension scores were significantly lower in the third content delivery mode which was audio-video with subtitles. In addition to this, they stated that they experienced most confusion and anxiety in that mode. Moreover, although the analysis of the quantitative data indicated that the students were most successful in the audio with PowerPoint presentation mode, analysis of the qualitative data showed that the students did not really find the slides useful and for this reason ,they did not look at them.

Results also indicated that the students were influenced by their pre-university listening class experiences, meaning they were most accustomed to the audio-only mode and therefore felt most relaxed during that content delivery mode.

In the light of cognitive load (Sweller, 1988) and multimedia learning theory (Mayer, 1997; 2001), it can be concluded that the findings of the study are in line with what has been discovered in the literature and also these results lead to a better understanding of the processes EFL learners go through while they are interacting with different content delivery modes. It means that the study provided new insights for the effects of content delivery modes on while-listening comprehension for the instructors, curriculum designers and material developers.

**Key words:** Content delivery modes; cognitive load; multimedia learning; listening comprehension; upper-intermediate level EFL learners

## **LIST OF ABBREVIATIONS**

|     |                               |
|-----|-------------------------------|
| EFL | English as a Foreign Language |
| ESL | English as a Second Language  |
| SLA | Second Language Acquisition   |
| L2  | Second/Foreign Language       |

## CHAPTER I

### INTRODUCTION

The popularity English has gained throughout the globe has given English language learners many opportunities to be exposed to this language. Although some of this encounter with the language comes from social life via magazines, books, songs, lyrics, videos, advertisements, movies, television and interaction with foreigners, some of this exposure is compulsory through lectures and conferences in education especially in a context where English is taught as a foreign language (EFL). Particularly this obligatory contact with English has brought an urgent need to improve the listening skill of learners so as to help them better comprehend English (Demirkol, 2009) because the input outside the foreign language classroom, to which learners are supposed to be exposed, depends heavily on voluntary initiatives.

Field (2011) argues that practitioners teaching writing and speaking can provide their learners with models of good output which the learners can produce later through redrafting and practice. For reading, the text can be marked in a way that shows the organizational pattern and the main ideas. When it comes to listening, these opportunities do not exist. Out of the four major language skills, listening is believed to be one of the most difficult to learn since it is a complicated process that includes understanding and interpreting spoken messages in real time by utilizing a variety of resources such as phonetic, phonological, prosodic, lexical, syntactic, semantic and pragmatic (Lynch 1998; Lynch, 2006). So, what is listening and more specifically listening comprehension? One of the most commonly accepted definitions of listening comprehension as a construct especially for the purpose of testing listening belongs to Buck (2001):

To summarise the process, the listener takes the incoming data, the acoustic signal, and interprets that, using a wide variety of information and

knowledge, for a particular communicative purpose; it is an inferential process, an ongoing process of constructing and modifying an interpretation of what the text is about, based on whatever information seems relevant at the time (p. 29).

Vandergrift (1999) also states that listening comprehension can be anything, but it definitely is not a passive activity. In other words, the definition provided for listening comprehension suggests that it is a complex, active process since the listener must be able to distinguish sounds, comprehend language and grammatical structures, understand stress and intonation, hold on to what has been gathered in all of aforementioned, and interpret it within the instant and the bigger socio cultural context of the speech. Coordination of these requires a large amount of cognitive activity for the language learner. Therefore, listening as a language learning skill is a challenging task and needs more scaffolding along with analysis of the process (Vandergrift, 1999; 2007). Goh (2000) in a similar vein, points out that all language learners have problems with L2 listening, which may differ in low or high level proficiency learners. It is also reported that language learners at university level often have a hard time understanding academic lectures, which may be more challenging than any other types of listening, due to the speech rate of the spoken message, length, register, number of speakers, unknown vocabulary, or other impeding factors (Buck, 2001; Guichon & McLornan, 2008; Smidt & Hegelhemier, 2004;).

Despite the complexity that lies beneath this process of listening comprehension, the role listening played in language acquisition and communication was often underestimated and overlooked for years. Second and foreign language listening was developed incidentally during language exercises where spoken language was used (Vandergrift, 1999). It was assumed that listening would develop in an automatic way through exposure, grammar, pronunciation and vocabulary exercises (Hedge, 2000). Listening finally received the attention it deserved in the Communicative Language Teaching (CLT) era since the language

started to be taught for face-to-face communication and interactive communication, so listening became an important skill (Vandergrift & Goh, 2009).

The increased importance attached to the listening skill in language learning has caused another aspect, how to teach listening, to gain importance. When the foreign language classroom practices in relation to listening have been investigated, it has been noted that presenting the input in a single mode, which is auditory, has long been the main stimulus for listening comprehension in language teaching environments. However, with technological advances, there are now more opportunities than ever to deliver language learning content by using computer-based multimedia settings, with their capacity to juxtapose all the traditional media of language learning (Brett, 2000). Although it is reported that when listening materials are supported with visuals and/or captions, they help foreign language learners to improve their listening comprehension (Baltova, 1999; Guichon & McLornan, 2008; Winke, Gass & Sydorenko 2010), it still is debatable if visual support really facilitates listening comprehension and if so from which content delivery mode the students can get most benefit especially in while-listening. As a result, it has become a matter of urgency for the practitioners to be able to identify the most suitable content delivery format for learners (Chen & Chang, 2011).

### 1.1. Purpose of the Study

Since the researcher himself has been teaching listening to English as a foreign language learners in the institution where the study took place for a number of years, all the classes offered have created an opportunity to observe what is going on in a listening class. The researcher had also the chance to see the reactions of the students when they were listening to an audio-only listening text as a single input mode along with audio and video, audio, video with subtitles and audio and PowerPoint presentations especially in lecturing and

oral presentations. These observations in listening comprehension classes suggested an urgent need to evaluate the impact of different presentation modes since it was not clear if these delivery modes would facilitate or hinder L2 while-listening comprehension.

The large amount of time foreign language learners spend attempting comprehension in classrooms and academic lectures at tertiary level has created a focus on listening for research. The kinds of classroom procedures to facilitate learners' listening comprehension, (e.g., audio visual treatments), and how classroom practices could rehearse the types of listening and situations the learners will be likely to experience outside the classroom are the issues that need to be addressed (Hedge, 2000). As Flowerdew and Miller (1992) noted, the ability to understand academic lectures is an important aspect of the required proficiency of tertiary level students. Field (2011) also raises interesting research questions about the complicated process of listening to an academic lecture especially when it is supported with visual information (e.g., PowerPoint slides and facial expressions). He calls on researchers to investigate to what extent these visual elements support comprehension and to what extent they contribute cognitive load upon listener's attention.

Another issue raised by Field (2011) is the possibility that the traditional format of a lecture with its multiple information sources is actually supporting some L2 students while it is disadvantaging others. Having these in mind, therefore, the purpose of the present study is to investigate the effects of different content delivery modes on foreign language learners' while-listening comprehension in academic listening environments to gain a better understanding of the process and to provide insights for learners, practitioners and instructional material designers. The present study specifically aims to examine the effect of one single (audio-only) and three dual language learning material delivery modes; (1) audio with video, (2) video, audio with target language subtitles, (3) audio and PowerPoint presentation on while-listening comprehension. The theoretical framework of the present

study and its underlying principles were based on the cognitive load theory (Sweller, 1988) and multimedia learning theory (Mayer, 1997; 2001). In sum, the present study investigates if different presentation modes including single or dual modes help or hinder listening comprehension of EFL learners.

### 1.2. Research Questions

The following are the research questions raised for the present study:

1. Do different input presentation modes; (a) audio-only, (b) audio with video (c) audio with video including target language subtitles and (d) PowerPoint presentation significantly affect listening comprehension?
2. What are the EFL learners' perceptions of different input presentation modes?

### 1.3. Significance of the Study

The present study will contribute to the field by involving four different modality types. Moreover, the listening input in those modality types will be from realistic academic lectures contrary to the studies which involve short clips and videos. Based on the data gathered from quantitative and qualitative sources, the results of the study will provide implications for the practitioners in the process of material selection, adaptation and instructional design. The insufficiency of studies on the input modality, especially when academic listening is concerned, in Turkish context is another important reason that makes the present study significant in the field.

#### 1.4. Definitions of Key Terms

English as a Foreign Language (EFL): It refers to a context where students need to learn English in countries in which it is not regularly written or spoken as the language of community. It means that even though English is an important educational language, it is not recognized officially (Grabe & Kaplan, 1996). In other words, it refers to the language usually in the classroom setting, in a context where the target language is not widely used by the community (Lightbown & Spada, 2006).

Multimedia: Multimedia in the present study refers to the environment in which an aural text supported by video, subtitle and/or visual images is presented.

Input Modality: It refers to the different presentation modes to deliver the instructional material including audio with video, audio, video with subtitles and audio and visual images.

Throughout the paper, input presentation mode, input delivery mode and input modality have been used interchangeably.

Cognitive Load: The amount of mental resources assigned for information processing (Sweller, 1988).

Listening: The term makes more sense when it is approached from the perspective of Rubin (1994) who defines the skill as an active process in which the person selects what to listen to and interprets both auditory and visual incoming information in order to understand what is going on and what the speaker is trying to convey.

Listening Comprehension: The term refers to the process of understanding aural text.

#### 1.5. Basic Assumptions

The assessment of the listening skill of the participants in the present study is based on a listening comprehension test. It is assumed that all the participants in the present study participated in pre-listening activities and afterwards in think-aloud protocols and also

answered the questions asked in the comprehension tests and in the interview in an honest and sincere way. In addition, the researcher assumes that the purposively selected sample of language learners, an intact class, was representative of the population considered in the study. Finally, it is assumed that the data collection instruments selected were acceptable for the purposes of the study.

### 1.6. Organization of the Study

This thesis has five chapters. In the first chapter, an introduction to the study, including the problem, background information, purpose and the research questions related to the study, is presented. Furthermore, the significance of the study, definitions of key terms, basic assumptions, and overview of the methodology are explained and discussed in detail. Specifically, the first chapter provides background information for the research and focuses on the role of listening in foreign language classes.

In the second chapter, a detailed literature review, which has guided the study, is presented.

Chapter three gives detailed information about the methodology of the thesis including research design, participants, setting of the study, data collection instruments and data analysis methods in the light of the research questions.

In the fourth chapter, the results of the data analysis including both the quantitative and qualitative investigation are presented.

The fifth and final chapter, presents the discussion of the findings in relation to the literature review, conclusion, implications for EFL teachers and material designers, suggestions for the further study and the limitations. At the end of the thesis, references and appendices are given.

### 1.7. Overview of Methodology

The present study is a mixed-method research design and it utilizes qualitative and quantitative data collection instruments. Sarantakos (2005) explains that this kind of research design is used mainly to overcome the insufficiency of single-method studies. In addition, all possible aspects of a phenomenon can be addressed and the amount of data gathered from different sources is increased to achieve a higher degree of validity and reliability. 10 Turkish EFL students in the preparatory program of the English Language Teaching department at a foundation university in Istanbul participated in the study. The data comes from five instruments: (a) a listening proficiency test, (b) topic familiarity questionnaire, (c) listening comprehension tests taken from *Contemporary Topics 3* (Beglar & Murray, 2009) (d) think-aloud protocols to better understand students' reasons for their answers in the comprehension tests and (e) a semi-structured focus group interview to provide in-depth information about the participants' experiences in the listening process while interacting with different presentation modes.

The next section goes into the details of the conceptual framework of the study and reviews related current literature.

## CHAPTER II

### REVIEW OF LITERATURE

This chapter first gives details about the role listening has played in second/foreign language teaching and the theoretical framework of the present study and then related studies in the literature are presented. The main focus of the present study is on multimedia learning and L2 while-listening comprehension. Specifically, the effect of different input presentation modes on foreign language learners' listening comprehension is investigated. In this chapter, a historical overview of listening in language teaching will be presented. Then, the models of listening will be discussed in detail. Afterwards, the chapter continues with Mayer's (2001) cognitive multimedia learning theory and related theories on which multimedia learning theory is built. After that, the relation between multimedia learning and second language acquisition is considered. Next, a review of previous research is provided. Finally, the chapter gives a summary of the findings of previous research.

It is generally agreed that practitioners must have a rich understanding of each language skill (i.e., reading, listening, writing and speaking) taught in English as a foreign language (EFL) classroom to be able to decide on the most suitable alternatives for their teaching practices (Juan & Flor, 2006). However, the scope of the present study is limited to the language skill which has usually been considered as the most difficult to learn among those four skills; *listening*. To have in-depth knowledge, providing a brief historical overview in relation to the theoretical framework so as to demonstrate the developments in the course of a particular language skill that is listening must be the first step to take.

## 2.1. Historical Overview of Listening in Language Learning

### *2.1.1. Listening within the Environmentalist Approach*

Up until the end of the 1960s, the role of listening in language learning and teaching was overlooked and neglected since it was accepted as a passive process (Hedge, 2000). This view resulted from the environmentalist approach to language learning, which assumed that learning a language was a mechanical process based on classical conditioning (Juan & Flor, 2006). According to this structural approach, language learning is a kind of habit formation and this is promoted by means of dialogue drills with a focus on grammatically correct answers to linguistic stimuli (Plass & Jones, 2005). This approach to language learning, also known as behaviorism, had its roots within the positivist school of psychology and had significant effects on language teaching all over the globe and provided the basis for the audio-lingual method. In audio-lingualism, language is viewed as a teachable behavior. The aim is to develop good language habits in learners and this is mainly realized by structural pattern drills, dialogue memorization, and choral repetition. The structural patterns are presented as the stimuli and the learners respond to these, for instance, by substitution drills or repetition. This process is followed by positive or negative reinforcement based on the success of the behavior (Eraut, 2002; Flowerdew & Miller, 2005; Hedge, 2000). As for listening within this method, it is believed that listening comprehension takes place when learners memorize, repeat and imitate what they hear. That is to say, the stress is mainly placed on the linguistic level since learners are taught to discriminate sounds, listen to single words and sample phrases presented in isolation (Juan & Flor, 2006).

It should be noted that listening gained importance with the arrival of the audio-lingual method since in grammar-translation, which preceded audio-lingualism, the main aim was written translation from one language to another and knowledge of grammar. The grammar-

translation method viewed language as a descriptive set of finite rules and the only listening came from the explanation of rules of the target language in the first language. There were no learning goals regarding listening in the grammar-translation approach (Flowerdew & Miller, 2005). On the other hand, it can be seen that audio-lingualism does not pay enough attention to what goes in the learners' minds by excluding mental states from the explanation of behavior (Eraut, 2002; Roberts, 2001). Consequently, not merely observable behaviors, but also cognitive processes involved in learning including listening skill had to be taken into account and it was the task of the following approach to language learning (Eraut, 2002; Juan & Flor, 2006; Lightbown & Spada, 2006).

#### *2.1.2. Listening within the Innatist Approach*

Chomsky's views on first language acquisition in the late 1950s and 1960s, which state that children are born with an innate, cognitive capacity to acquire a language (language acquisition device or LAD) during a critical period of their development, were reflected in second language applications by Asher's pedagogical system called Total Physical Response in 1969. In this method, it is believed that learners can be ready for oral practice if they are exposed to a long period of listening like verbal commands given by the teacher and can understand what they are listening to through non-verbal actions (Juan & Flor, 2006).

Krashen's monitor model, which was first described in the early 1970s in terms of five hypotheses; (acquisition-learning, monitor, natural order, input and affective filter hypotheses) was another reflection of the innatist view in second language applications since it was mostly influenced by Chomsky's theory of first language acquisition (Lightbown & Spada, 2006). Krashen (1982) hypothesized that the amount of comprehensible input, one-way input in the second language, which is both understandable and at the level just beyond the current linguistic competence of learners, determines second language acquisition (SLA).

His comprehensible input theory is referred as input plus one ( $i+1$ ). According to Krashen (1982), language is acquired upon receiving messages learners can understand. Therefore, it is believed that language input should be made comprehensible through a wide range of strategies, such as linguistic simplification, and the use of realia, visuals, pictures and graphic organizers.

As a result, the role of the learner as a listener shifted from only recognizing the sound, memorizing, repeating and imitating the language examples to participating in the process in an active way by using the mental strategies that are required to comprehend what is heard. However, the interactive nature of listening and the factors resulting from the context while listening were not taken into consideration within the innatist view of language learning (Juan & Flor, 2006).

### *2.1.3. Listening within the Interactionist Approach*

Since the 1990s, psychological theories have played a significant role in gaining a better understanding of mental processes involved in listening (Juan & Flor, 2006; Lightbown & Spada, 2006). Contrary to what behaviorism proposed, cognitive psychology deals with how the human mind thinks and learns and therefore the focus is directed toward the mental processes such as how people build up and draw upon their memories (Eraut, 2002). To illustrate, the information processing model of human learning suggests that there is a limit to the amount of focused mental activity we can deal with at one time (Lightbown & Spada, 2006). According to this model, comprehension of a spoken message only takes place if that message is internally reproduced in the listener's mind. On the other hand, within the constructivist view of listening, it is emphasized that listeners receive and process meaning and also construct meaning based on their own purpose for listening (Juan & Flor, 2006). In addition, listeners' background knowledge, (an aspect which was the key feature of the

schema theory developed by Rumelhart during the 1980s), was also regarded as an important factor in listening comprehension within this interactionist view (Juan & Flor, 2006). Schemas can be categorized into two as (1) content schemas, which involve topic familiarity, knowledge of culture and prior experience in a specific area, and (2) formal schemas, which include knowledge about discourse forms, rhetorical conventions along with the structural organization of different text types, such as an academic lecture. It means that when listeners are familiar with the selected topic they are listening to, their content schemas can be activated and, as a result, comprehension becomes much easier. Additionally, when listeners are familiar with the particular type of text, comprehension can occur more easily. For that reason, the prominence of having knowledge of these types of schema is vital since it can facilitate listeners' comprehension processes to a great extent (Hedge, 2000; Lynch, 2006).

It was also argued that social and cultural aspects in Vygotsky's socio-cultural theory had an impact on listening comprehension based on the fact that understanding of these aspects would provide significant cues for interpreting what is being listened to and make the process of listening comprehension less difficult (Juan & Flor, 2006).

The role of listening started to gain more importance thanks to changes in a number of research fields including interactive, social and contextualized perspectives to language learning and these changes shaped the interactionist approach to language learning. So, the formerly neglected aspects of listening such as the facts that we listen to comprehend and we have a reason when we are listening have become paramount qualities and the focus of listening has become the whole piece of discourse including not merely formal structures but also the content and meaning (Juan & Flor, 2006).

Given all these aspects, it can be stated that listening is now viewed as a communicative event because listeners need a wide range of competencies which would help

them to comprehend the message in different situations. Listening in a communicative approach to language teaching is recognized as an interactive functional base mode of communication. This view resulted from the studies of Hymes (1971) suggesting that the primary goal of language is to develop communicative competence for language learners. Communicative competence includes a variety of abilities (Hedge, 2000):

knowledge of grammar and vocabulary (linguistic competence)

ability to talk appropriately in given social situations (sociolinguistic or pragmatic competence)

ability to initiate, enter, contribute to, and finish a conversation, and the ability to do this in a consistent and coherent way (discourse competence)

ability to communicate effectively and overcome problems caused by communication breakdowns (strategic competence).

A communicative approach to language teaching, unlike audio-lingualism which heavily relies upon decontextualized language repetition and drills, utilizes real life situations that require communication. Along with the structures and forms of a language, functions and purposes a language serves in diverse communicative settings are important (Lightbown & Spada, 2006). In other words, language teaching, that is teaching listening, speaking reading and writing, is performed within the context of several learning tasks which engage learners with language.

With communicative language teaching, the use of authentic and realistic materials rather than simplified ones for use in language classrooms becomes important specifically for the receptive skills (listening and reading). The underlying principle is that if the students only listen to classroom language, then it will be demoralizing for them when they are exposed to real spoken language outside the classroom. Later, it was argued that simplified-authentic material use would be better for low proficient learners (Hedge, 2000).

As can be inferred, developments within the field of SLA have led researchers to conclude that listening is a complex, social and interactive process where the listeners are actively engaged in constructing meaning from a wide range of contexts and input sources (Vandergrift, 1999). To be precise, listening is now viewed as a communicative event where listeners need to know how to use various communicative skills in a particular listening situation (Juan & Flor, 2006).

After having looked at the historical overview of listening in language learning, it is crucial to explore the models of listening, which have been developed to explain how listening functions especially in adults. Among these models, the most widely known and recognized ones are the bottom-up model, the top-down model and the interactive model.

## 2.2. Models of Listening

There has been much research and discussion about the processes involved in listening but the most significant ones are the bottom-up, the top-down and the interactive views. These concepts refer to the sequence in which the different kinds of knowledge are applied in the process of listening and listening comprehension.

### 2.2.1. *The Bottom-Up Model*

The bottom-up model was the first model developed in the 1940s and 1950s. According to this model, listeners construct meaning by starting from the smallest unit of the acoustic input, that is, individual sounds, or phonemes. Later, these units come together to form words. Then, the words together constitute phrases, clauses, and sentences. Finally, individual sentences are joined to create ideas, concepts and relationships between them. In sum, the different types of knowledge, which are required in the listening process are applied in a successive, hierarchical way (Flowerdew & Miller, 2005). When the listener is dealing

with these processes, it must be noted that memory plays an important role. As listeners try to hold different parts of the message in their minds, the load on the memory gets heavier. If, for instance, there is an excessive amount of unfamiliar information, this may cause overload and loss of a part of the message (Hedge, 2000).

Communication does not require any reference to the speaker, hearer, or wider context according to this model (Flowerdew & Miller, 2005). That is to say, the bottom-up model does not take context knowledge, general knowledge and past experiences into account to explain the process of listening. With only this view of language comprehension, there appear to be some serious problems since both research and daily experience show that the processing does not occur in a fixed and linear sequence. In most cases, listeners have hypotheses about what may come next and additionally in such situations, it is not required to make use of all the linguistic information in the input (Buck, 2001).

### *2.2.2. The Top-Down Model*

Top-down processes involve the information that a listener brings to a text, which is sometimes called ‘inside the head’ information (Hedge, 2000). In a sense, listeners rely on what they are already familiar with to help make sense of what they hear (Lynch, 2006). The top-down model, unlike the bottom-up model, puts emphasis on the use of this prior knowledge when processing the input rather than decoding the individual sounds and words. This suggests that listeners are in need of more than just the auditory input to decode a verbal message. They depend on the previous contextual knowledge as well (Flowerdew & Miller, 2005). Top-down listening, then, exploits contextual clues, which come from knowledge of the specific situation, to make links between the spoken message and types of background knowledge listeners possess in their heads (Hedge, 2000). In addition to this, Buck (2001) states that listening comprehension is a top-down process in the sense that different kinds of

knowledge do not necessarily have to be applied in a fixed order. Hedge (2000) also warns that it is a mistake to see bottom-up and top-down strategies apart from each other since they are dependent on one another and they both function simultaneously. The fact that these processes can be used in any order and even concurrently and they can also interact and affect each other leads us to the next model of listening.

### *2.2.3. The Interactive Model*

Flowerdew and Miller (2005) state that for the listening process to be fully explained, researchers looked into the studies in reading and came up with the idea that the interactive model in reading can be applied to listening as well. This model of listening necessitates a sort of synthesis of the two models mentioned above. According to this model, language is processed simultaneously at different levels, which Lynch (2006) simply puts as phonological, syntactic, semantic and pragmatic. This model, from a pedagogical point of view, is more advantageous when compared to hierarchical models in that it is sensitive to individual learning styles and also group needs. For instance, at an early level of learning, it is recommended to spend more time on developing basic bottom-up skills since Vandergrift and Goh (2009) report that a major difficulty faced by beginner FL/SL learners is word segmentation, whereas when teaching more proficient learners listening, focusing more on top-down skills may have the potential to be more appropriate (Flowerdew & Miller, 2005). At the level of individuals, listeners may be in favor of top-down processes when they use contextual and previous knowledge such as topic, genre, culture and other schema knowledge stored in their long-term memory, to build a conceptual structure to facilitate comprehension. Listeners, however, make use of bottom-up processes when they construct meaning by accumulation by increasingly combining smaller units of meaning from the individual sounds phonemes to discourse-level features (Vandergrift, 2007).

To sum up, for a listening curriculum to be effective in teaching listening, it needs to recognize listening as an active, strategic and constructive process and, therefore, it should include the integrated (interactive) model (Vandergrift & Goh, 2009) where linguistic information, contextual cues, and previous knowledge function together to facilitate comprehension (Hedge, 2000).

#### *2.2.3.1. Academic Listening*

In a similar fashion to Vandergrift (2007), Lynch (2006) stresses the prominence of integration of bottom-up and top-down processes in listening. According to him, particularly real-time comprehension as in the case of academic lectures can only be accomplished through parallel interactive processing. Therefore, he suggests that “marrying top and bottom” (p. 91), which is an interactive or integrated model of listening, can be one of the most appropriate approaches when dealing with academic listening which is actually the type of listening the present study is concerned with.

Academic listening, which is a non-participatory listening as opposed to participatory listening such as face-to-face conversations or seminars, is a complicated process (Hedge, 2000). Therefore, what Lynch (2006) puts forward is significant in that academic listening tasks are challenging for L2 learners even for students at relatively high proficiency levels (Buck, 2001). To illustrate what academic listening is and how it differs from other types of listening, Richards (1983) distinguished general (conversational) and academic listening in a taxonomy containing micro-skills. He hypothesized that 18 higher-level micro-skills are necessary in academic listening contexts. His list includes the following:

- ability to identify purpose and scope of lecture
- ability to identify topic of lecture and follow topic development
- ability to infer relationships

- ability to deduce meanings of words from context
- ability to detect attitude of speaker toward subject matter
- ability to follow lecture despite differences in accent and speed
- ability to recognize function of non-verbal cues as markers of emphasis and attitude
- familiarity with different registers
- ability to follow different modes of lecturing: spoken, audio, audio-visual

Later, several skills a learner must apply so as to listen effectively in an academic setting were classified by Flowerdew (1994). Among these skills are activating background knowledge, separating relevant from irrelevant information, concentrating and comprehending for long periods of time, integrating the incoming information with related information gained from reading assignments, textbook information, handouts and lecture notes. Consequently, in order to maximize the chances of comprehending the main ideas in lectures, by both listening for the formal cues and also constantly checking them against context and their knowledge and experience learners need to synthesize top and bottom approaches in academic milieus (Lynch, 2006).

### 2.3. Approaches in Listening Comprehension Research

In his state-of-the-art article, in which research and developments in the field of listening are brought together, Vandergrift (2007) gives a detailed overview of listening comprehension. To start with, traditional ways of investigation listening comprehension have concentrated on the product of listening where test scores are taken into account to show the success of a treatment with control and experimental groups of learners. These test scores can also be used to see the relation with the factors hypothesized to influence listening achievement. Additionally, in studies taking language proficiency as a variable to be investigated, listening test scores are also used to determine the level of the participants. As

can be inferred, listening test scores do not tell us anything about the process of this language skill. However, instructors need a better understanding of the listening process to be able to teach listening more effectively (Vandergrift, 2007).

The other approach in listening comprehension is more process-oriented where post-listening questionnaires, stimulated recall protocols, interviews as retrospective techniques and think-aloud protocols as an introspective technique are used to report the cognitive aspects of listening. By the help of these techniques, researchers can have an in-depth understanding of how listeners arrive at the correct answer or why the process of communication breaks down (Vandergrift, 2007).

According to Vandergrift (2007), it is true that the data obtained by only one approach, that is either focusing on the process or product of listening, can provide useful insights. However, the reliability and validity of the data often come into question in studies where only one kind of methodology is applied. In order to overcome this limitation, it is highly recommended that researchers should triangulate the data by using multi-methods, though they are more labor-intensive, to see the complete picture of the construct of listening (e.g., data coming from test scores and interviews).

Starting from the second half of the 1990s, the increase in the use of technology as a pedagogical agent in education has lead the focus of listening comprehension to shift towards listening in multimedia settings where the learners have the chance to be able to study with auditory, visual and text support (Vandergrift, 2007). Before going any deeper into the research investigating listening in multimedia environments, the nature of multimedia and therefore, the theory lying at the heart, multimedia learning theory should be explained in brief.

## 2.4. Multimedia Learning Theory

Sweller (1988) published “Cognitive load during problem solving: Effects on learning,” which was later followed by “Cognitive load theory and the format of instruction” (Chandler & Sweller, 1991). The phenomenon called cognitive load refers to “the manner in which cognitive resources are focused and used during learning and problem solving” (Chandler & Sweller, 1991, p. 294). This theory was used to highlight the interactions between information and cognitive structures and the effect of these interactions on instructional design (Sweller, Van van Merriënboer, & Paas, 1998). These ideas were also applied to the new field of multimedia learning by Mayer (1997) titled as the generative theory of multimedia learning. He explains the model as follows:

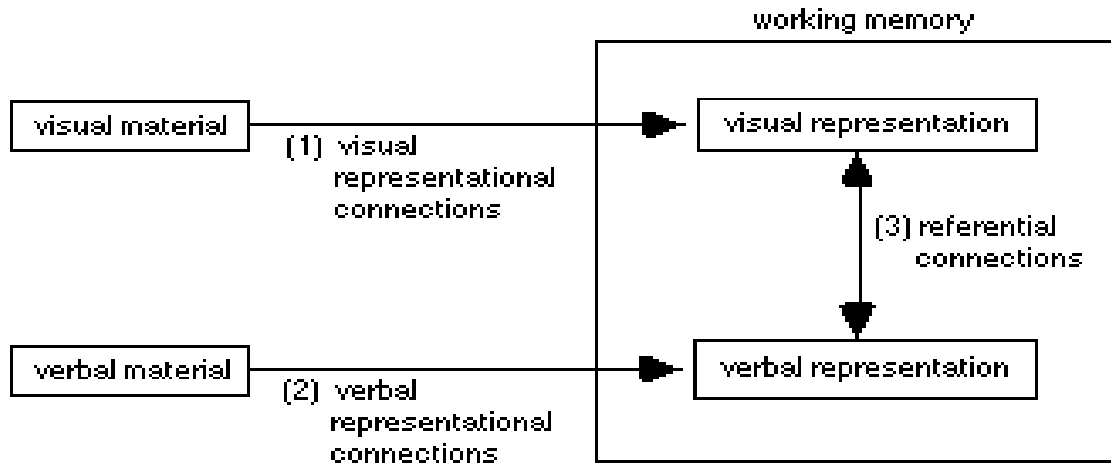
In a generative theory of multimedia learning, the learner is viewed as a knowledge constructor who actively selects and connects pieces of visual and verbal knowledge. The basic theme of a generative theory of multimedia learning is that the design of multimedia instruction affects the degree to which learners engage in the cognitive processes required for meaningful learning within the visual and verbal information processing systems. (p. 4)

The majority of Mayer’s generative theory of multimedia learning is based on the integration of Paivio’s dual-coding theory (Clark & Paivio, 1991), Baddeley’s working memory model (1992), and Sweller’s cognitive load theory (Sweller, 1988; Sweller, van Merriënboer, & Paas, 1998) which are the focus of upcoming sections.

### *2.4.1. Dual Coding Theory*

Dual coding theory (Clark & Paivio, 1991) claims that when new information is being processed, two interconnected semantic systems, which are verbal-based and nonverbal-based operate. The verbal system is responsible for verbal codes which include both written and oral language and organized background sound, but the nonverbal system processes all other stimuli such as pictures, figures, surrounding sounds and physical expressions. The theory, in particular, suggests that when information is presented in language like forms and picture like

forms, learning increases. According to this theory, audiovisual treatments are expected to facilitate comprehension more than audio-only instructional designs (Baltova, 1999; Jones & Plass, 2002).

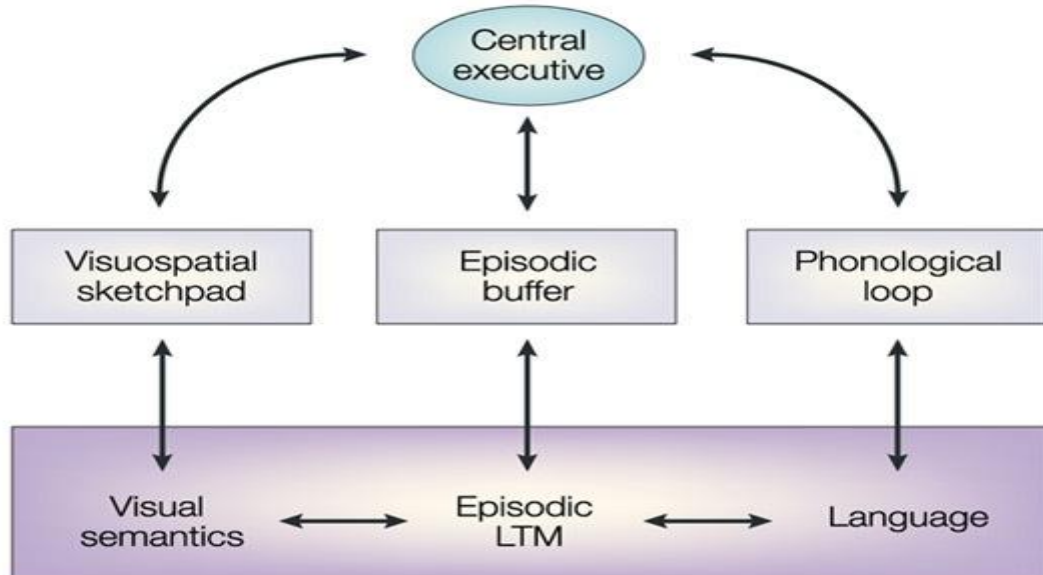


*Figure 1. Paivio's dual coding theory (Clark & Paivio, 1991)*

#### 2.4.2. Working Memory Model

Baddeley (1992) also asserts that working memory has an auditory working memory subsystem and also a visual working memory subsystem, namely the phonological (articulatory) loop for verbal information and the visual-spatial sketchpad for visual information. According to the working memory model, when information is offered through two sensory channels, audio and visual, instead of one, both systems are activated and the performance of the working memory is enhanced because more information can be processed (Baddeley, 1992). Thus, dual modal presentations, such as videos with closed captions, have been a common practice for foreign language learning materials. Presenting the content in dual modes is believed to better facilitate listening comprehension since the information is provided through two modalities, namely, visual and audio (Chen & Chang, 2011). This is actually the modality effect in cognitive load theory which, on the other hand, is concerned with the limits of working memory (Chandler & Sweller, 1991; Sweller, van Merriënboer, &

Paas, 1998). Later, Baddeley (2000) added the episodic buffer into the working memory model and stated that it integrates information processed through the two processing subsystems into a single mental representation.



*Figure 2. Baddeley's working memory model (Baddeley, 2000)*

#### *2.4.3. Cognitive Load Theory*

Cognitive load theory builds on Baddeley's working memory model (Sorden, 2005) and hypothesizes that working memory is limited in its capacity to selectively attend to and process incoming stimuli. Sweller (1988) hypothesizes that working memory capacity is limited whereas capacity of long term memory is unlimited. Knowledge is stored as schemata in the long term memory. The importance of automation process to construct schemata is undeniable. According to this theory, learners face three different kinds of cognitive load: intrinsic, extraneous, and germane (Sweller, 2005).

##### *2.4.3.1. Intrinsic Cognitive Load*

Intrinsic cognitive load is the load resulting from the natural complexity of the information (nature of the material) that must be processed and therefore largely unalterable

by instructional interventions. It reflects the difficulty level of the material to be learned which means that when the proficiency level is higher, the intrinsic load will be lower (Sweller, 2005). In other words, levels of element interactivity determines intrinsic cognitive load. To illustrate, when learning a foreign language, one can translate a specific word without learning to translate another word since element interactivity and working memory is low. Conversely, learning the word order in a foreign language requires the consideration of all words and the relations among them in a given sentence. The high element interactivity illustrated in this example causes a high working memory load (Sweller, 2005; 2010).

#### *2.4.3.2. Extraneous Cognitive Load*

Extraneous cognitive load is, however, determined by the instructional designs or exploitations which do not take working memory limits into consideration. If instructional design requires a considerable amount of working memory resources, it may impose a heavy cognitive load and impede learning. To illustrate, an audiovisual presentation will hypothetically place lower cognitive load on the learners than an audio-only mode on the grounds that visual modality will also be used to convey the information. Extraneous cognitive load is redundant and must be controlled by the instructor (Sweller, 2005).

#### *2.4.3.3. Germane Cognitive Load*

The last type and a desired one is germane cognitive load. It is the cognitive load that reflects effortful learning contributing to schema construction and automation (Sweller, van Merriënboer, & Paas, 1998; Sweller, 2010). Chandler and Sweller (1991) recognized two sources for extraneous cognitive load based on empirical evidence, namely split attention and redundancy. Split attention effect occurs when the learners must divide their attention between multiple information sources when they are not presented at the same locations and

time concurrently and when they try to cognitively combine pieces of this information to make it comprehensible. Whereas attending to multiple sources, such as the audio and video tracks of one movie enhances learning, split attention undermines it. Mayer (1997) expresses:

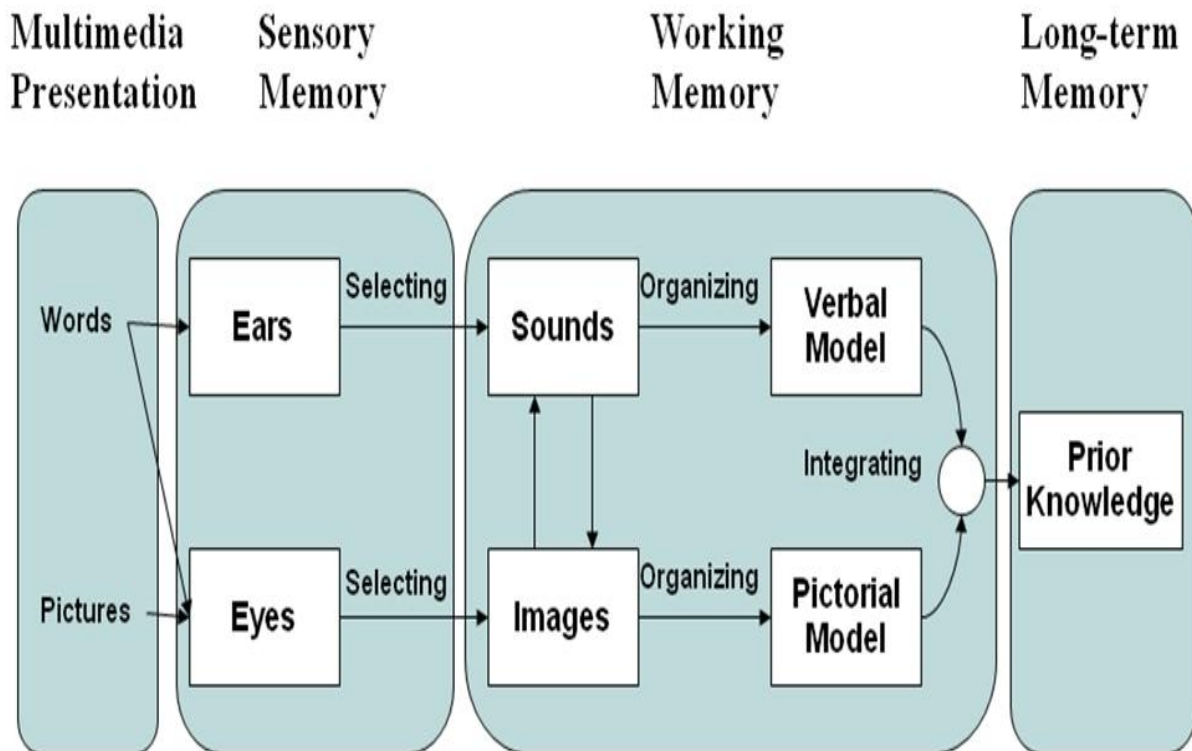
In particular, when text and animation are both presented visually, the learner's visual attention must be split between the animation and the text. When visual attention is overloaded, some of the information may be lost and the process of constructing connections between visual and verbal information will be disrupted. In contrast, when text is presented auditorily and the corresponding animation is presented visually, the learner can process the representation of text within an acoustic working memory and the representation of the animation within a visual working memory, which reduces the load on attention. This situation increases the chances that the learner will be able to construct connections between visual and verbal representations of the causal chain. (p. 17)

Redundancy effect, on the other hand, occurs when learners process too much useless information, that is redundant or duplicated, from two different sources although each can be understood independently. Schema acquisition and automation are hampered when learners attend to redundant materials (Kalyuga, 2011; Sweller, van Merriënboer, & Paas, 1998). To illustrate, Diao and Sweller (2007) examined the effect of simultaneous spoken text on the same reading text. They concluded that when the purpose is to enhance reading comprehension, it is important to eliminate the spoken material. In contrast to redundancy effect, there is also another kind of effect called modality effect. Modality effect means that learners will perform well if they receive information from a variety of channels, such as visual and auditory. It occurs in settings where multiple sources of information are needed to understand and learn (Sweller, 2005).

Sweller (2005) further gives information on the concept of the expertise reversal effect. Information that is redundant in a learning environment may be necessary in another, and information that is redundant for experienced learners may be necessary for beginners. Consequently, although the modality effect emphasizes the advantages of input coming from multi-channels, it must be applied with caution (Chen & Chang, 2011).

Mayer, (2001) in the light of these models and theories extended the borders of the previous generative theory of multimedia learning and proposed the cognitive theory of multimedia learning. Mayer, (2005a) defines multimedia “as presenting both words (such as spoken text or printed texts) and pictures (such as illustrations, photos animation or video)” (p. 2). When learners are able to build mental representations from words and pictures, multimedia learning occurs. Here multimedia refers to the presentation of words and pictures and learning refers to the person’s knowledge construction. In multimedia learning, input is delivered to learners in two or more formats (Mayer, 1997, 2001, 2005a). In other words, course materials can be presented to learners in various ways, and learners’ performance can be assisted by the integration of both auditory and visual stimuli (Chang, Tseng & Tseng., 2011).

Mayer (2001, 2005b) bases his cognitive theory of multimedia learning on three cognitive science principles of learning: (1) the systems humans have to process information has dual channels for visual and auditory processing; (2) each of these channels has only limited capacity to process; and (3) learning occurs when cognitive processes are coordinated. That is to say, learners select related words from the presentation of text or narration and related visuals from the illustrations. Then, they need to organize the selected words to build a coherent verbal representation and images to build a visual representation. Finally, learners integrate these verbal and pictorial representations with their background knowledge. Figure 3 represents this process.



*Figure 3. Mayer's cognitive theory of multimedia learning adapted from Mayer (2001)*

In sum, the theory of multimedia learning is based on a number of assumptions. Firstly, working memory includes auditory and visual channels, which are similar to the ones in Baddeley's (1992) theory of working memory. Learners can process the information coming through ears and eyes simultaneously. Secondly, each subsystem of working memory has a limited capacity to process the information. This is in line with cognitive load theory (Sweller, 1988; 2010). Thirdly, connections can be made only if related visual and verbal representations are present in working memory at the same time, which is similar to Paivio's dual coding theory (Clark & Paivio, 1991). During the process of gaining information, learners will select the most related information as input and integrate the selected information with their prior knowledge and mental models also known as schemas. Although, learners can learn simultaneously from both auditory and visual materials, they can also be negatively affected by unnecessary information and limited capacity. In other words, dual

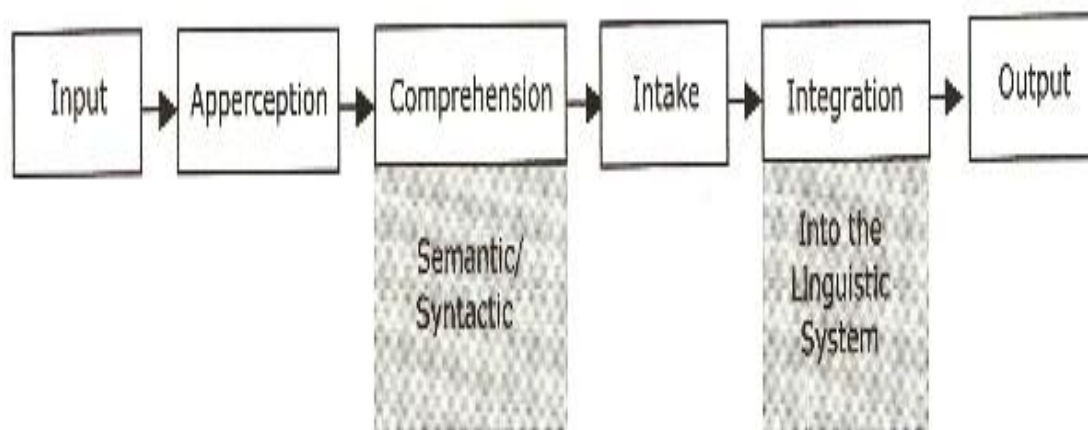
channels can help learners, but limited capacity or excessive or useless information can interrupt learning (Mayer & Moreno, 2003).

Based on Sweller's cognitive load theory which suggests that learning occurs when the schemas are developed, Sorden (2005) believes that a multimedia lesson should try to make sure that the learner has adequately automated key knowledge or tasks, before starting to deal with the overall task which may be beyond the learner's present ability range, and therefore cause unnecessary frustration. This anxiety may even cause the learner to drop out of the activity. Creating opportunities for the learner to construct new knowledge through connecting it with prior knowledge might be the best way to present the material.

## 2.5. Multimedia Learning and Second Language Acquisition

The use of words and pictures to present meaningful input; facilitating meaningful interaction with the target language to be acquired or learned; and producing meaningful output are the main steps of the procedure in multimedia learning and second language acquisition. In other words, an interactionist perspective of second language acquisition, as proposed by the researchers like Chapelle (1998), and Long (1985), determine the relationship between multimedia learning and the second language learning process. Brett (2000) states that in this model incoming information is a requirement for acquisition in that language input presents the richest source of language and this process of negotiating of comprehensibility facilitates acquisition. When learners interact with the input by using strategies such as clarifying, checking and confirming meaning, the use of these strategies facilitates acquisition. As an example, to support the use of multimedia in language classroom, Brett (2000) suggests that a video and an activity focusing on the meaning to be completed while-watching can be put together to design a multimedia learning environment.

This approach to language acquisition and learning is based upon three functions which are highly important: comprehensible input Krashen (1982); interaction Long (1985) and comprehensible output Swain (1985). Figure 4 demonstrates this process.



*Figure 4. Interactionist model of basic components in the second-language acquisition process adapted from Chapelle (1998)*

Input means the richness of the presented material in linguistic terms. Nonetheless, only the input that is perceived or noticed by the learners has the potential to be acquired. Learners' noticing of the incoming information is an important aspect of their *apperception*. Next, comprehension of the semantic content of noticed input can be accomplished with or without an understanding of the syntactic system. When the input is comprehended and ready to be integrated into the learner's linguistic system, it becomes intake. Meaningful output is the observable result of meaningful input and interaction. The output does not necessarily have to be in communicative task form, it can also be in the form of non-communicative, goal-oriented tasks (Chapelle, 1998). According to Plass and Jones (2005), these same strategies can be adapted to multimedia environments. They propose an integrated model which brings together elements of the interactionist perspective of second language acquisition (Chapelle, 1998) and elements of cognitive theory of multimedia learning (Mayer,

2001; 2005b). That is to say, when a language is learned or acquired in a multimedia environment, verbal and visual stimuli are designed in a way that supports the comprehensible input the learners are both exposed to and interact with. Then, comprehensible output is elicited and negotiated.

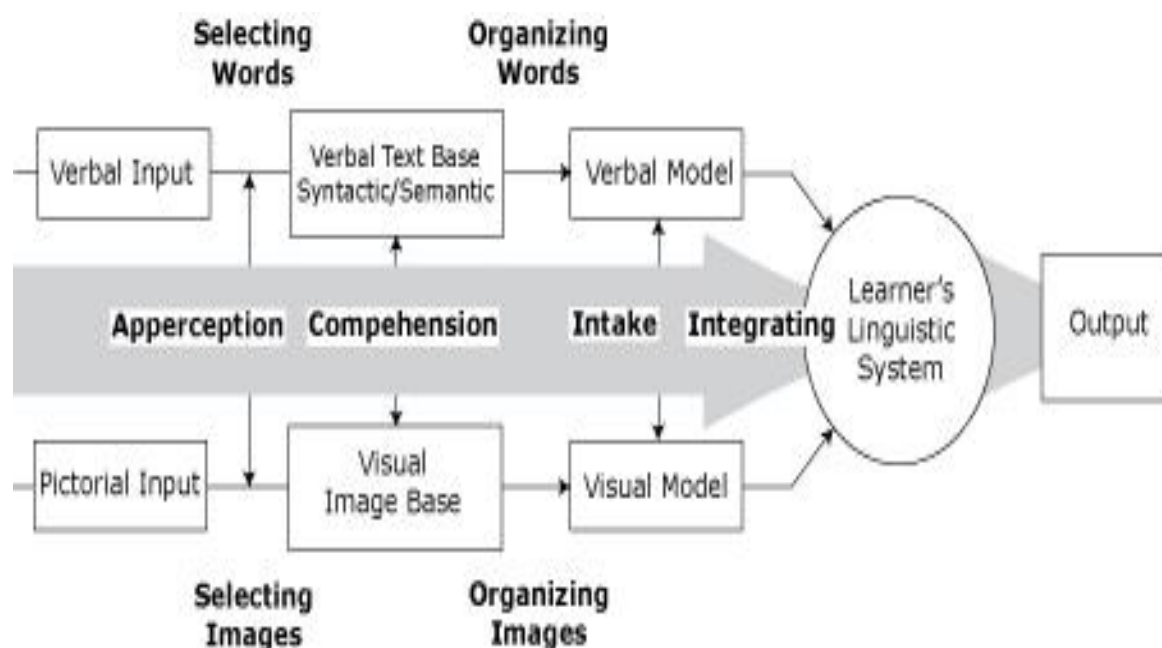


Figure 5. Integrated model of second language acquisition with multimedia adopted from Plass and Jones (2005)

### 2.5.1. Multimedia Learning and Listening

Plass and Jones (2005) maintain that specific areas in second language acquisition have been given less attention by researchers than some others. Specifically, the study of listening and listening comprehension is given as an example. Jones (2009) asserts that L2 listening comprehension is a multifaceted receptive skill and this skill is sensitive to both internal and external factors such as learners' cognitive abilities and the design and delivery of the aural text, either of which could affect the learner's ability to process the incoming information.

As stated above, multimedia can be used to enhance the linguistic material and increase the possibility of noticing of the learners. When it comes to listening, input enhancers that make use of multimedia for auditory input include captioned texts, nonverbal cues, supplementary video images and repetitions of the audio input (Plass & Jones, 2005). Dynamic visual information has also been found to be effective in enhancing the aural input for the purpose of listening comprehension (Hernandez, 2004).

Another important aspect in relation to multimedia and listening is providing initial material before presenting the learning material. In this manner, learners' prior knowledge can be activated and this enables them to comprehend the incoming information they get in a listening environment in a more successful and effective way. These introductory materials, also known as advance organizers, in the form of texts with pictures, questions, statements, images, brainstorming and mind mapping activities have been proved to help the students to better perceive the input which in turn becomes intake (Plass & Jones, 2005).

The multimedia principle, that is integration of both verbal and visual presentation modes of information has been acknowledged to support receptive skills comprehension in a consistent and strong way (Jones & Plass, 2002). Therefore, it is of utmost importance that studies following this design should be carefully clarified.

## 2.6. Studies on Input Modality and Listening Comprehension

When the literature is reviewed in terms of the effects of input modality on listening comprehension, it is worth mentioning that the debate is still ongoing.

In one of the most cited studies, Baltova (1999) examined the effects of different modes of subtitles with 93 lower-intermediate native French speakers. Specifically, the question of how English audio and French subtitles (known as reverse mode), and French audio with French subtitles, (bimodal mode), affected listening comprehension was

investigated. The learners' performances were operationalized as their scores in the comprehension questions and the gap-filling test. Participants, studying at a French foreign language class at a high school in Canada, were assigned to three different presentation modes; the first group watched the video with English audio and French subtitles first, then they saw the video with French audio and French subtitles (bimodal format). Finally, they saw the video in French with no subtitles. The second group saw the bimodal format twice, and then once with no subtitles. The third group saw the film three times in French with no subtitles. The findings indicated that foreign language subtitles were most beneficial when the learners were asked to recall vocabulary and content. The researcher also suggested that using videos is beneficial because it copies real-life, face-to-face experiences in a close way and provides supplementary sources of information such as speakers' body language or their physical actions upon which learners may depend to better comprehend the message during listening. It was also concluded that although the comprehension of the participants did not differ significantly in the input presentation modes, learners in the bimodal mode had significantly more vocabulary gains based on the vocabulary tests and post-treatment questionnaires.

Unlike Baltova's study, which specifically examined the role of subtitle modes on listening comprehension, Weyers (1999) investigated the role of long-term exposure to authentic video. Weyers (1999) conducted a longitudinal study to find out whether or not L2/FL learners who experience long-term exposure to authentic video would develop greater gains in listening comprehension and oral production ability than their counterparts studying in a program that did not include video. The participants of the study were 37 college students from two intact Spanish classes. The curriculum used in both classes was the same, with the only exception that the experimental group had been supplemented by 13 episodes of a soap opera in Spanish language twice a week for six and a-half weeks. Participants were given a

written outline of the episode in English and basic vocabulary lists as advance organizers and a list of while-listening comprehension questions. The results of listening comprehension tests revealed statistically significant differences in favor of the experimental group. In terms of oral production, the results of the related test were less conclusive. A limitation of the study was that instead of randomization, the study used intact classes for each treatment group.

As it is clear, not many studies focused on use of different visuals to facilitate listening comprehension. To fill this gap, Ginther (2002) examined the effects of providing different types of visuals (e.g., pictures, diagrams, and still photos of the speakers) with items on the computer-based Test of English as a Foreign Language (TOEFL). Specifically, the effects of visual condition (present or absent), type of stimuli (e.g., dialogues/short conversations, academic discussions and mini-talks) and language proficiency (high or low) on performance on computer-based test listening comprehension items were examined. 160 subjects were grouped according to their proficiency and form of the listening stimuli. The results indicated that the presence of visuals facilitated the performance when the visuals carried information that complemented the audio portion of the input. The analysis of the questionnaires demonstrated that the majority of the subjects preferred the stimuli that were accompanied by visuals.

In the previous studies, different tools were used to explore the extent they facilitate listening comprehension. The study conducted by Jones and Plass (2002) explored the effects of both verbal and nonverbal annotations on L2 vocabulary acquisition and listening comprehension of an aural text. They asked 171 English-speaking college students all of whom were non-native speakers of French, enrolling in a French course to listen to a historical report in French delivered by a computer. The researchers randomly assigned the participants to one of the four listening treatments: (1) the listening text with no annotations available, (2) with only written annotations (verbal mode) available, (3) with only pictorial

annotations (visual mode) available, and (4) with both written and pictorial annotations (verbal and visual mode) available. To collect data, the researchers made use of written multiple-choice vocabulary post-test and a written recall protocol post-test, which were both given immediately after the treatment and again after 3 weeks as delayed tests. The results of the study indicated that the participants best recalled word translations and remembered the passage better when they selected both written and pictorial annotations while listening rather than one of these types or no annotations. Besides, effect sizes were much larger for visual mode than for verbal, especially for delayed tests. The researchers suggested that interaction and integration with different input modalities of an aural text provided students with the required support to facilitate comprehension and vocabulary acquisition. Therefore, they concluded that a multimedia presentation should combine both visual and verbal annotations to support listening comprehension.

Similar to the study conducted by Baltova (1999), Hwang (2003) made an attempt to explore the effect of the use of captioned video (English written subtitles) on EFL learners' language learning. In the study, 80 first year, college level students studying in Taiwan were assigned to two groups, therefore each group consisted of 40 students. In the experimental group, participants viewed a video with the availability of captions whereas the participants in the control group viewed the video without the captions. Subjects' initial English proficiency was determined by a general English proficiency test, known as GEPT in Taiwan, as the pre-test. The independent variable was the presence of L2 captions. The dependent variables were the participants' scores. After viewing the fifth episode of the video, (once a week for over a period of five weeks) the subjects were administered content specific test measuring their listening comprehension, vocabulary and content comprehension. Then, the same GEPT was given to the participants as the post-test. The listening comprehension section contained five questions with three multiple options. The statistical analyses of the data revealed that

participants in the experimental group were more successful than their counterparts in the control group in terms of listening comprehension, vocabulary learning and content comprehension. However, there were no statistical differences between the groups in relation to reading abilities as measured by pre- and post-test. Thus, the researcher stated that captioned video did not have an effect on reading in the foreign language.

In addition to the studies discussed above, Hernandez (2004) in her study used different presentation modes to see the effects on listening comprehension and vocabulary acquisition of learners with spatial and verbal abilities. Scenes from an authentic film were presented as audio-only, as audio with subtitles, audio with video or audio with video and captions to 115 intermediate level students from ESL classes. She used an overall listening comprehension test, an incidental vocabulary acquisition test, an attitude survey, a background questionnaire, verbal and spatial tests and carried out an interview with the participants for the purpose of data collection. There were no significant differences among the groups in terms of vocabulary acquisition. On the other hand, participants in the video modes (audio with video and audio with video and subtitles) better comprehended the narration than those who did not. This was a stronger effect for the participants with high-spatial ability, which is a cognitive strength demonstrating how well individuals can process visual stimuli, than those with low-spatial ability. The study emphasizes the importance of considering input modality other than text only presentations to provide and enhance the meaningfulness of the input.

Claiming that the research was insufficient in the field, Gruba (2004) examined what learners do when they turn their attention to digital video media. For the purpose of the study, three authentic Japanese news broadcasts were recorded by Japanese language instructors and then digitized to display on a computer screen. Through a series of retrospective verbal reports conducted immediately after the delivery, 12 upper-intermediate level tertiary students

of Japanese at an Australian university provided verbal report protocols. A seven-category framework regarding how listeners use visual information to comprehend second language videotexts was produced. Among these categories, it was concluded that listeners may use visual information to identify the text type, to generate hypotheses, to confirm an understanding and narrow down an interpretation along with the others possible on the positive side whereas visual information can hinder or confuse the interpretation and provide little help on the other side. The findings of the study demonstrate that visual input (e.g., facial expressions, gestures, slides illustrations), interacts with aural information as the listener develops a fuller interpretation of the videotext.

In a similar attempt to explore the contribution of these gestures and facial cues to second-language learners' listening comprehension of a videotaped lecture by a native speaker of English, Sueyoshi and Hardison (2005) randomly assigned 42 low-intermediate and advanced ESL learners at a university in the U.S. to three stimulus conditions namely, audiovisual including gestures and face, audiovisual including face but no gestures, and audio-only. Results of a multiple-choice comprehension test demonstrated significantly better scores with visual cues for both proficiency levels. For the higher level, the audiovisual including face but no gestures condition produced the highest scores; for the lower level, audiovisual including gestures and face showed the best results. Analysis of data from questionnaires showed that the learners had positive attitudes toward visual cues, since they believed that visual cues were effective as components of face-to-face interactions.

As a distinctive feature, with the issue of academic listening in mind, Smidt and Hegelheimer (2004) in their study investigated effects of online delivered academic lectures on ESL learners's listening comprehension and vocabulary acquisition. 24 adult learners enrolled in a listening comprehension class completed pre-, post-, and delayed vocabulary tests, a computer-assisted language learning activity including a 15-minute digitized academic

lecture and a questionnaire. Participants were given a ten-item multiple-choice (four options) listening comprehension test, which was designed by the researchers themselves, and requested to answer the questions as they were listening. At the end of the study, the researchers suggested that incidental vocabulary acquisition was attributable to reading and advanced learners used both metacognitive and cognitive learning strategies. On the other hand intermediate and lower-level learners mostly utilized cognitive strategies. In terms of gender, male learners used fewer strategies than female learners and male learners preferred metacognitive strategies while female learners used more cognitive strategies. In addition, it was found that participants consulted the visual images more than the aural input.

Different from the previous studies, each of which focused on one or two modality types, in a study, to which the present study's research design is quite similar, Guichon and McLornan (2008) investigated the effects of multimodality on foreign language comprehension so as to provide implications for the upcoming instructional design of computer assisted language learning. They stated that computer assisted language learning has made it possible to integrate speech, video images, subtitles or translation into any kind of material, and yet relatively few studies have been carried out to date to determine the effect of multimodality upon text comprehension. Therefore, the researchers designed an experiment to compare the comprehension of a three-minute British broadcasting corporation (BBC) news report, an authentic audiovisual recording, which was presented twice to 40 French undergraduate students in four groups. The number of the participants in each group was 10. The first group was exposed to audio-only. The second group watched and listened to the same recording. The third group was exposed to image and sound like the second group with the exception of added first language subtitles and the last group with English subtitles. The participants were then asked to produce a detailed written summary in English with the help of the notes they took during the experiment. The results demonstrated that understanding

increased when learners were exposed to language input in several modalities. In addition, the researchers proposed that foreign language subtitling is more advantageous than first language, similar to what was found in Baltova's study (1999) owing to the fact that it resulted in less lexical interference.

It is clear that many studies in this field used video as an important delivery mode to investigate listening comprehension of language learners (Baltova, 1999; Weyers, 1999; Hwang, 2003; Hernandez, 2004). In a similar attempt, Kuo (2009) explored the effects of YouTube video clips on listening comprehension performance when they are used as teaching materials with EFL students in Taiwan. Specifically, effects of different numbers (2, 4, and 6) of YouTube clips in three experimental groups were compared with the students in control group where no clips were presented. Additionally, participant attitudes toward YouTube video clip use in listening activities were also investigated. 195 EFL college freshmen in a school in Taiwan participated in experimental research over the course of fourteen weeks. To collect data, pre- and post-tests and background surveys were administered. The three experimental groups also replied to an attitude questionnaire. The results indicated that YouTube listening/viewing activity presented statistically significant effects on listening comprehension performance. Next, the number of clips used in each group, meaning none for the control group and respectively 2, 4 and 6 for the experimental groups successfully predicted the group differences found in the comparison of pre- and post-test listening comprehension scores. The findings also showed that the use of YouTube video clips may provide an authentic setting that may be beneficial to EFL learners.

Similar to the study by Ginther (2002), to see the effects of visuals, Suvorov (2009) conducted another study at a state university in the United States in 2008 and investigated the influence of context visuals, (a single photograph and video), on test-takers' performance on a computer-based listening test developed specifically for the purpose of the research.

Particularly, the study examined whether or not the participants performed differently on three sections of the listening test: a part with a single photograph, a video-enhanced part, and an audio-only part. Moreover, the study explored if the participants performed significantly better on the part of the listening test with their preferred kind of visual input than on the other parts of the test. The test consisted of six listening passages and 30 multiple-choice questions, and it was administered to 34 international students (non-native speakers of English) from three English listening classes at university level. The findings demonstrated that while there was no significant difference between the scores for still photo part and audio-only parts of the test, the scores on the video-mediated part of the listening test were significantly lower.

When the literature related to listening comprehension in the field of language learning was searched, another study grabs the attention. Wagner (2010) designed a study to investigate the effect of non-verbal information that a video includes by comparing the performance of two groups of learners on listening comprehension, specifically on two genres (lectures and dialogues). The participants (N=202), who were non-native speakers of English, were divided into their proficiency level, at an American university. The control group, which consisted of 103 test takers, took a listening test after being exposed to audio-only input. Experimental group (99 students), took the same listening test on the input delivered through video. Statistical analyses demonstrated that the video (experimental) group scored 6.5% higher than the audio-only (control) group on the overall success, and this difference was statistically significant. The results of the study did imply that the non-verbal information in the video facilitated the video group's listening comprehension.

Multimedia and listening comprehension have continued to be the focus of studies. To exemplify, Tsai (2010) wanted to investigate if the learners benefited most from first or foreign language subtitles. 126 Taiwanese EFL learners at college level in Taiwan were the participants of the study which made use of quantitative and qualitative methods. There were

two experimental groups (English subtitles group and Chinese subtitles group), and a control group. The quantitative analysis of the data consisted of the listening comprehension scores and questionnaires. The proficiency level of the participants was identified by a mock intermediate-level pre-test and a post-test of the listening comprehension. Additionally, information from the participants including the participants' general background, both participants' and teachers' self-reported perceptions on the effectiveness of using authentic films in listening comprehension classes was then analyzed. Next, the researcher interviewed seven participants from each group and six college English teachers individually for the qualitative analysis. The results of the study indicated that students in the experimental groups with either English subtitle or Chinese subtitle treatments scored higher in listening test than the control group without the subtitle treatments. However, contrary to other studies (e.g., Baltova, 1999 and Guichon and McLornan, 2008) no significant difference was found between the English subtitle group and the Chinese subtitle group. The findings from the qualitative data indicated a preference both by students and teachers for using feature films and subtitles as a method of helping Taiwanese college students in their English listening comprehension.

In another study, Chang, Tseng and Tseng (2011) examined the effects of single and dual material presentation mode and low and high English proficiency on English listening comprehension, cognitive load and learning attitude in a ubiquitous learning (learning in an authentic situation: a zoo in the study) environment in Taiwan. They designed a learning activity for the participants in which they were supposed to use a personal digital assistant, known as PDA, as a learning tool to facilitate learning. 162 students studying applied foreign language in a technology university in Taiwan formed the participants of the study. According to the results of a General English Test Proficiency examination, the middle proficiency group students were not included in the study whereas 59 students with high proficiency and 58

students with low proficiency were the subjects. Material presentation mode groups were as follows: one was single channel, auditory material (spoken messages only) and the other was dual channel (simultaneous text and spoken messages). A rating scale, called the Subjective Cognitive Load Rating was used to measure the cognitive load in the experiment. The results showed that learners with high English proficiency had significantly better English listening comprehension and lower intrinsic and extraneous load than learners with low English proficiency. Both high and low English proficiency learners learning with dual channel had significantly better English listening comprehension and held more positive beliefs toward the ubiquitous learning environment than learners who were exposed to single channel. In addition, for learners learning with single channel, low English proficiency learners had significantly higher extraneous load than high English proficiency learners; and for low English proficiency learners, learners who learned with dual channel possessed significantly lower extraneous loads than learners who learned with single channel.

Winke, Gass and Sydorenko (2010) carried out a study to investigate the effects of captioning (subtitling) during audiovisual listening activities based on video watching. Second and fourth year learners of different languages namely, Arabic, Chinese, Spanish, and Russian at a university in the U.S. (N=150) watched three short videos with and without captioning in a randomized order. Spanish learners had two extra groups: one group watched the videos twice with no captioning, and another watched twice with captioning. After the participants watched the video twice, they were given comprehension and vocabulary tests about the video. Then, 26 learners participated in interviews and they were asked about their general reactions to the videos (with and without captions). Results revealed that captioning was more effective than no captioning since they caused better depth of processing and understanding through multiple modalities. The interview data pointed out that learners used captions to increase their attention, improve processing, reinforce background knowledge, and analyze

language. Learners also reported they relied on captions as a “crutch”. The researchers also found that listening twice to a video first with captions and then without helped the learners reduce the anxiety they experienced and facilitate automation to process the information.

In a similar vein, Sydorenko (2010) studied the effect of input modality on the learning of written and spoken word forms, attention to input, vocabulary learning strategies and overall vocabulary gains. 26 second semester Russian language learners at a university in the U.S. were randomly assigned as participants to the following content presentation modes: 9 participants were in video with audio, 9 were in video with captions and 8 participants were exposed to video with audio and captions. They, then, were given written and aural vocabulary tests and completed a final questionnaire. According to the results of the study, groups with captions outperformed the video with audio group on the written recognition forms of the word whereas the reverse was true for the video with audio group on the listening comprehension. On the other hand, participants in the video with audio and captions gained more words than the ones in video with audio group. Data gathered from the questionnaires indicated that learners paid more attention to captions first and this was followed by video and audio.

In their study, Chen and Chang (2011) investigated the effect of content presentation modes on students’ cognitive load and listening comprehension in a mobile learning context. Particularly, the focus of the researchers was on the modality effect of content presentation modes. 125 females and 37 male students majoring in English at university level used personal digital assistants as the learning tool for a listening comprehension activity. Participants were randomly assigned to (1) audio-only and (2) audio and written text presentation modes. Five-item multiple-choice comprehension test, subjective cognitive load rating scale and an opinion survey were utilized to collect data. The use of text aid for L2 listening comprehension of an audio guide for university students was found to be supportive.

Additionally, the findings showed that the students with lower proficiency appeared to be more perceptive of the text aid. The presence of text helps learners connect the missing parts of the message and makes the listening less difficult and more understandable. The authors suggest that textual input should be displayed in a mobile English listening comprehension activity to reduce learners' cognitive load.

Comparable to the studies in the literature, Rooney (2011) examined the impact of captions including three keywords on the listening comprehension of 90 Arab EFL learners of while viewing authentic video clips. Around 10%, 30% or 50% of the words in the video scripts were included in the keyword captions. The participants, first were divided into three levels according to their English proficiency (i.e., advanced, intermediate, and elementary). They all watched three different video clips, each of which contained one of the three keyword captions mentioned. Participants were then given comprehension tests consisting of gap-filling activities and multiple-choice questions to examine their understanding of the content of the video clips. In addition, a questionnaire was administered to elicit the participants' perceptions on the effectiveness of keyword captioned viewing. The analysis of the listening comprehension test scores showed evidence of an effect for keyword caption condition at the elementary level of English proficiency. That is, elementary learners scored significantly better on the comprehension tests when their listening was supported by captions containing approximately 50% of the script than when they were supported by captions containing only approximately 10% of the script. On the other hand, no evidence was found of an effect for captions at the other levels of proficiency. Results obtained from the questionnaires indicated that participants at all levels prefer to watch videos including captions and prefer to have captions that contain approximately 30% of the script to those that contain approximately 10% or 50% of the script.

The study conducted by Inaty, Ayres & Sweller (2011) is of value since the researchers integrated two different language skills namely reading and listening. Inaty, Ayres and Sweller (2011) explored the effects of reading and listening to the same material at the same time in an EFL context and discussed the findings within the cognitive load theory framework. In the study, native Arabic-speaking university students in Lebanon were asked to learn some English words and sentences either by reading them or by simultaneously reading and listening to the same spoken material. Participants were administered reading, listening and writing tests. They were also given subjective cognitive load rating scales to complete. The results indicated that participants assigned to the read-only group performed better on listening tests than their counterparts assigned to a read and listen condition. No differences were found on the reading and writing tests. The findings demonstrated that at least some learners will enhance their listening skills more by reading the materials only rather than simultaneously reading and listening due to the fact that participants were better able to learn in the single mode (read-only mode) because working memory resources were not required to focus on another mode containing similar, redundant information. Finally, the researchers of the study concluded that providing learners with visual material enhances learning more than presenting them with auditory material.

In addition to the modalities used in previous studies, the present study also includes a PowerPoint presentation as a content delivery mode since it is also a kind of visually supported listening (Valencia 2009).

Valencia's (2009) study, in which a PowerPoint presentation was included as a content delivery mode, took place during the 2008 academic year at a university in the U.S. in two Elementary Spanish classes. Using a combination of the findings as a base, the researcher aimed to broaden the findings of previous studies on visually supported listening. The

researcher designed an experiment to compare empirically the effect of visually enriched PowerPoint slides (VEPP) on students' listening comprehension and outcomes by assigning the students to two groups: (1) audio with VEPP and (2) audio-only (non-VEPP). 46 beginning level students participated in the study. The results, based on the listening exercises including multiple-choice comprehension and completion activities, presented quantitative evidence for the use of PowerPoint slides for pre-, during-, and post-listening activities at elementary levels. There were statistically significant differences between scores on listening exercises in the control and treatment conditions. The results suggest that students who were in the visually enriched PowerPoint group performed statistically significantly better. There was no main effect for gender. Based on the qualitative data coming from participant surveys, the researcher concluded that the learners preferred and felt less anxiety resulting from the use of PowerPoint for pre-, during-, and post-listening activities.

In the Turkish context, the number of the studies investigating the effect of multimedia on listening comprehension is scarce. Özgen (2008) in his study aimed at determining the positive effects of English captioned authentic videos on listening comprehension of intermediate level students studying English as a foreign language in a state university. The number of the students who participated in the study was 34. The control group in the study watched an American sit-com, which approximately lasts for 20 minutes, without the captions and the experimental group watched it with captions on over 8 weeks in 45-minute media lab lessons in the 2007-2008 academic year. Before each presentation, both groups were distributed target vocabulary exercises in the form of worksheets as advance organizers, suggested by Hernandez (2004). The participants were also given questionnaires before and after the presentation so that their perceptions of the captioning would be analyzed. To see the success of the learners in terms of comprehension and vocabulary, ten-multiple choice

comprehension question tests with each question having three options and a word test were administered. According to the findings of the study, the experimental group significantly outperformed the control group. The researcher proposed that captioning helped the learners acquire vocabulary and better comprehend the events that formed the main story. The input modality was also found to charm the learners since they were able to view the video, hear the oral language and see the subtitles. However, the researcher did not specify why the participants in the control group and experimental group were given comprehension questions on different episodes, instead of the same episode. Moreover, in the comprehension test of the experimental group the questions included three options, whereas the questions had four options in the control group's comprehension test. Unfortunately, these factors may have influenced the findings of the study.

Kozan (2009) investigated effects of extraneous cognitive load caused by the input delivery mode of an English text and of verbal working memory capacity of 29 advanced learners of English on foreign language reading and listening comprehension under conditions of high intrinsic cognitive load and low prior knowledge. The participants, who were assigned randomly to experimental groups, were presented with an English text in two different input modes on a website; a text with pictures and a narration with pictures. The learners were then asked to read or listen to the text for the purpose of comprehension. The participants were given retention and transfer comprehension tests twice, immediately after the treatment and two weeks after the treatment. Also a subjective cognitive load rating scale was administered to indicate the level of cognitive load they thought the multimedia environment caused. The results of the study, interpreted according to the cognitive theory of multimedia learning (Mayer, 2001) and cognitive load theory (Sweller, 1988), pointed out that participants' immediate transfer test scores were significantly higher than their delayed transfer scores. Additionally, the learners' in the narration with pictures mode, which is assumed to exert less

extraneous cognitive load than the text with pictures mode, reported significantly higher cognitive load than their counterparts in the text with pictures mode. The researcher claimed that the assumptions of modality principle may change for L2 learners, which depends on time of testing, working memory capacity, and type of comprehension since the results found in the study were not totally consistent with the theory.

More recently, Başaran (2011) looked into the effects of using captions with an authentic film, which was decided by the participants on the listening comprehension of intermediate level university students learning English as a Foreign Language. Two intact classes including 66 preparatory school students of the English language teaching department in a state university participated as control and experimental groups in the study. The proficiency level of the participants was decided by a standardized listening proficiency test. The first 24-minute segment of a film was employed as the research material. The experimental group subjects (N=32) watched the film segment with captions, whereas the subjects in the control group (N=34) watched the same segment without captions. A multiple-choice listening comprehension test devised by the researcher was administered in order to collect quantitative data. The findings revealed that the students in the experimental group outperformed their counterparts in the control group. It was concluded that captions produced highly positive effects on intermediate level EFL students' listening comprehension of a film segment. Participants' perceptions of the authentic captioned film as an instructional material were examined with the help of a questionnaire. The results demonstrated that this multi-sensory presentation was perceived as a supportive and enjoyable instructional material. Furthermore, to find out if there were any factors which might have an effect on subjects' listening comprehension scores, two representative groups from the experimental group and control group with the highest scores and the lowest scores in each group were interviewed about their English language backgrounds and habits. However, none of the factors (e.g., the

age at which foreign language learning started, the type of school attended, having been abroad, having any native speakers as friends or in the family, watching subtitled films, listening to foreign music, reading English books or magazines, following printed or visual media in English) investigated through the interview showed a relation with subjects' listening comprehension scores.

## 2.7. Summary

In summary, when the reviewed literature is taken into consideration, it is clear that the studies done by Hernandez (2004); Guichon and McLornan (2008); Kozan (2009); Sydorenko (2010); Chang, Tseng and Tseng (2011) have emphasized the importance of input modality. Chronologically, the researchers; Baltova (1999); Başaran (2011); Hwang, (2003); Gruba, (2004); Özgen (2008); Kuo, (2009); Tsai (2010); Sydorenko (2010); Winke, Gass and Sydorenko (2010); Rooney, (2011); investigated the effects of captioning on listening comprehension through the use of authentic films clips, and videos The fact whether the use of video (Weyers, 1999); delivering a digitized academic lecture online (Smidt & Hegelheimer, 2004); the use of written and visual annotations (Suvorov 2009; Jones & Plass, 2002); the use of visual cues including gestures and facial expressions in academic settings (Ginther, 2002; Sueyoshi & Hardison, 2005; Wagner, 2010) and Powerpoint presentation (Valencia, 2009) affects listening comprehension have also been examined mainly through the use of conventional and authentic media.

To date, however, the question of how pictorial and written information may help students' aural comprehension in a multimedia academic listening environment has not been adequately addressed. Therefore, the present study attempts to fill this gap.

Table 1.

## Summary of the Studies

|    | Researcher(s)   | Year | Subjects                                                                | Instrument(s)                                                                                                                                                                                                             | Aim(s) to investigate                                                                                                                                | Main Finding(s)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|----|-----------------|------|-------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. | Baltova         | 1999 | 93 lower-intermediate native French speakers at a high school in Canada | - bimodal (L2 audio with L2 keyword captions), reversed (L1 audio with L2 captions), and traditional (no captions) modes<br>-comprehension questions, gap-filling test, -post-treatment questionnaire<br>-vocabulary test | Effects of English audio and French subtitles known as reverse mode, and French audio with French subtitles, bimodal mode on listening comprehension | -L2 subtitles were most beneficial to recall vocabulary and content.<br>-using videos is beneficial because it copies real-life face-to-face experiences and provides supplementary sources of information such as speakers' body language or their physical actions upon which learners may depend to better comprehend the message during listening.<br>-the comprehension of the participants did not differ significantly in the input presentation modes,<br>-<br>-learners in the bimodal mode had significantly more vocabulary gains. |
| 2. | Weyers          | 1999 | 37 college students from two intact Spanish classes.                    | -experimental group supplemented by 13 episodes of a soap opera in Spanish<br><br>-while-listening comprehension test                                                                                                     | Whether L2/FL learners' long-term exposure to authentic video resulted in greater gains in listening comprehension and oral production ability       | -statistically significant differences in favor of the experimental group<br>-the results of the related test were less conclusive about oral production.                                                                                                                                                                                                                                                                                                                                                                                     |
| 3. | Ginther         | 2002 | 160 subjects                                                            | -TOEFL multiple-choice items, questionnaire                                                                                                                                                                               | Effects of providing different types of visuals (e.g., pictures, diagrams, and still photos of the speakers) with items on TOEFL                     | -presence of visuals carrying information supporting audio facilitated the performance<br>-majority of the subjects preferred the stimuli accompanied by visuals.                                                                                                                                                                                                                                                                                                                                                                             |
| 4. | Jones and Plass | 2002 | 171 English-speaking college students in a French course                | -written multiple-choice test<br>- vocabulary post-test<br>-written recall protocol post-test                                                                                                                             | Effects of verbal and nonverbal annotations on L2 vocabulary acquisition and listening comprehension of an aural text                                | -participants best recalled word translations and remembered the passage better when both written and pictorial annotations were selected while listening                                                                                                                                                                                                                                                                                                                                                                                     |
| 5. | Hwang           | 2003 | 80 college students(freshmen) in Taiwan                                 | Experimental group: 40 students with captioned video<br>Control group: 40 students without caption                                                                                                                        | Effects of captions on listening comprehension and vocabulary                                                                                        | - Experimental group outperformed control group in listening comprehension, content and vocabulary test                                                                                                                                                                                                                                                                                                                                                                                                                                       |

|    |                       |      |                                                                       |                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                      |
|----|-----------------------|------|-----------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    |                       |      |                                                                       | <ul style="list-style-type: none"> <li>- English Proficiency Test</li> <li>- Comprehension test</li> <li>-vocabulary test</li> <li>- content test</li> </ul>                                                                                                                                                                                                                        |                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                      |
| 6. | Hernandez             | 2004 | 115 intermediate level ESL students                                   | <ul style="list-style-type: none"> <li>-authentic film scenes as audio-only, as audio with subtitles, audio with video or audio with video and captions</li> <li>-listening comprehension test</li> <li>-incidental vocabulary acquisition test,</li> <li>-attitude survey,</li> <li>-background questionnaire,</li> <li>-verbal and spatial tests,</li> <li>- interview</li> </ul> | Effects of input modes on listening comprehension and vocabulary acquisition of learners with spatial and verbal abilities. | <ul style="list-style-type: none"> <li>-no significant differences among the groups in terms of vocabulary acquisition</li> <li>-participants in the video modes (audio with video and audio with video and subtitles) better comprehended the narration</li> </ul>                                                                                                                                  |
| 7. | Gruba                 | 2004 | 12 tertiary students of Japanese language at an Australian university | <ul style="list-style-type: none"> <li>-3 authentic Japanese news broadcasts</li> <li>-verbal report protocols</li> </ul>                                                                                                                                                                                                                                                           | What learners do when they turn their attention to digital video media                                                      | <ul style="list-style-type: none"> <li>-Visual information helped to identify the text type, to generate hypotheses, to confirm an understanding and narrow down an interpretation</li> <li>-Visual information can hinder or confuse the interpretation and provide little help</li> <li>-Visual input interacts with aural information as the listener develops a fuller interpretation</li> </ul> |
| 8. | Sueyoshi and Hardison | 2005 | 42 low-intermediate and advanced ESL learners                         | <ul style="list-style-type: none"> <li>-audiovisual mode including gestures and face,</li> <li>-audiovisual mode including face but no gestures,</li> <li>-audio-only modes</li> <li>-multiple-choice comprehension test,</li> <li>-questionnaires</li> </ul>                                                                                                                       | Contributions of gestures and facial cues to L2 listening comprehension                                                     | <ul style="list-style-type: none"> <li>-significantly better scores with visual cues for both proficiency levels</li> <li>-learners had positive attitudes toward visual cues</li> </ul>                                                                                                                                                                                                             |
| 9. | Smidt and Hegelheimer | 2004 | 24 adult learners                                                     | <ul style="list-style-type: none"> <li>-pre-, post-, and delayed vocabulary post-tests,</li> <li>- a computer-assisted language learning activity including a 15-minute digitized academic lecture and</li> <li>- a questionnaire.</li> <li>-a ten-item multiple-choice</li> </ul>                                                                                                  | Effects of online delivered academic lectures on ESL learners's listening comprehension and vocabulary acquisition          | <ul style="list-style-type: none"> <li>-incidental vocabulary acquisition was attributable to reading and advanced learners used both metacognitive and cognitive learning strategies.</li> <li>-intermediate and lower-level learners mostly utilized cognitive strategies.</li> <li>-male learners used fewer strategies than female learners and male learners</li> </ul>                         |

|     |                        |      |                                                                                                                                  |                                                                                                                                                                            |                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                 |
|-----|------------------------|------|----------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|     |                        |      |                                                                                                                                  | listening comprehension test                                                                                                                                               |                                                                                                                                    | preferred metacognitive strategies while female learners used more cognitive strategies.<br>-participants consulted the visual images more than the aural input.                                                                                                                                                                                |
| 10. | Guichon and McLornan   | 2008 | 10 French undergraduate students in each group of audio, audio-video, audio-video with L1 subtitle, audio-video with L2 subtitle | -a 3-minute BBC news report<br><br>-summary writing                                                                                                                        | Effects of multimodality on FL listening comprehension                                                                             | -understanding increased when learners were exposed to language input in several modalities<br>-foreign language subtitling is more advantageous                                                                                                                                                                                                |
| 11. | Kuo                    | 2009 | 195 EFL college level (freshmen) students In Taiwan                                                                              | Experimental groups: 2, 4 and 6 youtube clips<br>Control group: audio-only                                                                                                 | Effects of youtube clips on EFL learners' listening comprehension                                                                  | - Experimental groups more successful in listening comprehension<br>- number of clips affected listening comprehension scores differently                                                                                                                                                                                                       |
| 12. | Suvorov                | 2009 | 34 university level non-native speakers of English students                                                                      | -a part with a single photograph,<br>-a video-enhanced part,<br>-an audio-only modes<br><br>-multiple-choice listening test                                                | Influence of context visuals, (a single photograph and video), on test-takers' performance                                         | -no significant difference between the scores for still photo part and audio-only parts of the test<br>-the scores on the video-mediated part of the listening test were significantly lower.                                                                                                                                                   |
| 13. | Wagner                 | 2010 | 212 university level students                                                                                                    | -control group: audio-only mode<br>-experimental group: audio-video<br><br>-multiple-choice listening comprehension test                                                   | Effect of non-verbal information a video includes on listening comprehension, specifically on two genres (lectures and dialogues). | - experimental group scored 6.5% higher than the audio-only (control) group on the overall success<br>- non-verbal information in the video facilitated the video group's listening comprehension.                                                                                                                                              |
| 14. | Tsai                   | 2010 | College level 126 Taiwanese EFL learners                                                                                         | -listening comprehension score test<br>-questionnaires<br>-participants' general background,<br>-both participants' and teachers' self-reported perceptions.<br>-Interview | Investigate whether the learners most benefited from first or foreign language subtitles                                           | -students with either English subtitle or Chinese subtitle treatments scored higher in listening test than the control group without the subtitle treatment.<br>-a preference (both by students and teachers) for using feature films<br>-subtitles as a method of helping Taiwanese college students in their English listening comprehension. |
| 15. | Chang, Tseng and Tseng | 2011 | 162 university level EFL learners                                                                                                | -personal digital assistants<br><br>-subjective cognitive load rating scale                                                                                                | Effects of single and dual material presentation modes and low and high English proficiency on English listening                   | -learners with high English proficiency had significantly better English listening comprehension<br>-high and low English proficiency learners                                                                                                                                                                                                  |

|     |                           |      |                                                                          |                                                                                                                                                     |                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-----|---------------------------|------|--------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|     |                           |      |                                                                          |                                                                                                                                                     | comprehension                                                                                                                                              | learning with dual channel had significantly better English listening comprehension and held more positive beliefs toward the ubiquitous learning environment.                                                                                                                                                                                                                                                                                                |
| 16. | Winke, Gass and Sydorenko | 2010 | 150 second and fourth year learners of different languages at university | -3 short videos with and without captioning in a randomized order<br><br>-comprehension and vocabulary tests,<br>-interview                         | Effects of captioning (subtitling) during audiovisual listening activities based on video watching                                                         | -captioning more effective than no captioning since they caused better depth of processing and understanding through multiple modalities.<br>-learners used captions to increase their attention, improve processing, reinforce background knowledge, and analyze language.<br>-listening twice to a video first with captions and then without helped the learners reduce the anxiety they experienced and facilitate automation to process the information. |
| 17. | Sydorenko                 | 2010 | 26 Russian language learners at a university in the U.S.                 | -video with audio, video with captions and video with audio and captions modes<br><br>-written and aural vocabulary tests<br>-a final questionnaire | Effect of input modality on the learning of written and spoken word forms, attention to input, vocabulary learning strategies and overall vocabulary gains | -participants in the video with audio and captions gained more words than the ones in video with audio group.<br>-groups with captions outperformed the video with audio group on the written recognition forms of the word<br>-the reverse was valid for the video with audio group on the listening comprehension.<br>-learners paid more attention to captions first and this was followed by video and audio.                                             |
| 18. | Chen and Chang            | 2011 | 162 university level EFL learners                                        | -five multiple-choice comprehension test,<br>-subjective cognitive load rating scale<br>-opinion survey                                             | Effect of content presentation modes on students' cognitive load and listening comprehension in a mobile learning context.                                 | -use of text aid for L2 listening comprehension was found to be supportive.<br>-students with lower proficiency appeared to be more perceptive of the text aid.                                                                                                                                                                                                                                                                                               |
| 19. | Rooney                    | 2011 | 90 Arab EFL learners at university level                                 | - videos containing 10, 30 & 50 % of the script<br>- summary gap-filling activity<br>Multiple-choice comprehension tests                            | Effect of 3 keyword caption modes on listening comprehension                                                                                               | - elementary level students benefited most from the captions containing 50 % of the script<br>- No difference between other levels<br>- Caption mode including 30% of script preferred by all level students                                                                                                                                                                                                                                                  |
| 20. | Valencia                  | 2009 | 46 beginning                                                             | -multiple-choice comprehension                                                                                                                      | Effect of Visually Enriched                                                                                                                                | -students in the VEPP group performed                                                                                                                                                                                                                                                                                                                                                                                                                         |

|     |                          |      |                                               |                                                                                                      |                                                                             |                                                                                                                                                                                      |
|-----|--------------------------|------|-----------------------------------------------|------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|     |                          |      | level of the students                         | -completion activities,<br>-survey                                                                   | PowerPoint (VEPP) slides on students' listening comprehension and outcomes. | statistically significantly better.<br>-learners preferred and felt a lesser amount of anxiety resulting from the use of PowerPoint for pre-, during-, and post-listening activities |
| 21. | Inaty, Ayres and Sweller | 2011 | University level Arabic-speaking EFL learners | Read-only & read-listen groups<br><br>Reading, writing tests, subjective cognitive load rating scale | consequences of simultaneously reading and listening to the same materials  | -read-only (single mode) group performed better on listening tests                                                                                                                   |

#### Turkish Context

|    |         |      |                                                                    |                                                                                                                                                                                               |                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                 |
|----|---------|------|--------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. | Özgen   | 2008 | 34 intermediate level students studying EFL in a state university. | control group: American sit-com, without the captions<br>experimental group: watched with captions<br><br>-questionnaire<br>-ten-multiple choice<br>-comprehension question tests - word test | Effects of English captioned authentic videos on listening comprehension                                         | -experimental group significantly outperformed the control group<br>-captioning helped the learners acquire vocabulary and better comprehend<br>- input modality was also found to charm the learners since they were able to view the video, hear the oral language and see the subtitles.                                                     |
| 2. | Kozan   | 2009 | 29 advanced EFL learners                                           | -retention and transfer<br>-comprehension tests<br>-subjective cognitive load rating scale                                                                                                    | Effects of extraneous cognitive load caused by the input delivery mode on L2 reading and listening comprehension | -immediate transfer test scores were significantly higher than delayed transfer scores.<br>-the learners' in the narration with pictures mode, which is assumed to expose less extraneous cognitive load than the text with pictures mode, reported significantly higher cognitive load than their counterparts in the text with pictures mode. |
| 3. | Başaran | 2011 | 66 preparatory school EFL learners                                 | -multiple-choice listening comprehension test,<br>-questionnaire,<br>-interview                                                                                                               | Effects of using captions with an authentic film                                                                 | -experimental group outperformed the control group<br>-captions produced highly positive effects on intermediate level EFL students' listening comprehension<br>-multi-sensory presentation was perceived as a supportive and enjoyable instructional material                                                                                  |

In the light of the studies mentioned, it is clear that no other studies have employed four different content delivery modes, namely (1) one single (audio-only) and three dual language learning material delivery modes; (2) audio with video, (3) video, audio with target language subtitles, (4) audio and PowerPoint presentation to support an academic aural text. It

should, at the same time, be kept in mind that academic listening is actually the type of listening tertiary level students would face more than any other types during their education.

This chapter provided a historical overview for the listening as a language skill and also focused on the basis of the theoretical issues related to L2 listening comprehension and multimedia learning. A review of major results from studies conducted on input modality and its effects on L2 listening comprehension were also presented. In conclusion, to be able to see the effects of multimedia input delivery mode of an English text on listening comprehension, further studies are needed. The present study tries to address these issues. The details of the methodology, which are needed to conduct the present study addressing the gap in the literature, are given in the next chapter.

## CHAPTER III

### METHODOLOGY

The present study was designed to explore the effects of input modality on listening comprehension of upper-intermediate level foreign language learners enrolled in the English language teaching department preparatory program at a foundation University, which is partially funded by the government, in Istanbul, Turkey. Throughout this chapter the design of the study is clarified. The general research design of the study, description of participants, the characteristics of the setting, data collection instruments, procedure and data analysis will be explained in detail way.

#### 3.1. Research Design

The reliability and validity of data collected particularly for constructs like listening ability and listening comprehension are often questioned since it is difficult to observe what is going on during the process. Therefore, researchers are recommended to use multi-method techniques to collect in-depth data when studying L2 listening. Both reliability and validity (Lynch, 1996) can be increased when data, which are gathered from more than one source, are triangulated to provide a more complete picture of the process under examination (e.g., listening comprehension test scores with questionnaire data, think-aloud protocols and interviews). For the validity issue, the listening comprehension in the present study has been operationalized in accordance with the construct validity of listening comprehension tests used in the study as data collection instruments. As for the qualitative data gathered for the purposes of present study, member checks and triangulation were employed as techniques to overcome the validity concern as suggested by Lynch (1996). Although these methods are

more labor-intensive, they provide better and comprehensive insights into the listening process (Vandergrift, 2007).

To examine the effects of various presentation modes on academic listening comprehension, in the present study, a mixed design, which utilized both quantitative and qualitative analysis, was followed as shown in Table 2. In the present study, an intact class consisting of 10 students participated. At the beginning of the 2011-2012 academic year, all the students studying in the preparatory class of the English language teaching department were given a proficiency exam constructed to make sure that the participants were at the same level of language proficiency. In the present study, four different academic lectures taken from a course book called *Contemporary Topics 3 third edition* (Beglar & Murray, 2009), were used in different conditions such as audio-only, audio-video, audio-video with subtitles and after that the participants were given a content-specific comprehension test again taken from the aforementioned course book. Furthermore, to be able to triangulate this quantitative data with qualitative data, information was gathered through think-aloud protocols and a semi-structured interview so that the effects of input modality on academic listening comprehension of upper-intermediate EFL learners might produce reliable and valid results.

Table 2.

#### Design of the Study

| <b>Group</b>              | <b>Proficiency test</b> | <b>Input modes<br/>(Independent<br/>Variables)</b> | <b>Post-test<br/>(Dependent<br/>Variable)</b> | <b>Qualitative Data</b>                                             |
|---------------------------|-------------------------|----------------------------------------------------|-----------------------------------------------|---------------------------------------------------------------------|
| Intact<br>class<br>(N=10) | Proficiency exam        | Audio-only                                         | Multiple-choice<br>test                       | Think-aloud<br>protocol (N=6)                                       |
|                           |                         | Audio & video                                      | Multiple-choice<br>test                       | Think-aloud<br>protocol (N=6)                                       |
|                           |                         | Audio, video &<br>English subtitles                | Multiple-choice<br>test                       | Think-aloud<br>protocol (N=6)                                       |
|                           |                         | Audio & PPT<br>presentation                        | Multiple-choice<br>test                       | Think-aloud<br>protocol (N=6)<br>Semi-structured<br>Interview (N=6) |

### 3.2. Setting and Participants

The study took place during the second semester of the 2011-2012 academic year at a foundation university in the English language teaching department preparatory program in Istanbul, Turkey. In order to control the individual differences over the repeated conditions, which can have an impact on listening comprehension (Jones, 2009), an intact class was used in the present study. That is to say, a listening class, to which the researcher himself was teaching listening comprehension, was included as it was. The number of the students participating in the study for the quantitative purpose was 10 and for the qualitative part, the number of the students was 6. All the participants were female and from the same class to which the researcher offered listening in the second semester. Therefore, the convenient sampling method was chosen. For ethical considerations, all the participants were informed about the purpose of the present study and instead of their real names, pseudonyms will be used.

The preparatory program of the English language teaching was founded in 2008 based on the needs analysis of the faculty and the students (Mede, 2012). Since there were no male students in the classroom, all the participants were females whose age range varies between 18-20. In the preparatory program, the students are offered 24-27 hours of English a week including the four language skills; listening, reading, writing and speaking along with the grammar. In other words, essentially skill-based syllabi are followed within the program.

Since the university entrance exam prepared by the Higher Education Board in Turkey does not contain any questions related to listening, writing and speaking, the students who enroll at university are given a proficiency test by the English language teaching preparatory program at the beginning of each academic year, so that the students who need to stay and study in preparatory English education can be determined. Although the university has its own general preparatory school and a proficiency test which includes listening, reading,

writing and grammar, in 2008 with the concern that the test and the syllabi in preparatory school did not meet the needs of pre-service education students and instructors in the ELT department, a new program was designed which includes all four language skills (Mede, 2012). Based on the test results, students who score 65 and above with the obligatory score of 60 out of 100 received from writing and speaking, continue their studies at faculty with freshman courses, and others who score under 65 have to take preparatory English education. Based on the regulations that are approved by the university senate, in the English language teaching preparatory program, there are three proficiency levels: intermediate level for the students who score up to 44, upper-intermediate level for those who score between 45 and 54 and advanced level for the students who score 55 and 64 in the main proficiency exam. Each class has at least three teachers, two non-native teachers and a native teacher who is mainly responsible for the speaking course. Students in this program are evaluated according to their participation, portfolio progress, three quizzes and two achievement tests. The weights of these criteria are as follows:

50 % from achievement tests

25% from portfolio including reading, listening, speaking and writing requirements such as book reports, oral presentations, reaction paper and essay writing

15 % from quizzes

10 % from participation and attendance.

The students, who obtain 60 out of these criteria, have the right to enter the end-term proficiency exam to continue their education at the undergraduate level.

As such, the subjects might be described as homogeneous in terms of age, gender, level of proficiency and department.

### 3.3. Data Collection Instruments

The data in the present study have been gathered through multiple instruments: (a) proficiency exam, (b) a listening proficiency exam, (c) a topic familiarity questionnaire (adapted from Pulido, 2004), (d) listening comprehension tests, (e) think-aloud protocols and (f) a semi-structured focus group interview.

#### 3.3.1. Proficiency Exam

The English proficiency level of the students enrolled in the English language teaching department is determined by a proficiency examination (Mede, 2012).

#### 3.3.2. Listening Proficiency Exam

In this test, listening consists of 4 sections each with 10 questions, making a total of 40 items. The first section is a conversation between two speakers and the second section includes a monologue. The next section is again a conversation between up to 4 people and the final section is a monologue. The first two sections are concerned with social needs whereas the third and fourth sections are concerned with educational and training contexts. A wide range of question types is utilized and among these are matching, plan/map/diagram labeling, form completion, short answer questions and multiple-choice. Test takers answer the questions as they listen.

#### 3.3.3. The Lectures and Topic Familiarity Questionnaire

The lectures utilized for the purposes of the study were all taken from a course book titled as *Contemporary Topics 3 third edition* (Beglar & Murray, 2009). *Contemporary Topics* is a series of textbooks, ranging from high-beginning to advanced, making use of content-based instruction to teach academic listening. Each unit in the book is centered on an

academic lecture covering a variety of content areas such as sociology, biology, business, public health, and linguistics. Each lecture takes place in a lecture hall, in an authentic-looking setting, with live student audience. This can be viewed as a DVD option. The listening comprehension feature is a unique asset, and the tests do not assess vocabulary and note-taking strategies, which are not within the scope of the present study, since all ten questions are focused on the lecture content. Since level 3 was found not adequately challenging for advanced students (Carr, Dornbush, & Waite, 2011). The book is suitable for upper-intermediate level students, as in the present study.

Selection of this course book was based on the decision taken by the researcher himself and two other instructors teaching the same students. When selecting the stimuli, three criteria were taken into consideration. First, the language of the lectures should be appropriate to the learners in relation to grammatical and lexical complexity. Second, the topic of the lecture should be of interest to the participants and finally the lectures should be new to the students, that is no participants should have listened and/or watched the lectures beforehand.

First of all, the language in terms of grammar and lexis had to be suitable for the learners. When the literature is reviewed, it is obvious that appropriate stimuli should be a little beyond the learners' current proficiency level. Krashen (1982) formulates this as  $i+1$  with  $i$  representing the learners' present level.

Secondly, to motivate students more, to lessen the frustration the participants would experience when dealing with an academic lecture, to make sure that the subject of the lecture matches the interest of the learners and to control the familiarity of the participants with the topics, which would otherwise create a confounding variable, a topic familiarity questionnaire, adapted from Pulido, 2004, (see Appendix A) was distributed before the presentation of the modes. The participants were asked to determine their choice of

preferences of the topics in the course book by giving ‘1’ for the topic they are most familiar with and ‘11’ for the one with which they are least familiar. In this manner, participants were able to determine the topics in which they were most familiar. According to the results of this scale, four lectures were selected to be used in different presentation modes. Among the topics are (1) slang and language change, (2) social status, (3) money, and (4) marriage. The finding was not surprising since the participants were all females studying English as a foreign language at a private university. The results of the topic familiarity questionnaire can be seen in a clearer way in Table 3.

Table 3.

Topic Familiarity Questionnaire (adapted from Pulido, 2004)

|     | Topic                                                               | Mean (N=10) |
|-----|---------------------------------------------------------------------|-------------|
| 1.  | Sociology: Marriage (Unit 12)                                       | 1,6         |
| 2.  | Communication Studies: Slang & Language Change (Unit 1)             | 4,1         |
| 3.  | Sociology: Social Status (Make people admire your success) (Unit 3) | 4,3         |
| 4.  | Economics: The Evolution of Money (Unit 10)                         | 4,9         |
| 5.  | Child Psychology: Gifted (Genius) Children                          | 5,2         |
| 6.  | Anthropology / Biology: The Science of Love                         | 5,7         |
| 7.  | Linguistics: Animal Communication                                   | 6,2         |
| 8.  | Biology: Aging                                                      | 6,3         |
| 9.  | Business: Globalization & Marketing                                 | 7,1         |
| 10. | Astronomy: Traveling to Mars                                        | 9           |
| 11. | Political Science: Big Brother is watching you                      | 9,6         |

Finally, it was made clear that the students participating had never covered the course book used as the input material in the present study. The time duration of each lecture and the number of the words contained in each lecture are as follows:

Table 4.

Topic, Duration, Word Count, and Word Per Minute of the Lectures

| Topic of the Lecture      | Duration             | Word Count | Word Per Minute |
|---------------------------|----------------------|------------|-----------------|
| The Evolution of Money    | 6 minutes 36 seconds | 769        | 117             |
| Marriage                  | 5 minutes 48 seconds | 817        | 141             |
| Social Status             | 6 minutes 40 seconds | 817        | 123             |
| Slang and Language Change | 7 minutes 10 seconds | 964        | 135             |

Word per minute (hereafter wpm) is an important issue in determining the speech rate. The speech rate of the spoken message for the first lecture is 117 wpm. The wpm for the second lecture is 141. For the third lecture, it is 123 wpm and for the fourth lecture, wpm is 135. As can be seen, the lectures are similar in wpm. Based on previous studies, Chen and Chang (2011), in their research, state that the speed of wpm between 120 and 225 is recognized as the natural speech rate. Buck (2001) also states that the lectures particularly for non-native speakers can be slower suggesting that lecturers may slow down to facilitate comprehension.

The order of the treatments and the lectures and the type of conditions were also randomized. The conditions and the lecture topics were ordered as follows:

Table 5.

Topic of the Lecture and Presentation Type

| Topic of the Lecture      | Presentation Type                                                       |
|---------------------------|-------------------------------------------------------------------------|
| The Evolution of Money    | Audio                                                                   |
| Marriage                  | Audio-video<br>(see Appendix B for a screenshot)                        |
| Social Status             | Audio-video with subtitles<br>(see Appendix C for a screenshot)         |
| Slang and Language Change | Audio with PowerPoint Presentation<br>(see Appendix D for a screenshot) |

For the audio and PowerPoint treatment, the recording was analyzed by the researcher and two other instructors teaching in the same department. Then, the concepts, words and ideas were selected so that the visually enriched slides would be arranged. Finally, the researcher prepared slides for the listening activity that was a part of the study. The PowerPoint slides were supplemented with different types of visuals according to the content of each listening activity. The pictures and images in the PowerPoint slides were all taken from Google Image Search. Ur (1984) emphasized the simplicity of the pictures and other visual materials to be integrated with listening since too many detailed pictures would be confusing and difficult to grasp at a look. If the materials to be used to assist listening include

complicated visual stimuli, then the learners will have to spend more time to process that information before they can even start to think about the aural text. Therefore, these suggestions by Ur (1984) constituted the criteria when selecting pictures and/or photos for the PowerPoint presentation. Mayer (2005) argues that the process of selecting relevant images starts in the visual channel. Only the related part of the illustration or picture is selected due to the limited capacity of working memory in the cognitive system. Since it is not possible to process all parts of complex images, clear, rather than detailed visuals have been selected for the PowerPoint presentation.

#### *3.3.4. Listening Comprehension Tests*

The purpose of the present study is to investigate the effects of input modality on while-listening comprehension. To obtain the quantitative data, for each lecture, a 10-item multiple-choice test, taken directly from the teacher's pack of the course book (Beglar & Murray, 2009), was given. Multiple-choice comprehension tests were preferred in order to minimize the confounding of listening with other language skills such as writing or speaking and for effectiveness under time constraints. To exemplify, when learners are asked to take notes and/or write summaries to show their comprehension of an aural text, their writing ability could interfere with the process as suggested by Sueyoshi and Hardison (2005).

These comprehension tests include paraphrasing, inferencing synthesizing information from various parts of the lectures and verbatim recall. To motivate the students more, they were told that the practices would help them prepare for the actual proficiency exam at the end of the term. An example of the comprehension test can be found in Appendix E.

### 3.3.5. Think-aloud Protocols

After the participants finished the listening comprehension activity, to be able to answer the second research question of the present study, which is asking the perceptions of the learners on input delivery modes, think-aloud protocols were conducted. For practicality purposes, out of 10 participants, 6 students were chosen.

Someren, Barnard and Sandberg (1994) state that in thinking aloud, the participant is requested and encouraged to talk aloud while completing a defined task. It means that the participants keep on talking, speak out loud whatever comes to their mind while performing a task. Thus, the participants verbalize what they are thinking. Ideally, the researcher only intervenes to remind the participants to continue and keep talking if they lapse into silence. It is suggested that think-aloud protocols, as an introspection technique, should be carried out directly after the treatment.

In order to overcome the difficulty resulting from the nature of think-aloud protocol and familiarize the participants of the present study with this technique, a short pilot study was conducted. The researcher himself demonstrated the procedure through a sample listening text, which the researcher had never listened to before, by verbalizing his thoughts while listening. Each subject, one by one was then asked to listen to a listening excerpt (approximately 2 minutes) from *Contemporary Topics 3* (Beglar & Murray, 2009) and once they finished listening they were requested to verbalize their thought so that they could understand the purpose of the think-aloud protocol. For the purpose of the study, an unstructured procedure in which the subject was free to stop the recording whenever she needed by raising her hand and verbalize her thoughts, was applied. All protocols approximately lasted for 15 to 20 minutes and were held in participants' native language, Turkish, so that they could freely express themselves and feel much more relaxed. Obviously, subjects from time to time code-switched and used a mixture of L1 and L2. Each session,

upon the consent granted by the participants, was video-taped and then transcribed by the researcher. Each protocol was carefully labeled with a participant's name and the mode of the input modality (e.g., audio, audio-video, audio and PowerPoint).

Vandergrift (2007) posits that this method of data collection is “the closest the researcher can come to tapping thought processes while information is still available to the listener in short-term memory” (p. 192). In addition to this, the data gathered by think-aloud protocols are useful to explain if listeners use visual and aural information to interpret the message (Gruba, 2004).

### *3.3.6. Interview*

To analyze the data collected by different means throughout the study in detail, a semi-structured focus group interview (N=6) was conducted with the same segment of the participant population. Lynch (1996) explains that conducting interviews with small groups has several advantages. First, a greater number of people can be sampled within the same amount of time that an individual interview procedure could take. Moreover, interviewees can question or clarify each other's answers. To find out the perceptions of the participants on different input presentation modes, a semi-structured interview method was preferred. Otherwise, it would be difficult to obtain in-depth data from a structured interview. Instead of individual interviews, students were asked questions in a group format since the interaction between the subjects and the topics discussed could lead to new dimensions of the phenomenon in a more intensive way. Questions, with the intention of guiding the participants, asked during the interview were based on the codes extracted from think-aloud protocols and quantitative data (Appendix F). The interview took nearly half an hour and was video-taped and then transcribed by the researcher.

### 3.4. Procedure

The conditions/treatments, in other words, input presentation modes were applied in participants' regular listening class over two weeks. There are four treatments in the study and since the class meets twice a week, the whole procedure took two weeks. To activate the schemata the students had, a brainstorming activity was conducted and in order to control vocabulary as a variable, key vocabulary exercises taken directly from the course book (for a sample, see Appendix G) were carried out before the treatment started. In the brainstorming activity for each lecture, participants were asked to verbalize what came to their mind when they heard the topic of the lecture they were going to hear. They were given a minute to jot down as many ideas and related words on their notebooks as they could and later, they were requested to share them with their peers in the classroom and then the researcher put the words on a diagram on the board. The activity was carefully controlled by the researcher himself to make sure that the discussion would not lead to any specific points in the lecture to be listened to in an explicit way. After these, the students put away their notes and the board was cleaned.

Flowerdew and Miller (1992) reported that new vocabulary was a difficulty encountered by the students listening to an academic lecture. Therefore, the students were given vocabulary sheets and the exercises were done and checked. In each lecture, it was found that the number of the unfamiliar or unknown words was not high because the level of the book was consistent with the current proficiency level of the participants, and thus did not impose too heavy a load on the working memory resources of the learners. Following this step, students were given a 10-item multiple-choice listening comprehension test so that they could read the questions, understand them and have information about what was being asked.

After having checked the questions, the input was presented in accordance with the delivery mode twice. The students were free to take any additional notes but these notes were

not assessed since the note-taking skill of the learners was not within the scope of the study. All the treatments started at the same time of the day because the actual listening courses of the intact class began at 9 and lasted until 11 pm two times a week, on Wednesdays and Fridays. Following delivery, the participants were allowed adequate time to complete and/or check their answers.

The participants of the study were also informed that their scores would not have an effect on their overall listening grade at the end of the semester, but it would be a kind of good practice for them especially for the upcoming proficiency exam that they were to take. For the audio-only mode, a CD player and two additional speakers to increase the volume were used. For the other modes, namely, audio-video, audio-video and target language subtitles and audio with PowerPoint presentation, computer and projector technology were used. With the digital image display projector, a two-two-meter picture was obtained to make sure that each participant was able to see the video in video modes, read the captions in subtitle mode and see the images in PowerPoint presentation modes. External speakers were used in these three modes as well to provide students with an improved sound quality. To have a better display, the curtains in the classrooms were drawn. Smooth functioning of the technological devices was verified before each treatment started by the researcher who came to class 15 minutes prior to the beginning of the course.

Directly after the students had finished with the procedure, the selected participants were called one by one for the think-aloud protocols. They were requested to listen and/or watch the same material and verbalize their thoughts. For the think-aloud protocols, a portable computer was used. After finishing four sets of think-aloud protocols, the video-taped data were transcribed and codes were extracted by the researcher and another rater working in the same department and writing her dissertation in the field of ELT. Based on these codes, a semi-structured, focus group interview was designed and the same six subjects were

interviewed. To minimize the time-effect, all the data were transcribed immediately by the researcher and controlled by the same rater mentioned above.

### 3.5. Data Analysis

After the data were collected, the Statistical Package for Social Sciences 17.0 (hereafter SPSS), a software program, was operated to evaluate the quantitative data in the present study.

First of all, within group analysis of variance (henceforth ANOVA) was carried out to examine data gathered via listening comprehension tests. Four different delivery modes with the multiple-choice tests, as the dependent variables were analyzed. The level of significance was defined as .05.

For the qualitative part of the study, there were two types of data; verbal reports of the students coming from think-aloud protocols and the interview. Firstly, all think-aloud protocols and the interview were transcribed. Maxwell (2005) emphasized the importance of transcription since it is usually simpler to analyze transcribed data than to analyze a recording.

Following the transcription, a content analysis, based on the perceptions of the participants on different input presentation modes, was done. Zhang and Wildemuth (2009) view qualitative content analysis as mainly an inductive method to ground the examination of research topics in data analysis. They state that samples for qualitative content analysis are usually purposefully selected. In addition, this type of methodology produces descriptions and expressions of the participants studied on how they reflect and view the phenomenon being investigated.

After the transcription of data, it is recommended that the next step for the content analysis is to use themes as the coding unit. For instance, a code to a part of the text in the

transcription can be assigned if that part consists of an individual theme related to the research question (Zhang & Wildemuth, 2009).

Two raters, meaning the researcher and another instructor who is teaching in the same department, read through the entire data gathered through think-aloud protocols and the interview. A sample of data for the test of consistency and clarity was first coded by the raters. When the coding consistency was checked, it was revealed that the level of consistency was 0.87.

The first pass through the data helped the researcher to decide on a preliminary system to code the data as suggested by Lynch (1996). Having established inter-coder agreement, the two raters independently coded the verbal report answers of the participants. After the raters coded the data on separate note-taking sheet, inter-rater reliability (coding consistency) was checked again to assure reliability. The researcher recoded both think-aloud and the interview transcriptions. An intra-rater reliability score, calculated by dividing the number of matches over the total number of identifications, was 0.89. This level of consistency is considered acceptable by research methodologists (Hatch & Lazaraton, 1990; Miles & Huberman, 1994). The same colleague who was familiar with the study was involved in the procedures for measuring inter-rater reliability. Using the formula presented in Miles and Huberman (1994) where the total number of agreements are divided by the total number of ratings, inter-rater reliability was calculated to be 0.83.

It was also taken into consideration that during the process, new themes and codes would emerge and therefore would need to be included. Through coding, the factors that have affected listening comprehension either in a positive or negative way and other relevant data as well for the conclusions of the research were identified.

### 3.6. Summary

In this chapter, the general research design of the study, characteristics of participants, and setting, data collection instruments, procedure and data analysis were clarified. Specifically, the procedure for the selection of the text book and the topics in that textbook were explained. Participants in the present study were selected conveniently since the researcher has had the knowledge of their listening comprehension level and ability to answer the research questions addressed. Next, detailed information about each data collection instrument for both the quantitative and qualitative purposes of the study was presented. Following the description of the instruments used, the procedure of the study was explained. As is displayed, a variety of methods was therefore applied to collect data so that a wealth of data could be provided both to ensure and increase the credibility and validity of the study. Finally, the chapter concluded with the data analysis procedure whose results will be presented and discussed in the next chapter.

Table 6.

Summary of Research Questions and Related Procedures

| Research Questions                                                                                                                                                                                              | Data Collection Instrument(s)                                                                                                                                                          | Data Analysis                                                    |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|
| 1. Do input delivery modes; a. audio-only, b. audio with video c. audio with video including target language subtitles and d. audio with power-point presentation significantly affect listening comprehension? | Four lectures based on self-rated topic-familiarity questionnaire<br><br>listening comprehension tests for each lecture taken from the course book called <i>Contemporary Topics 3</i> | within-group ANOVA<br><br>Descriptive Statistics (Mean scores)   |
| 2. What are the EFL learners' perceptions on different input presentation modes?                                                                                                                                | Think-aloud Protocols<br>Semi-structured focus group Interview                                                                                                                         | Content Analysis (Open coding)<br>Content Analysis (Open coding) |

## CHAPTER IV

### RESULTS

This chapter provides the findings of the data analysis carried out to answer the research questions of the present study. To explore the effects of input modality on L2 while-listening comprehension of upper-intermediate level students, quantitative (statistical) analyses were conducted by SPSS as mentioned in the previous chapter. The first research question is asking whether or not input presentation modes have a beneficial impact on while-listening comprehension. To be able to answer this question on a reliable basis, the background knowledge of the students was controlled through the topic familiarity questionnaire, which was adapted from Pulido (2004), and the vocabulary was controlled by pre-teaching the key words, which were to appear in the aural texts, by the exercises of the course book. The purpose of raising the second research question is to examine the perceptions of upper-intermediate level L2 students on the input presentation modes. This was explored through the think-aloud protocols and a semi-structured focus group interview.

#### 4.1. Findings related to Research Question 1

The first research question seeks out the effects of input modality on listening comprehension once the other confounding variables have been controlled. In table 7, the descriptive statistics of the proficiency examination scores of 10 participants are presented.

Table 7.

Means and Standard Deviations of Components in Proficiency Examination (N=10)

|           | <i>M</i> | <i>SD</i> |
|-----------|----------|-----------|
| Reading   | 41,75    | 9,35      |
| Writing   | 64,80    | 6,48      |
| Listening | 34,65    | 10,29     |
| Speaking  | 59,60    | 11,49     |

Table 7 shows the mean score of the students in the listening component of the proficiency exam is 34,65 out of a possible 100. It is clear that the lowest mean belongs to listening and this indicates that this complicated receptive skill needs more scaffolding and investigation (Vandergrift, 1999; 2007) which is actually one of the purposes of the present study.

To be able to answer the first question, four 10-item listening comprehension tests based on aural input; lectures taken directly from the course book (Beglar & Murray, 2009) were administered to the participants. The dependent variable was each participant's score on four listening comprehension tests administered after four different input delivery modes. The possible highest score, which can be obtained from each comprehension test, is 10. The means and standard deviations on these tests were displayed in Table 7.

Table 8.

Means and Standard Deviations of Listening Comprehension Test Scores

| Input Mode / Lecture Topic | <i>M</i> | <i>SD</i> |
|----------------------------|----------|-----------|
| Audio (Money)              | 8,10     | 1,66      |
| Audiovideo (Marriage)      | 7,70     | 1,33      |
| Audvidsub (Social Status)  | 5,20     | ,78       |
| PPP (Slang)                | 8,80     | 1,22      |

Note: Audio refers to the input presentation mode in which the students only listened to the lecture through the use of a CD player and speakers. Audiovideo mode refers to the use of the DVD which comes with the course book. In this mode, students were able to see and listen to the lecturer in a realistic classroom environment. Audvidsub mode, which refers to audio video with subtitles mode, adds target language subtitles to the second mode. In PPP mode, which refers to audio and PowerPoint presentation mode, students were able to listen to the lecture which was supplemented by a PowerPoint presentation.

As demonstrated in Table 8 above, the scores obtained in the listening comprehension test of the input presented through the inclusion of audio-video with subtitles were lower than those gained in the other presentation modes. The highest average of the scores was obtained

in the fourth mode when the input is visually assisted by the help of PowerPoint slides. That is to say, participants achieved the highest scores in the fourth presentation mode.

Next, one-way ANOVA was employed to examine the effects of input modality. One-way within group repeated measures ANOVA is chosen for several reasons. First, by collecting data from the same participants under repeated conditions, the individual differences can be reduced. Also, this design is stated to be stronger and error rate is lower. It reduces the unsystematic variability and this leads to greater power to detect effects. Furthermore, it is more economical since fewer subjects are needed. In addition, the chance of rejecting null hypothesis is higher in this design when it is compared to between groups ANOVA (Field, 2000).

Data for the present study came from the same people for different conditions/treatments. Therefore, it is assumed that the relationship between pairs or different conditions/treatments is similar or close to each other. The present study's design is based on this assumption, termed sphericity which refers to the equality of variances of the differences between input delivery modes. The assumption of sphericity is also linked to the assumption of homogeneity of variances, in which you calculate the differences between each pair of data scores are calculated to see that these differences have equal variances. The easiest method to check if the assumption or sphericity has been met is to calculate the differences between pairs of scores in all combinations of the conditions/treatments (Field, 2000). In order to check this assumption, SPSS produces a Mauchly's test of Sphericity (Table 9).

Table 9.

#### Mauchly's Test of Sphericity

Measure: Test Score

| Within Subjects Effect | Mauchly's W | Approx. Chi-Square | df | Sig. |
|------------------------|-------------|--------------------|----|------|
| Modality               | ,597        | 3,986              | 5  | ,554 |

Note: modality refers to input presentation modes

Mauchly's test for the present data would be non-significant if it is to be assumed that the sphericity assumption has been met, and the variances of differences are not significantly different. As can be seen in table 9, the significance value ( $p=.554$ ) is higher than the critical value of 0.05 so it is accepted that the variances of the differences between input presentation modes are not significantly different. So, the data do not violate the basic assumptions of repeated measures of ANOVA and there was no need to correct the degrees of freedom. After ensuring the sphericity assumption, the main effect should be analyzed. To interpret the main effect, it is required to know the obtained F value, the degrees of freedom for the effect, the error term, and the obtained probability.

Table 10.

Summary of Within Group One-Way ANOVA for Listening Comprehension Test Scores

| <b>Tests of Within-Subjects Effects</b> |                               |    |                |        |      |                        |
|-----------------------------------------|-------------------------------|----|----------------|--------|------|------------------------|
| Measure: Test Score                     |                               |    |                |        |      |                        |
| Sphericity assumed                      |                               |    |                |        |      |                        |
| Source                                  | Type III<br>Sum of<br>Squares | df | Mean<br>Square | F      | Sig. | Partial Eta<br>Squared |
| modality                                | 73,700                        | 3  | 24,567         | 23,860 | ,000 | ,726                   |
| Error (modality)                        | 27,800                        | 27 | 1,030          |        |      |                        |

Table 10 reveals that with the significance value of .000 ( $F(3,1) = 23.86$ ,  $p < .05$ ) input presentation modes (modality) had a significant effect on participant's listening comprehension scores. In other words, the null hypothesis that input modality has no effect on performance has been rejected because the result is likely to occur by chance less than 5% of the time. It means that the results of listening comprehension tests demonstrated significant differences between the input presentation modes.

The results presented in the previous table show an overall significant difference in means but it is not known where those differences occurred until a follow-up test is

conducted. Table 11 presents the results of the Bonferroni post-hoc test to discover which specific means differed. Pair-wise comparisons with Bonferroni adjustments confirmed the results in Table 10 as well.

Table 11.

Post-hoc Test with Bonferroni Adjustment

**Pairwise Comparisons**

Measure: Test Score

| (I)<br>Modality | (J)<br>Modality | Mean<br>Difference<br>(I-J) | Std. Error | Sig. <sup>a</sup> | 95% Confidence Interval for Difference <sup>a</sup> |             |
|-----------------|-----------------|-----------------------------|------------|-------------------|-----------------------------------------------------|-------------|
|                 |                 |                             |            |                   | Lower<br>Bound                                      | Upper Bound |
| 1               | 2               | ,400                        | ,476       | 1,000             | -1,202                                              | 2,002       |
|                 | 3               | 2,900*                      | ,379       | ,000              | 1,626                                               | 4,174       |
|                 | 4               | -,700                       | ,539       | 1,000             | -2,512                                              | 1,112       |
| 2               | 1               | -,400                       | ,476       | 1,000             | -2,002                                              | 1,202       |
|                 | 3               | 2,500*                      | ,342       | ,000              | 1,351                                               | 3,649       |
|                 | 4               | -1,100                      | ,547       | ,450              | -2,939                                              | ,739        |
| 3               | 1               | -2,900*                     | ,379       | ,000              | -4,174                                              | -1,626      |
|                 | 2               | -2,500*                     | ,342       | ,000              | -3,649                                              | -1,351      |
|                 | 4               | -3,600*                     | ,400       | ,000              | -4,946                                              | -2,254      |
| 4               | 1               | ,700                        | ,539       | 1,000             | -1,112                                              | 2,512       |
|                 | 2               | 1,100                       | ,547       | ,450              | -,739                                               | 2,939       |
|                 | 3               | 3,600*                      | ,400       | ,000              | 2,254                                               | 4,946       |

Based on estimated marginal means

a. Adjustment for multiple comparisons: Bonferroni.

\*. The mean difference is significant at the ,05 level.

Post hoc tests using the Bonferroni correction revealed that there is a significant difference between the audio-video with subtitle condition and all the other three presentation modes. The differences between means of listening comprehension tests demonstrate that the third delivery mode, which is audio-video with subtitles, has affected the participants' listening comprehension negatively when it is compared to other presentation types. In other words, participants, who received the listening comprehension test once they experienced audio-video with subtitle presentation mode, obtained very low scores comparatively. The highest scores, on the other hand, were obtained from the listening comprehension test distributed after the input was delivered through the use of audio and PowerPoint slides.

The plot is the last element in this type of analysis. Figure 6 also shows the estimated marginal means of scores. As can be easily seen, the lowest scores were obtained in the comprehension test following the third presentation mode and the highest means belong to the first presentation mode, which is the audio-only mode, and the fourth presentation mode that integrates audio with visually enriched PowerPoint slides.

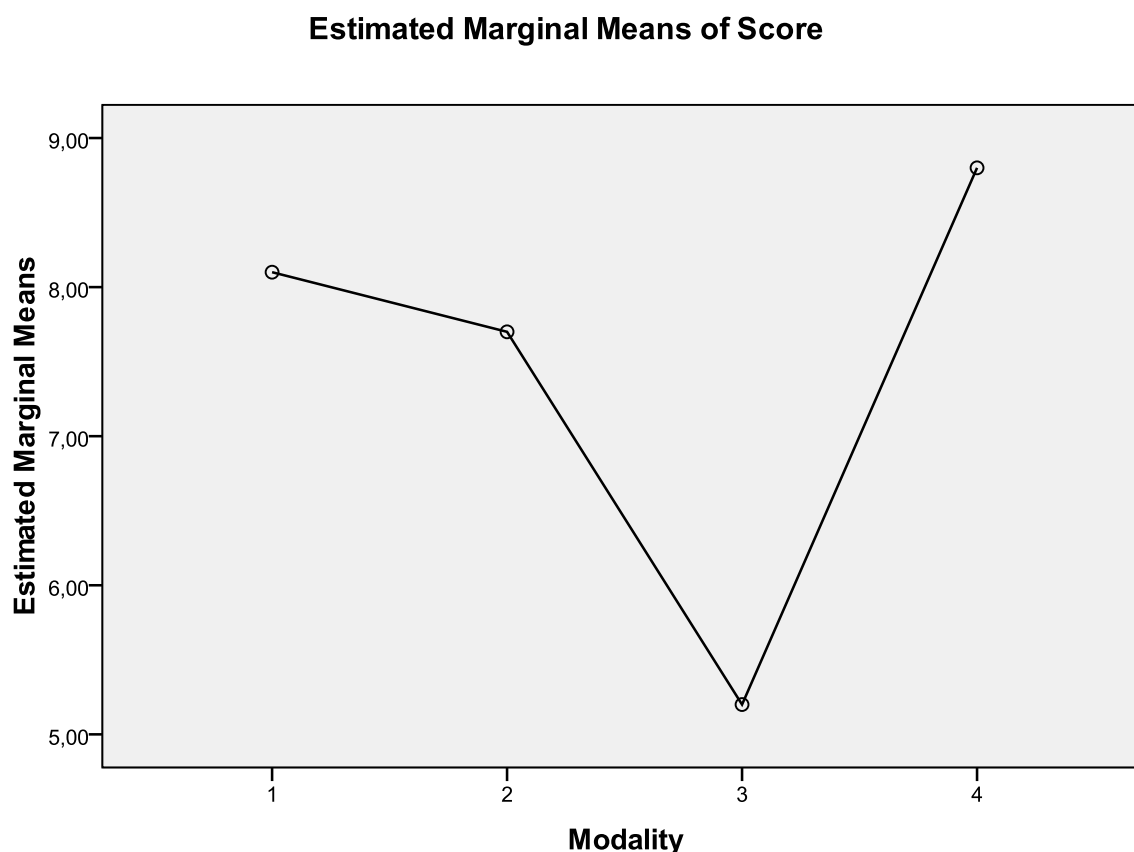


Figure 6. Estimated marginal means of scores

Note: 1 refers to the input presentation mode where the students only listened to the lecture through the use of a CD player and speakers. 2 refers to the presentation mode in which the students could see and listen to the lecturer in a realistic classroom environment. 3 refers to audio video with subtitles mode. In the fourth mode, students were able to listen to the lecture which was supplemented by a PowerPoint presentation.

#### 4.2. Findings related to Research Question 2

In addition to performance data, upon completing the comprehension tests, those who agreed to participate were called to verbalize what they thought during the presentation of input. Next, a semi-structured focus group interview was conducted with these students. Both of these instruments helped to answer the second research question which seeks out the perceptions of the L2 learners on different input delivery modes. For this purpose, the selected participants were invited individually to complete a think-aloud procedure, as explained in the

previous chapter, following each input delivery mode. Next, to gather detailed information, a semi-structured focus group interview was carried out with these participants. As a result of the content analysis done for the think-aloud protocols and the interview, five categories have been identified in line with the input presentation modes:

- benefits and limitations of audio-only mode
- benefits and limitations of audio-video mode
- benefits and limitations of audio-video with subtitles mode
- benefits and limitations of audio with PowerPoint presentation mode
- preferences of the participants among input presentation modes

#### *4.2.1. Benefits and limitations of audio-only mode*

For the audio-only mode, the results of the analysis revealed that listeners emphasized the importance of being familiar with the input mode. All participants stated that they were accustomed to this sort of listening which included only aural input. This can be seen in the following excerpt:

This is the way I'm used to in listening class. I didn't have any difficulties while I was listening to the lecture (Şeyda, Interview).

Parallel with the above excerpt, another participant mentioned the same phenomenon in the following way:

Since I am accustomed to this method (audio-only), I just focused on my paper and the questions (Burcu, Think-aloud).

The findings of the content analysis showed no other benefits or limitations for the audio-only mode.

#### *4.2.2. Benefits and limitations of audio-video mode*

As for the audio-video mode, all of the students highlighted the role that this type of input presentation mode played on their listening comprehension. 50% of the participants (N=3) stated the positive effects of viewing the lecture whereas the other 50% explained that watching the video had no effect, instead it just caused confusion. These two different perceptions can be best seen in the next excerpts:

The speaker's mimicry, hand movements and his skin color helped me understand. That's why I didn't experience any difficulties (Burcu, Think-aloud).

Another student paid attention to the same issue both in the think-aloud protocol and the interview and commented:

There was an agreement between the topic of the lecture and the color skin of the lecturer since the topic was inter-racial marriages and the lecturer had a dark skin. If I hadn't seen that he had a dark skin, I wouldn't have been sure on the tenth question (Işık, Think-aloud).

Seeing the person lecturing increased my attention (Işık, Interview).

However, on the same subject, there were contradictory comments from the other participants.

One of them expressed her thoughts:

I needed to concentrate on the questions. Yet, I felt the need to look at the video. Unfortunately, my attention was distracted (Berke, Interview).

One of the other students did not think that having video along with the aural input facilitated her listening comprehension:

In general, I didn't look at the video. Because, when we started, I was puzzled. I said should I look at the man or listen? Anyway, I couldn't perform well in the first listening. I was confused and because of this, I couldn't answer the questions well (Selin, Think-aloud).

#### *4.2.3. Benefits and limitations of audio-video with subtitles mode*

When the participants were requested to think-aloud while experiencing this audio-video with subtitles input presentation mode, 66% (N=4) repeatedly stated that having three

types of modality at the same time caused them to feel confused and anxious and as a result their listening comprehension was hindered. The comment of one of the participants on this subject was striking:

I first thought that it would be easier to answer the questions because I would be able to see the video and read the subtitles. I thought that I could read the subtitles when I couldn't hear. Yet, I was puzzled a lot and couldn't choose what to focus since my brain was divided into three. I had the difficulty in concentrating, but I missed the questions while I was trying to focus on. Therefore, I felt exhausted and experienced a lot of stress (Burcu, Think-aloud).

Another participant shared the similar thoughts and said:

This was a bit confusing for me. I couldn't decide whether I would listen to the lecture or look at the lecturer or read the subtitles. For me, this third lecture was the most difficult one. I couldn't be sure about the options I chose (Meral, Think-aloud).

Meral also verbalized her thoughts in a similar way in the interview and expressed that:

My brain was also divided into three as well like Burcu. Where should I look at? the subtitle? Should I listen to the lecturer or view the video? I couldn't figure it out (Meral, Interview).

Again on the same issue, Berke agreed with her friends whose comments were expressed in above excerpts and stated that:

Actually here, I knew that the lecture had subtitles. After having looked at the questions, I was confused, like, should I look at there or focus on the questions? When I looked at the screen, I might have missed something. That's why I couldn't concentrate exactly. It was difficult for me (Berke, Think-aloud).

On the other side, the rest of the participants, (N=2) were content with the subtitle mode. One of them, Selin explained this in the following excerpt:

I was able to see the written form of what was spoken. This helped me answer the questions (Selin, Interview).

#### *4.2.4. Benefits and limitations of audio with PowerPoint presentation mode*

Even though 66% of the participants (N=4) stated that they were not distracted by the pictures when compared to the third input delivery mode, that contained audio, video and

subtitle, a deeper analysis of the interview data demonstrated that these participants were not interested in the images, photos and the pictures in the slides while listening to the lecture.

One of the students on this topic said that:

I didn't want to make mistakes I did in the third lecture again. I tried to follow the lecture and the subtitles there. I thought it would be the same here if I had tried (Meral, Think-aloud).

Another participant of the study provided the following comment on the same subject from a different perspective and commented that:

I didn't look at the photos. I didn't raise my head and look at the screen. For me, there were no differences between the first one and this (Işık, Think-aloud).

To get the next excerpt from the participants on this issue was not surprising as well:

I didn't look at the slides in case I would miss some information (Şeyda, Think-aloud).

I didn't find the photos useful. They were colorful and distracted my attention. There was no need for them I think (Selin, Think-aloud).

On the other side of the coin, there was only one participant who emphasized the benefit of slides and she explained it in a clear way:

Slides helped me reinforce the meaning of the words I know, and the concepts and the ideas discussed in the lecture (Berke, Interview).

#### *4.2.5. Preferences*

When participants were asked to state their experiences in general after having been exposed to four different input presentation modes, 83% of the participants (N=5) said that they would prefer the first input delivery mode that contained only oral stimuli due to the fact that they were already used to this type of presentation and they did not feel nervous while listening. This is clear in the next quotation:

When I compared the first one with the others, this (audio-only mode) was the easiest for me. There was nothing to distract my attention (Berke, Interview).

Another participant summarized the situation in the following way:

I think the best way to listen is like this. I didn't have difficulty. The best one was the first one. There was nothing to get confused about. People are directly focusing on the questions (Selin, Interview).

One of the participants elaborated more on the issue of being used to audio-only mode and said that:

Before coming to the university, in high school, we only listened to the texts. If I had experienced listening like this, I would have looked at the video or other photos and pictures (Şeyda, Interview).

This was also highlighted by another participant. Işık, on the same issue as Şeyda:

Rather than visual aid, (traditional) listening was only done before the university (Işık, Interview).

The second most preferred input presentation mode by the participants was the audio-video mode. This situation was reflected in participants' views in the following excerpts:

When I think of the four lectures, the one with the video (second input delivery mode) not the one with the subtitles, was also okay (Burcu, Interview).

The one with the video was also good (in addition to the first delivery mode) (Selin, Think-aloud).

Apart from this, participants also commented on the preference of listening order. That is to say, they had clear preferences when they were asked to listen to the lecture in different input delivery modes. To illustrate, all of the participants were in favor of having the single input delivery in the first listening and the other supplementary input modes when they were listening for the second time. This can be seen in the following excerpts:

I tried to listen to the lecture and read subtitles at the same time but when I understood I couldn't I just listened in the second time (in the third input mode) (Meral, Interview).

In the first listening, to have video can be bad because I think, now that there's video, I should look at the video, I say. But, I could miss some info. I just listened in the first listening (In the third input mode). But, in the second one, I tried to listen and read the subtitles to support my answers. This is the same with the second lecture. I think when there's video, I can look at the screen just to get an impression and then continue to

listen in the first listening and look at the screen more in the second one (Işık, Think-aloud).

When there is visual information, I wanted to check but felt mixed up. Because of this, (traditional) just listening, I think is, easier (Berke, Interview).

I think I should listen in the first listening and in the second one I can look at the video and/or subtitles (Şeyda, Interview).

At the beginning, I tried to answer the questions by looking at the pictures. Later, again in the first listening, I didn't look at them at all. I wanted to look, but I noticed that I was getting confused. That's why, I just concentrated on the thing, on the listening (Burcu, Interview).

#### 4.3. Summary

To summarize the results in the quantitative analysis of the study, one-way within group repeated measures ANOVA was applied to investigate the main effect of the input modality types on the listening comprehension scores of the participants. Before the statistical analysis of ANOVA, sphericity assumption was checked to see whether or not the data meet the assumption of homogeneity of variance which is important to prove that variances are similar across different modality types. The results of Mauchly's Test of Sphericity indicates that the assumption of sphericity was met ( $F(3,1) = 23.86, p < .05$ ). After having met the necessary assumption for the repeated measures ANOVA, Bonferroni post-hoc test, which allows us to discover which specific means differed, was applied. Post hoc tests using the Bonferroni adjustment confirmed that there was a significant difference between the scores obtained from the listening comprehension test taken after the audio-video with subtitle condition and all the other scores from the comprehension tests following three modality types, namely (1) audio, (2) audio-video and (3) audio with PowerPoint Presentation. Additionally, the participants in the study were most successful in the last input presentation mode, that is audio and PowerPoint slides, in term of listening comprehension.

When the findings about the perceptions of participants on the different input presentation modes are taken into account, it is evident that students have positive attitudes

with regards to the audio-only mode owing to the fact that they are most used to that type of input delivery and they felt less stressed during that input mode. It is also very clear that they felt most nervous and anxious in the third input delivery mode, which included oral and visual stimuli along with subtitles, due to the fact that they could not come to a decision about where to focus their attention, a consistent result with the quantitative data analysis of the current study since the participants' obtained the lowest scores in that mode. In addition to these findings, the participants also reflected their views on the listening order by stating that in the first listening, the input should be presented just in auditory mode and the second time listening, then, can include other supporting stimuli such as images, photos or subtitles.

## CHAPTER V

### DISCUSSION AND CONCLUSION

The core purpose of the study was to investigate the effect of multimedia on EFL learners' while-listening comprehension. Additionally, the present study aimed at exploring the perceptions of university level foreign language learners to different input presentation modes. The participants were exposed to (a) audio-only, (b) audio with video (c) audio with video including target language subtitles and (d) PowerPoint presentation modes and then they were given comprehension questions. To have in-depth data and support the quantitative data analysis, think-aloud protocols and an interview were also carried out.

Based on the analyses portrayed in the fourth chapter, this chapter will shed light on findings by taking the related literature into consideration. Secondly, implications will be suggested. Next, limitations of the present study will be discussed and the directions for future research will be recommended.

#### 5.1. Discussion

The findings for the research questions addressed for the present study cannot and should not be differentiated from each other since the analysis of the quantitative data makes more sense if it is tightly connected to the analysis for the second research question. Results of the quantitative data analysis showed that there was a significant difference between the scores obtained from the listening comprehension test taken after the audio-video with subtitle condition and all the other scores from the comprehension tests. Moreover, results found in the analysis of the qualitative data, confirmed that the participants were confused in the third input mode, which contained aural and non-verbal input with subtitles and they would not prefer this type especially in the first listening if they were to be exposed to the same lecture

again. Based especially on the participants' verbal reports, the reason for these findings are largely attributable to the phenomenon known as cognitive overload in cognitive load theory by Sweller (1988) on which Mayer's generative theory of multimedia is built. Kalyuga (2011) illustrates this redundancy situation by stating that it occurs when presenting the same information through different modalities. This finding in the present study is totally in line with the results reported by Gruba (2004). In his study, Gruba found that when the information was presented through dual modes (in news broadcasts), this type of modality hindered comprehension of upper-intermediate level foreign language learners, as in the present study, by putting a lot of strain on their limited working memory.

In a similar vein, Kozan (2009) found that the participants in his study reported significantly higher cognitive load in the audio mode including visuals than their counterparts in the text with pictures mode though in the light of cognitive theory of multimedia learning (Mayer, 2005b) it is assumed that a narration with pictures mode imposes less extraneous cognitive load than the text with pictures mode. In the present study, participants also reported higher cognitive load in audio-video mode and especially in audio-video with subtitles mode.

In the present study, 83% of the participants who produced verbal reports through the use of the think-aloud protocol and the interview preferred the first input mode; audio-only mode. Similarly, most of the participants, 15 out of 34, in Suvorov's (2009) study, in which the influence of context visuals on test-takers performance on TOEFL was investigated, preferred the audio-only mode. This was followed by audio-video (12 participants) and photograph (7 participants) mode preferences in that study. In addition to this, in the present study, there were no significant differences between the scores of audio-only, audio-video and audio with PowerPoint slide modes. This result is also parallel with Suvorov's findings since in that study also, no significant difference was found between the multiple-choice listening comprehension scores for photo-mediated and audio-only parts.

Sydorenko (2010) at the end of her study concluded that if the purpose is to enhance listening comprehension, it is better to use videos without captions than using videos containing subtitles since the participants in the mentioned study found subtitles most beneficial when the aim was to learn new words and recognize the written form of the words. This is parallel to what was found in the present study because the participants kept stating that they would have preferred audio-video mode over audio-video with subtitles mode. Furthermore, most participants in Sydorenko's study were also in favor of audio mode just like the participants in the present study. On the other hand, participants in Sydorenko's study paid most attention to the subtitles. This was followed by video and audio in that study whereas the learners in the present study focused more on oral stimuli. This can be due to the fact that in the previous study the participants were at beginner level and therefore they could only understand a small portion of the aural messages and they were in need of any type of supporting input whereas in the latter study, participants were more advanced students in comparison. Also, the research designs of the two studies were different from each other because one of Sydorenko's aims was to examine the effect of input modality on vocabulary learning which might make the participants more dependent upon the subtitles.

In Guichon and McLornan's (2008) study, in which they investigated the effects of multimodality on L2 language comprehension, they designed an experiment to compare the understanding of an English news broadcast to 40 French students through utilizing four different input delivery modes; sound only, image and sound, image, sound L1 (French) subtitles and image, sound target (English) subtitles. Consistent with the findings in the present study, they also found that images with or without subtitles did not necessarily help EFL learners comprehend the text. On the other side of the coin, subtitles were of help for the participants of Guichon and McLornan's study. In the present study, subtitles did little in relation to listening comprehension. This difference between the studies could be owing to the

fact that in the present study, while-listening comprehension was measured by a multiple-choice comprehension activity. However, in the other study, participants were asked to take notes first and then produce a written summary of what they heard and viewed according to the modes they were exposed to.

One of the most striking and reoccurring findings of the present study was that participants kept referring to the feeling of confusion they experienced particularly in the third input delivery mode where they needed to attend to the aural and visual stimuli coming from the presentation of the teaching material and written information on their listening comprehension activity which they filled in while they were listening and/or viewing. In the analysis of the quantitative data, the listening comprehension scores obtained after being exposed to this input mode was significantly lower than all the mean scores obtained from the other three input delivery modes. Additionally, the participants in the think-aloud protocols and the interview verbalized their thoughts by stating that they could not decide where to look, what to hold in their mind, what to read and/or listen to. This phenomenon can be best explained by what is called element interactivity in the cognitive load theory. It can be accepted that in the third input mode, the number of the elements that needed to be integrated by the EFL learners to complete the activity was high. This may have imposed a heavy cognitive load on the working memory resources of the participants. This finding is actually similar to what has been described in cognitive load theory suggesting the more elements that interact with each other the heavier the working memory load becomes (Sweller, 2010). Similarly, Hernandez (2004) found that the students in audio, video and text (subtitles) experienced cognitive overload since they needed to process audio and video along with the dynamic nature of subtitles at the same time.

This result is also consistent with cognitive theory of multimedia learning. In the present study, texts were selected according to the choices of the students participating in the

study based on their answers in the topic familiarity questionnaire (see Appendix A). Before the presentation started, a brainstorming activity was carried out as the advance organizer. These two procedures might have helped learners activate their prior knowledge. A cognitive theory of multimedia learning suggests that the students with low prior knowledge may not be able to generate their own mental images so a visual presentation is needed (Mayer, 2005b). In the present study, it is apparent that most of the participants in the think-aloud protocols and the interview said that they did not need to look at the visual cues. The reason for this, therefore, may be the fact that the learners had the necessary background knowledge to process information.

About the visual information delivered especially in audio-video input mode, some participants, who were invited to the think-aloud protocols and the interview, said that mimicry, hand movements, body language even the skin color of the lecturer particularly facilitated their listening comprehension. This result matches the findings of a study by Baltova (1999). At the end of the study, Baltova (1999) suggested that videos are advantageous because they copy real-life, face-to-face experience and provide supplementary sources of information (e.g., speakers' body language or their physical actions upon which learners may depend to better comprehend the message during listening). Similarly, Wagner (2010) suggested that non-verbal information in the video facilitated listening comprehension. In the present study, for the 50% of the participant, whose views were reflected in the verbal reports, this was the exact case. In addition, the comprehension of the participants did not differ significantly in the input presentation modes except for the audio-video with subtitles mode. On the other hand, learners' comprehension scores were not significantly different in input presentation modes in Baltova's (1999) study.

In a similar manner, Sueyoshi and Hardison (2005) investigated the effects of gestures and facial expressions and their findings revealed that the experimental groups, subjects who

were exposed to audio-video gesture and face group and audio-video and facial expression group, were more successful in terms of listening comprehension than their counterparts in the audio-only control group. In the present study also, there were comments, actually coming from the 50% of the participants (N=3) showing the benefits of visual information found in audio-video mode. Contrary to these findings, in the present study there were participants commenting on the negative effects of visuals that were experienced in audio-video mode and audio with Powerpoint presentation mode. This result is exactly in line with the results found by Gruba (2004) who concluded that visual information can hinder listening comprehension or confuse the interpretation of the narration and provide little help.

About the preferences of the input delivery mode, the participants in the study consulted the aural messages rather than consulting the visual cues. However, Smidt and Hegelheimer (2004) found that the participants in their study took advantage of visuals more than auditory input. This may be attributed to the differing aims of that study and the present study in that those researchers also wanted to investigate the effects of delivery modes on incidental vocabulary acquisition whereas vocabulary was not within the scope of the present study. Also, the researchers stated that incidental vocabulary acquisition resulted from the participants' reading abilities showing the importance of visuals for the participants in that study.

The previous studies produces results demonstrating the positive effects of subtitles on listening comprehension (Baltova, 1999; Başaran, 2011; Hwang, 2003; Özgen, 2008; Rooney, 2011; Sydorenko, 2010; Tsai, 2010; Winke, Gass & Sydorenko, 2010) and for the positive effects of PowerPoint mode; Valencia (2009) is among the studies. However, in the present study, this was not the case. The reason for this may largely be due to the fact that in most of the studies (Baltova, 1999; Hwang, 2003; Özgen, 2008; Valencia, 2009), which showed the

benefits of subtitles, and PowerPoint presentations, the students were asked to answer the comprehension activities after they were exposed to the input delivery mode as a post-listening activity. However, in the present study, the focus was on while-listening comprehension of EFL learners since this was the area that needed more analysis in the literature due to the lack of research.

Additionally, again in the literature, a high number of the studies (Baltova, 1999; Hwang, 2003; Jones & Plass, 2002; Özgen, 2008; Smidt & Hegelheimer, 2004; Sydorenko, 2010) shed light on the effects of input delivery modes both on vocabulary acquisition and listening comprehension. However, the present study just concentrated on the listening comprehension, leaving vocabulary aside.

Furthermore, many studies (Başaran, 2011; Gruba, 2004; Guichon & McLornan, 2008; Hernandez, 2004; Özgen, 2008; Tsai, 2010; Weyers, 1999) used feature, authentic films and movies as the teaching material. Conversely, the present study's aim was to inform the processes EFL learners go through when they are requested to listen to academic lectures. Therefore, four realistic academic lectures were used in the present study instead of movies which is a very difficult factor to control as a variable in the research design since the students might have watched them before or even read about them or talked to the people who watched those movies.

Apart from these reasons, in some studies (Baltova, 1999; Rooney, 2011) instead of using the whole script, used only part of the subtitles so the participants were able to see and read the messages on the screen more easily leading to less cognitive overload. But, in the present study, the subtitles used contained everything that the lecturer delivered.

Consequently, the present study produced mostly consistent findings with the other studies whose research designs were similar and some results which contradicted those of studies whose aims and methodologies were different from the present study. The present

study showed the participants' views on the benefits and limitations of various input presentation modes. It also demonstrated the participants' preferences in terms of these modes. The participants' thoughts on the order of delivery modes (e.g., which one should be first delivered and which one should follow) were also emphasized in the present study with all specific references to the related theories and studies in the literature.

## 5.2. Implications

The present study suggests a number of practical implications for the use of different input delivery modes to increase listening comprehension along with the choice and design of multimedia teaching materials to be used for all participants in the process including EFL learners, teachers, testing offices, curriculum and material designers.

First of all, the background of the learners should be thoroughly analyzed by the practitioners. To be able to do this, the learners' previous listening experiences must be discovered with the help of questionnaires and/or individual interviews. It should be noted that in this study, one of the most notable results was that the participants were highly affected by their listening experiences that they had before coming to the university. For instance, if the learners are not familiar with multimedia presentations in the listening courses, it will not be a wise idea to introduce this sort of delivery mode from the very first day. A gradual transition should be followed by the instructors so that the learners can finally experience less anxiety and as a result less cognitive load. That is to say, teachers should not take it for granted that the audio-video with subtitles mode will result in increased listening comprehension. This applies also for test-taking situations, as well as for curriculum developers and material designers especially if the aim is to measure while-listening comprehension.

The need to increase cognitive load gradually is another implication of the present study since the participants usually preferred the audio mode first by the audio-video mode, the audio with PowerPoint mode and finally the audio-video and subtitles mode. It is, therefore, significant that if the learners are going to listen to the text more than once, the first input mode may be the audio-only mode in while-listening so that the learners may feel less nervous and anxious. On the second occasion, facilitators such as non-verbal information, visual cues including photos, pictures and slides can be used. The subtitle mode can be used to check the answers given by the learners for the purpose of listening comprehension and as many studies in the literature suggest, to facilitate vocabulary acquisition.

Another implication suggested by the present study might be that the positive effects of visuals including hand, body movements of the lecturer(s), or the photos and the pictures can be underlined by the teachers in the listening classes so the learners can understand their presence in listening comprehension and start making use of them as long as they feel comfortable.

One of the most important implications the present study provides is that from time to time and on regular basis, EFL learners should be given the chance of justifying their answers in the listening comprehension activity through the use of listening diaries or verbal reports just like the participants did in this study. This might lead to improved learner autonomy since the learners will be able to see their mistakes in a more detailed way and focus more on their weak points in relation to listening that is believed to be one of the most difficult language learning skills. This implication will be an advantageous point for the teachers as well because they will be able to see their learners' progress throughout the course and design the upcoming language teaching activities accordingly.

### 5.3. Limitations and directions for future research

The major limitation of the research design is undoubtedly the small number of the students who participated in the study. Given the limited number of participants, it has to be emphasized that this study can only allow indicative conclusions to be drawn although the results conform by and large to what was obtained and found in the literature.

The participants in the present study were 10 female students studying in the preparatory class in the English language teaching department at a foundation university in the city of Istanbul, Turkey. Having no male students in the study made it impossible to see whether or not differences would occur between the genders. Thus, to be able to generalize the results found in the study to a bigger population, it is essential that the study should be done again with more participants including male students.

Again, the participants in the present study were the representatives of only one level of language proficiency, which is upper-intermediate level. Therefore, further research needs to investigate the effects of input modality on while-listening comprehension with the participants of all language proficiency levels.

In the present study, the delayed effects of input presentation modes were not taken into consideration. Instead, the immediate while-listening comprehension tests were administered. It may provide new insights on the phenomenon if these delayed effects are also included in the research design of upcoming studies. Therefore, it might be of interest to conduct longitudinal research to examine whether or not similar effects will occur in the long term.

As mentioned above, the participants were all adult EFL learners. A study of different age groups can also be designed to see if there are resemblances or differences between the age groups in relation to the effects of input modality on while-listening comprehension.

The present study focused on the effect of input modality on while-listening comprehension. Vocabulary is one of the variables which was controlled in the methodology of the study. Therefore, it may be interesting to carry out studies in which this variable, vocabulary acquisition or expansion, is not controlled and the effects of input presentation modes on vocabulary can be discovered.

#### 5.4. Conclusion

The results of the present study would be misleading if multi-method data collection techniques were not integrated because the analysis of the quantitative data showed that the students' performance was best in audio and PowerPoint presentation mode. A deeper analysis, on the other hand, of the qualitative data obtained from the verbal reports, which were produced through the use of think-aloud protocols and a semi-structured focus group interview suggested the possibility that the students did not really make use of the slides, photos and the pictures in the PowerPoint presentation.

On the other side, for the third input delivery mode in the present study, which is audio-video with subtitles, both the analysis of quantitative and qualitative data produced consistent results. That is to say, the students' scores were significantly lower in the audio-video with subtitles mode than in the other three types of input delivery modes. Participants of the present study also commented on the anxiety, nervousness and confusion they experienced while they were exposed to this input mode and this resulted in cognitive overload which inhibited the listening comprehension on a large scale.

It can be concluded that the findings of the present study are not inconsistent with the cognitive load theory, the multimedia learning theory and an integrated model of second language acquisition with multimedia. Instead, the present study provided newer insights and broadened the perspective of these theories and the models on the issue of effects of input

modality on while-listening comprehension, which was an area that the previous research had not focused on in an adequate way.

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## APPENDICES

### Appendix A

#### TOPIC FAMILIARITY QUESTIONNAIRE

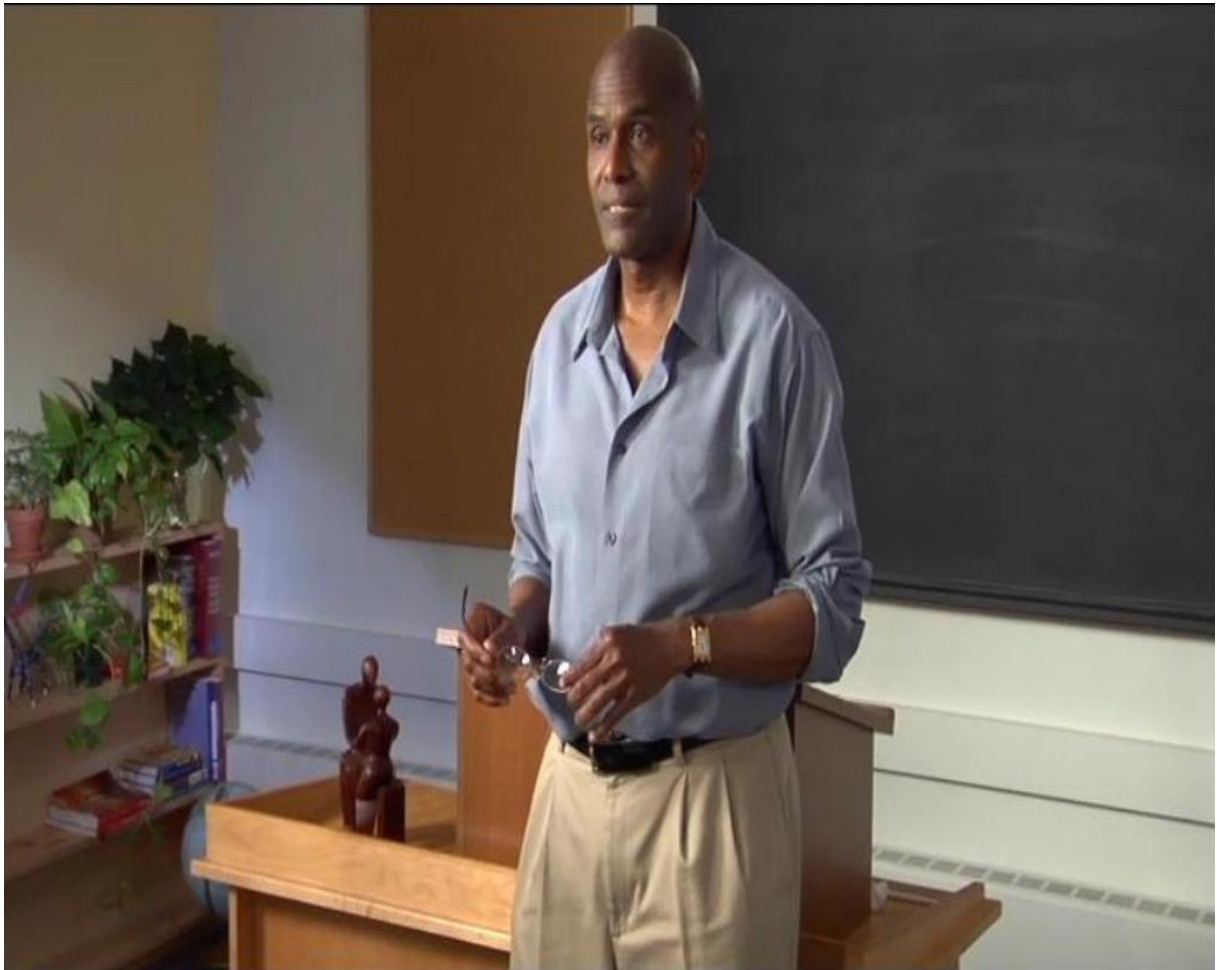
Please rank order the following lecture topics from 1 to 11 by placing the appropriate number in the box.

**1: the one you are most familiar with**  
**11: the one you are least familiar with**

|                                                                    |  |
|--------------------------------------------------------------------|--|
| Communication Studies: Slang & Language Change                     |  |
| Child Psychology: Gifted (Genius) Children                         |  |
| Sociology: Social Status (Make people admire your success)         |  |
| Business: Globalization & Marketing                                |  |
| Anthropology / Biology: The Science of Love                        |  |
| Astronomy: Traveling to Mars                                       |  |
| Political Science: Big Brother is watching you                     |  |
| Linguistics: Animal Communication                                  |  |
| Economics: The Evolution of Money & The Impact of Money on Society |  |
| Biology: Aging                                                     |  |
| Sociology: Marriage                                                |  |

## Appendix B

Screenshot from the input presentation mode including audio-video



## Appendix C

Screenshot from the input presentation mode including audio-video and subtitles



## Appendix D

Screenshot from the input presentation mode including audio and visually enriched  
PowerPoint slides



## **Appendix E**

### **Sample Listening Comprehension Test**

#### **ELT PREP PROGRAM UPPER-INTERMEDIATE LEVEL LISTENING PROFICIENCY PRACTICE 4**

**Full Name:**

**1. In what order does the speaker talk about the topic?**

- a. who uses slang and why, - attitudes about slang, - the main inspirations for slang
- b. the main inspirations for slang, - attitudes about slang, - who uses slang and why
- c. attitudes about slang, - who uses slang and why, - the main inspirations for slang
- d. who uses slang and why, - the main inspirations for slang, - attitudes about slang

**2. Which area of language is slang associated with?**

- a. syntax
- b. phonology
- c. orthography
- d. semantics

**3. In defining slang, how does the speaker describe it?**

- a. as a type of impolite language
- b. as a type of language spoken by young people
- c. as a type of language spoken only by deprived groups
- d. as a type of informal language

**4. What does slang show?**

- a. a good understanding of language use
- b. a desire to be young and cool
- c. a desire for membership in a group
- d. a strong dislike of tradition

**5. What are two personal benefits of slang?**

- a. It makes you desirable and youthful.
- b. It's fun and shows you're rebellious.
- c. It reinforces relationships and makes you desirable.
- d. It's fun and makes you youthful

**6. The semanticist Hayakawa called slang “the poetry of everyday life.” What did he mean?**

- a. All users of slang are poets
- b. You have to study slang carefully to use it correctly.
- c. Slang can be creative and entertaining.
- d. It is difficult to create new slang.

**7. The speaker says that some people see themselves as “guardians of the language”**

**What does he mean?**

- a. They love studying language.
- b. They are experts on language.
- c. They want to decide what is and is not slang.
- d. They want to protect the language from change.

**8. How does the speaker feel about slang?**

- a. He approves of slang as a sign of life and beauty in language.
- b. He approves of slang as a necessary part of growing up.
- c. He neither approves nor disapproves of slang but sees it as inevitable.
- d. He disapproves of slang as a bad and divisive influence on young people.

**9. Which of these four people would you expect to use slang most?**

- a. a 45-year-old school teacher
- b. a 25-year-old computer programmer
- c. a 39-year-old company director
- d. a 32-year-old linguist

**10. What is the lecture mainly about?**

- a. why slang will never be accepted by everybody
- b. why only young people use slang
- c. how and why slang is widely used.
- d. the importance of slang in academic life

## **Appendix F**

### **Semi-Structured Interview Questions**

1. In which delivery mode you felt most relaxed?
2. In which delivery mode you felt most nervous?
3. What are your experiences after practicing different delivery modes?

## Appendix G

### Sample Vocabulary Exercises

**BUILD** your **vocabulary**

 **A. The boldfaced words are from this unit's lecture on marriage. Listen to each sentence. Then guess the meaning of the boldfaced words. Work with a partner.**

1. Most people don't get married until they've reached **adulthood**. Marriages involving children and young teenagers are rare in most parts of the world.
2. Naomi heard that many women are delaying marriage until after they turn thirty. She **confirmed** that information by checking the Internet.
3. As people from many countries meet and develop relationships, the number of **interracial** marriages increases.
4. Married couples enjoy a kind of **legitimacy**, while unmarried couples may be considered outside the accepted standards of society.
5. Saed has **matured** a lot since moving out of his parents' house. He's become very responsible and is able to take care of himself.
6. **Nationalistic barriers** to international marriages are gradually disappearing because meeting someone from a different country is fairly common.
7. One societal **norm** of marriage is that people are expected to marry someone of a similar age. Many people view large differences in age as strange.
8. Growth in the Hispanic **population** in parts of the United States has caused the number of marriages between Hispanics and whites to rise.
9. One strong reason for marriage in many cultures is a woman becoming **pregnant**. It is important that the child has a father and mother to care for it.
10. My parents are from the same **social class**. They lived in similar neighborhoods, and their parents' incomes were nearly the same.

**B. Match each word to the correct definition.**

|                |                           |               |                 |
|----------------|---------------------------|---------------|-----------------|
| a. adulthood   | d. legitimacy             | g. norm       | i. pregnant     |
| b. confirmed   | e. matured                | h. population | j. social class |
| c. interracial | f. nationalistic barriers |               |                 |

1. \_\_\_\_ when a woman is carrying an unborn offspring in her body
2. \_\_\_\_ fully developed and behaving in a reasonable way; not childish
3. \_\_\_\_ a block people face because of their national beliefs
4. \_\_\_\_ between different races of people
5. \_\_\_\_ people in a particular area or members of a particular group
6. \_\_\_\_ determined that something is definitely true
7. \_\_\_\_ the period of life when a person is completely grown
8. \_\_\_\_ acceptance, validity
9. \_\_\_\_ a group of people with a similar rank in society
10. \_\_\_\_ the usual or acceptable way of doing something

C. Say each word to yourself. Write *N* if it is a noun, *V* if it is a verb, and *A* if it is an adjective.

- |                     |                                |
|---------------------|--------------------------------|
| 1. ____ adulthood   | 6. ____ nationalistic barriers |
| 2. ____ confirmed   | 7. ____ norm                   |
| 3. ____ interracial | 8. ____ population             |
| 4. ____ legitimacy  | 9. ____ pregnant               |
| 5. ____ matured     | 10. ____ social class          |

D. **INTERACT WITH VOCABULARY!** Work with a partner. Take turns completing each sentence with the correct form of the word. Notice the boldfaced words. Read the completed sentences aloud. Review any words you don't understand.

|         |           |              |
|---------|-----------|--------------|
| confirm | confirmed | confirmation |
|---------|-----------|--------------|

1. Researchers have \_\_\_\_\_ that caring for children properly is important to the **survival of** any society.
2. Research showing that married couples are healthier than single people is \_\_\_\_\_ of the **benefits of** marriage.

|            |              |            |
|------------|--------------|------------|
| legitimate | legitimately | legitimacy |
|------------|--------------|------------|

3. Children need to be \_\_\_\_\_ **linked to** their father.
4. One of the **functions of** marriage is to give the couple \_\_\_\_\_ in the eyes of society.

|        |          |            |
|--------|----------|------------|
| mature | maturity | maturation |
|--------|----------|------------|

5. As couples \_\_\_\_\_, they become **similar to** one another.
6. Greater \_\_\_\_\_ can result in a **rise in** tolerance toward people of other races.

|         |          |               |
|---------|----------|---------------|
| nations | national | nationalistic |
|---------|----------|---------------|

7. The tax policies of \_\_\_\_\_ governments can provide **pressure for** young people to get married.
8. In most \_\_\_\_\_, marriages are legally **recognized by** the government.