

**THE ROLE OF SUBTITLES IN EFL LEARNERS'**

**BOTTOM-UP PROCESSING SKILLS IN**

**LISTENING**

**Altyazıların İngilizceyi Yabancı Dil Olarak Öğrenen**

**Öğrencilerin Dinleme Etkinliğine Ait Tabandan Yukarı**

**İşleme Becerilerindeki Rolü**

**Mert TOPKARAOĞLU<sup>1</sup>**

**Sinan NIŞANCI<sup>2</sup>**

**Abstract**

This study aims to describe the relationship between subtitles and EFL learners' bottom-up processing skills in listening. After Grade 12 students at a boarding school were given a placement test, two groups of 40 students were selected for the study. First, participants' preferences for subtitles were identified through reaction papers. Then, the two groups watched the 10 episodes of a recent American series named "Alcatraz", one with subtitles in English (SVG) and the other without subtitles (WSG). At the end, both groups were given a test of minimal pairs to observe if they differed significantly in their performances on the test. A two-tailed independent t-test was run. Finally, participants in the WSG were asked to comment on the process of viewing without subtitles. Reaction papers showed that students favored subtitled viewing at first, but the process of watching without subtitles changed their preferences. Results of the independent samples test revealed that there is a relationship between subtitles and bottom-up processing skills. Students in the WSG did significantly better on the test of minimal pairs, which meant improved bottom-up processing skills. The findings of this study contribute to certain theories in listening processes. As observed in the study, Cognitive Load Theory serves a theoretical framework for explaining the relationship between subtitles and listening comprehension. Thus, the results endorse the split-attention effect. Another theoretical basis that finds proof in the study is that "listening is not a single skill, but a variety of sub-skills". For that reason, teachers are required to maintain a balance between top-down and bottom-up listening practices.

**Keywords:** Subtitles, bottom-up processing skills, EFL learners, listening comprehension

**Öz**

Bu çalışma İngilizceyi yabancı dil olarak öğrenen öğrencilerin dinlemeye ait tabandan yukarı (bottom-up) işleme becerilerindeki rolünü tanımlamayı amaçlamaktadır. 12. sınıftan sonra yatılı bir okulda eğitim görmekte olan öğrencilere yerleştirme sınavı uygulanarak iki gruptan oluşan 40 öğrenci seçilmiştir. İlk önce katılımcıların altyazılara ait tercihleri geribildirim raporları aracılığıyla tespit edilmiştir. Daha sonra, her iki grup güncel bir Amerikan dizisi olan Alcatraz'ın 10 bölümünü birinci grup İngilizce altyazılı (SVG), diğer grup ise orjinal seslendirmesiyle (WSG) izlemiştir. Son olarak her iki grup yalnız-çift (minimal pairs) testine tabi tutulmuş ve testteki performanslarının anlamlı bir şekilde değişip değişmediği gözlemlenmiştir. Elde

<sup>1</sup> Instructor of GE, Naval Academy, İstanbul, [mtopkaraoglu@hotmail.com](mailto:mtopkaraoglu@hotmail.com)

<sup>2</sup> PhD Candidate, Yeditepe University, İstanbul, [sinannisanci@yahoo.com](mailto:sinannisanci@yahoo.com)

edilen veriler çift değişkenli bağımsız t-testi ile hesaplanmıştır. En son olarak, orjinal dilde izleme yapan gruptaki öğrencilerden altyazısız izleme süreçleri hakkında yorum yapmaları istenmiştir. Geribildirim raporları, ilk başta öğrencilerin altyazılı izlemeyi tercih ettiklerini fakat altyazısız izleme sürecinin daha sonra tercihlerini değiştirmelerine neden olduğunu göstermiştir. Bağımsız grup t-testi sonuçları altyazılar ile tabandan yukarı işleme becerileri arasında ilişki bulunduğunu ortaya çıkarmıştır. Altyazısız orjinal dilde izleme yapan grup yalın-çift (minimal pairs) testinde istatistiksel olarak anlamlı bir şekilde çok daha iyi bir performans sergilemiş, dolayısıyla tabandan yukarı işleme becerileri daha fazla gelişme göstermiştir. Çalışma bulgularının dinleme etkinliğine ait belli başlı teorilere katkısı vardır. Çalışmada gözlemlendiği şekilde, Bilişsel Yükleme Teorisi (Cognitive Load Theory) dinleme anlama ile altyazılar arasındaki ilişkiyi teorik çerçevede açıklamaya imkan tanımaktadır. Dolayısıyla, sonuçlar bölünmüş dikkat etkisini (split-attention effect) doğrulamaktadır. Çalışmanın kanıtlandığı diğer bir teorik temel ise "Dinlemenin tek bir beceriden değil, çeşitli alt-becerilerden oluştuğudur". Bu nedenle, yabancı dil öğretmenlerinin yukarıdan tabana (top-down) ve tabandan yukarıya (bottom-up) dinleme uygulamalarında dengeyi belli bir oranda sağlamaları gerekmektedir.

**Anahtar Kelimeler:** Altyazı, tabandan yukarı işleme becerisi, yabancı dil öğrencileri, dinleme anlama

## Introduction

### 1.1. Statement of Purpose

The present study was designed to describe the relationship between subtitles and EFL learners' bottom-up processing skills in listening. If students who watch English videos without subtitles perform better on a test of minimal pairs, they should be better able to discern the distinctive sounds in English, which means improved bottom-up skills. The study also aims to elicit students' preferences for subtitles and find out if the process of subtitled viewing leads to any change in their preferences.

### 1.2. Justification

Over the teaching experience of 15 years, we have sadly witnessed that learners, presumably suffering from a paucity of listening practice, have trouble in understanding authentic auditory input even at relatively upper levels. Although they have a good command of vocabulary and grammar, and an improved reading ability, they are much slower in listening to real language. This is not always due to the fact that the material heard is way above their grasp. Sometimes, surprisingly, they are exposed to videos exactly fitting in their level, yet may not catch the individual words they hear. That is most probably because they cannot distinguish sounds. They do reach an overall comprehension by the help of visuals in the course of a video viewing, but are unable to perform such specific tasks as transcription.

As the 21st century has run its course, technology has started to play an indispensable role in all the realms of our lives. Undoubtedly language learning is no exception. At no point in time have learners and teachers as well had that much access to authentic materials. The Internet provides us with countless podcasts, series, movies and video clips. Therefore, neither learners nor teachers can put forth the excuse that they cannot find anything to listen to or watch in order to enhance their listening comprehension. Teachers are now left with new concerns, though. They have to decide what strategies work best when viewing authentic videos.

One of the discursive strategies bothering teachers is viewing with or without subtitles. We have been bringing into classroom recent American series with a view to exposing our students to real everyday language. Allowing students to see subtitles resolves the problem of comprehension. They generally want to watch with subtitles arguing that they understand more in this way. This, however, brings about another concern: Does viewing

with subtitles really help improve learners' bottom-up listening processes or does it make them heavily reliant upon subtitles?

Although limited in quantity, there are already some studies about the influence of subtitled watching on listening comprehension (Danan, 1992; Grimmer, 1992; Koolstra, Voort, & Kamp, 1997; Koolstra & Beentjes, 1999; Markham, 1999; Bird & Williams, 2002; Bayon, 2004; Kothari, Pandey, & Chudgar, 2004; Tsai, 2010; Etemadi, 2012) (Danan, 1992; Grimmer, 1992; Koolstra, Voort, & Kamp, 1997; Koolstra & Beentjes, 1999; Markham, 1999; Bird & Williams, 2002; Bayon, 2004; Kothari, Pandey, & Chudgar, 2004; Tsai, 2010; Etemadi, 2012). All the present research, however, look into how watching with subtitles contributes to listening comprehension or vocabulary retention. Not surprisingly, all these studies reach the finding that viewing movies with subtitles in the target language fosters comprehension. There are also studies approaching the issue from a psychological perspective investigating the matter in relation to working memory (Mayer & Moreno, 1998; Koolstra, Peeters, & Spinhoff, 2002; Paas, Renkl, & Sweller, 2004). The significance of this study is that it makes an effort to figure out whether or not subtitled viewing affects EFL learners' development of bottom-up processing skills in listening.

### **1.3. Significance**

The appearance of the written representation of spoken language started with captioning technology, and shortly afterwards, this provoked SLA researchers to contemplate over the possible effects of learners' receiving input through two different channels; oral and visual (Vanderplank, 1988; Grimmer, 1992). Input channeled in two modes could on the one hand help learners internalize language better, but it could, on the other hand, distract learners' attention and hence induce poor comprehension. It is observed in the research beginning with such considerations in 1980s that captioning was found to be a way of increasing SLA learners' attention and motivation since it gave them the chance to confirm their understanding by seeing the language spoken (Danan, 1992; Neuman & Koskinen, 1992; Markham, 1999).

Interest in subtitling started when foreign language TV programs were broadcast with subtitles rather than dubbing in such countries as Netherlands and Belgium because of economic considerations (Koolstra & Beentjes, 1999). The issue attracted more attention as the American film industry spurted swiftly and their productions spread out all over the world. Someone with no English background would be excluded from enjoying Hollywood movies without subtitles, yet subtitled watching created another challenge for moviegoers: enjoying subtle visual effects and following subtitles simultaneously. Such considerations put the issue on the spotlight of attention and this, in turn, bore a large body of research on the effects of subtitles.

Early studies on subtitled watching started with children. In a 3-year panel study, Koolstra, van der Voort and van der Kamp (1997) investigated how children's reading skills improved while reading subtitles on television. They attributed this advancement to the extensive practice opportunity subtitles provide for children in terms of decoding skills. Research in the literature has found subtitles useful also in second language acquisition. It is taken for granted by many people that watching television programs with subtitles supplements learners' proficiency in a second language (Koolstra & Beentjes, 1999). The rationale to this expectation lies in the fact that subtitled television programs bring together different sources of input: auditory, visual and written. The allure of the multisensory screens encourages people to understand the language, thus increasing the chances of implicit learning particularly of vocabulary and everyday expressions.

SLA researchers' interest in this realm of study started with research into the influence of captioned television programs on vocabulary acquisition. Neuman and Koskinen (1992), for instance, examined how Southeast Asian Hispanic students' English vocabulary learning improved through captioning. The seventh and eighth graders living on the East Coast of the United States were shown nine segments of an educational series. 5-8 minutes of these segments were captioned in English and their vocabulary acquisition in this condition was compared with three more conditions: watching without captions, listening and reading together with a textbook, and textbook only. They found out that those who watched the captioned sections acquired more new words than the other three groups.

Research also demonstrated that learners can benefit from watching with subtitles in the first language. In a study of this type (Koolstra & Beentjes, 1999), 246 Dutch students from Grades 4 and 6 were exposed to a 15-minute documentary about grizzly bears in three different conditions. One experimental group watched the program in English with Dutch subtitles and the other without any subtitles, and the control group viewed the program in their first language without any subtitles. Researchers, by means of a vocabulary matching test, ensured that children in all the three groups had virtually equal control of English vocabulary. An auditory word recognition test administered after the viewing process showed that children who watched the English program with Dutch subtitles had the highest scores, which, to the researchers, implied that subtitled watching can contribute to incidental learning of certain elements of a foreign language by young children.

One of the studies revealing the vocabulary benefits of subtitled viewing was by Danan (1992), who attempted to catch a glimpse of the effects of different subtitling conditions on EFL learners' ability to recollect vocabulary. Vocabulary recall proved to be the strongest by those who watched with "reversed subtitling" (soundtrack in English and the subtitles in native language). She attributed this success to the facilitative effect of translation on foreign language encoding. She additionally concluded that subtitling in the foreign language, too, had positive influence in that it had the potential to eliminate the difficulty of recognizing word boundaries in the spoken language.

Related to vocabulary gains, Markham (1999) designed multiple choice tests and administered them orally to measure ESL students' oral word recognition skills in the presence of captioning. The tests included sentences extracted from the two short video programs the 118 participants viewed with or without captions. The alternatives in all the items were one key word from the sentences students heard and three distractors. Students listened to each sentence and selected the key word they heard. The test scores showed that when students were presented some video with subtitles, they proved to be more adept at identifying words on subsequent hearing.

In another study examining the relationship between subtitled viewing and vocabulary acquisition Bird and Williams (2002) looked into how bimodal (oral and visual) presentation of new words through subtitling influences the learning of these words. They presented novel vocabulary to an advanced group of learners under three conditions: text and sound together, text alone and sound alone. They measured the effects of these conditions on how long it took for learners to recall the presented words and found out that the presentation of new vocabulary with text and sound together contributes to improved performance in recognition memory. Therefore, they suggested that bimodality betters the acquisition of new words by facilitating the processing of words. The researchers attributed this improvement on the conclusion that cognitive systems related

to auditory and visual processing are intertwined and do interact with each other, and this interaction leads to increased processing depth.

These studies prove that vocabulary gains are higher when students watch English programs with subtitles either in their mother tongue or in the target language. Realizing this positive influence, Bayon (2004) hypothesized that this effect would be even more significant if learners were given the chance to read subtitles in native and foreign languages simultaneously. For this purpose, he designed a DVD system, which he named "DualSubsView", for the students' home environment. The system made it possible to see subtitles in both languages as the DVD played. This, in Bayon's view, increased participants' familiarity with English vocabulary.

Another relevant study aimed at deciding to what extent films with subtitles contributed to 126 Taiwanese college students' listening comprehension (Tsai, 2010). Participants were put into three groups; one control group receiving feature film clips treatment, and two experimental groups one receiving feature film clips treatment with English subtitles and the other with Chinese subtitles. A standard listening comprehension test applied after the treatment process revealed that students in the experimental groups outscored those in the control group, yet no significant difference was observed within the two experimental groups. The study also assessed the perceptions of students and teachers relying on interviews with 21 students and six teachers in the study, and concluded that both students and teachers tended to prefer films with subtitles, which, in their perspective, promoted language learning, making the experience fun and rewarding.

Researchers in the field of psychology also showed interest in subtitles. Research into dual-processing theory made use of subtitles to examine if input presented through multiple modalities improved comprehension. Mayer and Moreno (1998), for instance, presented their input (computer-generated animation of the process of lightning formation) to the participants either with an oral narration or with on-screen text. Participants who followed the pictures in the accompaniment of sound did better than those who had the pictures and on-screen text. The general rationale behind this finding is that presentation of multiple inputs in the same modality – visual in this case (pictures and on-screen text) – impairs comprehension. However, when the modality is varied – visual (pictures) and oral (sound), comprehension is improved. This is based on the cognitive load theory, which is explained as all the cognitive activities loaded on the working memory. According to this theory, the total amount of information that can be retained in the working memory is limited and when learners are forced to split their attention, learning is impeded (Paas, Renkl, & Sweller, 2004).

Apart from these potential problems discussed in cognitive psychology research, subtitles have also been proved to be worrisome due mainly to some technical considerations. Koolstra, Peeters and Spinhoff (2002) identified three sets of problems with subtitles. The first relate to the splitting of attention between picture and subtitles. Since movies have a lot of details depicted through picture rather than words, there is the risk of losing certain information. The second problem is again loss of information owing to the place subtitles occupy on the screen. The location of subtitles may cloud up specific details. Finally, the soundtrack and subtitles might not completely match. Due to censorship considerations and to avoid redundancies, subtitles could be prepared in a relatively condensed form. A learner relying on subtitles to understand the material viewed will then be devoid of certain subtleties in the soundtrack.

In sum, the review of related literature has revealed that subtitles, despite some shortcomings, have the potential of contributing to language acquisition in several

respects. Through subtitled viewing, learners may improve their vocabulary, learn different expressions and their functions and have enhanced listening comprehension ability (Koolstra & Beentjes, 1999). These language benefits all relate to top-down listening skills and should naturally be expected to take place since subtitled viewing means more input, which is channeled through multiple ways, visual and auditory. Since learners will process these different modes of input differently, they will accumulate more linguistic benefits, so bimodal L2 input is unanimously accepted to result in better listening comprehension (Bird & Williams, 2002; Kothari, Pandey, & Chudgar, 2004; Etemadi, 2012). However, the question of whether subtitled watching results in any improvement in bottom-up processes has not been researched. Therefore, this study seeks to find out if learners become better able to discriminate distinctive phonemes and discern separate words in the flow of spoken language by watching video with or without subtitles in the target language. This should describe the relationship between subtitles and EFL learners' bottom-up processing skills.

#### **1.4. Research Questions**

The basic question this study aims to find an answer to is:

What is the relationship between subtitles and EFL learners' bottom-up processing skills in listening?

Related to this, the present study attempts to answer the following questions, as well:

What are EFL learners' preferences for subtitled viewing?

Does viewing without subtitles lead to any change in EFL learners' preferences?

#### **1.5. Limitations and Delimitations**

One limitation encountered during the study was participation in the viewing sessions. Because of health problems and unpredictable changes in the school's schedule, some students had to miss a few episodes. Since there was a very tight schedule at school, we could not arrange extra sessions for such cases. We had to give them the sessions they missed so they could watch them on their own on weekends.

The study was done at an all-boy boarding school because that was more practical. All the students live at school during the week, so we could easily arrange the viewing sessions. Since there is not, as far as we can ascertain, much research describing the relationship between subtitles and bottom-up processes, we did not consider including gender as a variable. If the study finds out some relationship, then further research may be needed to see if gender plays a role. Similarly, we tried to keep the participants' level of English limited on account of the same reason.

The viewing sessions were determined to be in the official study periods students had after dinner. We met in school's language lab to watch one episode each week in the first study period (19:40-20:30). This, we first worried, could create reluctance and hence affect the results, but while we were negotiating the time and during the viewing sessions we observed that students were happy. Since they liked the series shown, they perceived this as a chance to break their daily routines at least once every week.

## Method

### 1.6. Participants

The participants of the study were selected out of 75 grade 12 students at a public boarding school. 40 students were selected to take part in the study after the whole group was given a standard placement test. Relying on the scores of the placement test, two groups of 20 students were formed in a way to achieve approximately the same average so that any improvement in their bottom-up skills – if there should be any – is not due to the differences in their levels of English. The scores of the 80 students were listed from the highest to the lowest.

### 1.7. Instrumentation

Quick Placement Test developed by Oxford Examination Syndicate was given to 75 grade 12 students. The test, designed to measure language learners' grammatical knowledge, vocabulary and reading comprehension skills on the basis of Common European Framework criterion, is composed of 60 multiple choice items. Participants were asked to write a reaction paper that would help elicit their preferences for watching with/without subtitles. In their reaction papers they were requested to complete the following sentences:

I prefer to watch English movies or series with subtitles in Turkish because ...

I prefer to watch English movies or series with English subtitles because ...

I prefer to watch English movies or series without subtitles because ...

After the participants were given the treatment, a test of minimal pairs was used to measure participants' bottom-up listening skills. The test was composed of 50 items. For each item, participants had to select the word they heard. All the minimal pairs on the test were given in sentences, all of which were formed in a way not to provide context clues for the participants that would enable them to select the right word using the context. For example, in "Our *expert* / *export* managers are thinking of new possibilities." the sentence is meaningful both with "expert" and with "export". Therefore, the participants cannot, for most items, make the correct decision without hearing the difference between the two words. For the same purpose, students heard these sentences but saw only the minimal pairs and were asked to choose the word they heard. Finally, those in the WSG were given the same set of three sentences to be completed in order to find out if the study caused any change in their preferences for subtitled viewing.

Sentences for the test of minimal pairs was read by a 42-year old native American speaker and the recording was done in normal room conditions to make it sound more like real life conditions. The test was piloted with 15 Grade 11 students at the same school. Two administrations were carried out with an interval of three weeks. Test-retest reliability was measured through Pearson correlation analysis. The test was found to be reliable at the 0.01 level of significance with a correlation value of 0.77.

### 1.8. Procedures

The study took place at an all-boy public high school where students are provided accommodation and food supplies. The school has a technologically well-equipped visual language laboratory in which students can view English movies and series. Since it is a boarding school, the groups have the chance of meeting in the language lab to watch the series after the dinner on different days. Thus, as the video material viewed was not part

of the classroom activities, the participants did not have to suffer from possible negative effects the study might have on their grading.

Students in grade 12 were first given the Quick Placement Test. Their scores on the placement test ranged between 48 and 23. According to the criterion put forth by the test publisher these scores meant levels between C1 and A2. Relying on these scores, a total of 40 students with the highest scores were put into three groups. In cluster A were 2 students with level C1, in cluster B were 16 students with level B2 and in cluster C were 22 students with level B1. Each time, two students were randomly selected from each cluster, one for the subtitled viewing group (SVG) and the other for the without subtitles group (WSG). Thus, we were able to form two groups of 20 students with nearly the same average on the placement test. The means of the SVG and WSG on the placement test were 38.30 and 37.95, respectively. This was to assure that any possible change in their bottom-up processing skills would be a result of the treatment not their linguistic ability.

Participants in the SVG and WSG met, on Wednesdays and Thursdays respectively, in the language lab and watched the 10 episodes from the 1st season of a popular American series named "Alcatraz". While one group watched the series without subtitles, the other watched them with English subtitles. After this process, which lasted for 10 weeks, participants in both groups were given the test of minimal pairs. The test was administered in the same language lab. All the participants took the test at the same time. They heard the sentences but had only the words they had to select on their test papers. Finally, participants in the WSG were asked to respond to the same sentences to find out whether viewing without subtitles brought about any change in their attitudes towards subtitles. This reaction paper had an additional 'comments' part where participants were asked to describe their feelings and comments on the whole process of watching without subtitles.

### **1.9. Data Analysis**

Students' reaction papers were analyzed to find out their preferences and justifications. Patterns in their justifications were detected and put into categories, and the frequencies of each pattern were identified. Then the scores from the test of minimal pairs were entered onto the SPSS. Through descriptive statistics, the means of both groups were found and a two-tailed independent t-test was run to see if there was a significant difference between the performances of SVG and WSG on the test of minimal pairs at the 0.05 level of significance. Finally, the reaction papers of WSG were analyzed following the patterns identified at the beginning.

### **Results**

All the participants were first asked to write their preferences for watching videos in English with their reasons. While 37 students preferred watching with subtitles (12 with Turkish and 25 with English subtitles), only 3 students chose to watch without subtitles. Their papers were analyzed and certain patterns about their justifications were found. Table 1 summarizes students' preferences and reasons.

Table 1.  
*Students' Preferences for Subtitles*

Preferred Viewing	Reasons	Frequency	Total
With Turkish subtitles	To improve my vocabulary	7	12
	To understand the movie	5	
	To improve my English	12	
With English subtitles	To improve my vocabulary	4	25
	To improve my pronunciation and spelling	4	
	To avoid loss of originality	2	
	To improve my listening skill	2	
	To understand more of the video	1	
Without subtitles	To improve my pronunciation	1	3
	To improve my listening skill	1	
	To test my listening comprehension	1	

As seen in Table 1, students mostly preferred to watch movies in English as they thought this would help them improve their English.

In order to find out the relationship between subtitled viewing and EFL learners' bottom-up listening skills we ran an independent t-test and compared the scores both groups got on the test of minimal pairs. Table 2 reports the results of this analysis.

Table 2.  
*Independent Samples Test*

Groups	Mean	Std. Deviation	df	t	Sig. (2-tailed)
WSG	41.70	3.13	38	2.49	.02
SVG	39.10	3.48			

The critical value for a two-tailed t-test with 40 cases is 2.02. Therefore, the difference between the performances of WSG and SVG is statistically significant at the 0.05 level of significance. Students in the WSG did significantly better than those in the SVG.

Finally, participants in the WSG were asked to write their preferences for watching videos in English. They were given the same set of three sentences to complete with an additional 'comments' part. Students in this group mostly showed a tendency to prefer to watch movies without subtitles.

Table 3  
*Change in Students' Preferences for Subtitles*

Preferred Viewing	Reasons	Frequency	Total
With Turkish Subtitles	To understand the movie	2	2
With English subtitles	Not to miss anything	3	5
	To improve my English	2	
Without subtitles	To improve my English	8	13
	To improve my listening skill	5	

Although some students still held concerns over not understanding the material viewed, they mostly believed that they could better improve their English through watching without subtitles. Six students wrote about their feelings in the 'comments' part. One of them said he could not understand what was going on in the first few episodes, so he got bored and lost track. Others wrote positive feelings about the process of watching without subtitles. One student said:

Although I gave my full concentration while watching the episodes, I was not able to understand much at the beginning, so on weekends I watched the same episode with Turkish subtitles. However, after the third episode, as I paid more attention to the soundtrack, I began to understand more. We do not have a chance to speak to native speakers to see if we can or not. Now, at least I had the chance to see if I could understand them.

### **Conclusion**

This study has been designed with the main objective of describing the relationship between subtitles and EFL learners' bottom-up processing skills in listening. For this purpose, Oxford Quick Placement Test was applied first to measure language learners' grammatical knowledge, vocabulary and reading comprehension skills on the basis of Common European Framework. Afterwards, participants were asked to write a reaction paper that would help elicit their preferences for watching with/without subtitles. Following the treatment period, both groups were given the test of minimal pairs to measure their bottom-up listening skills. Finally, participants in the WSG were asked to respond to the same sentences to find out if the study caused any change in their preferences for subtitled viewing. Results of the independent samples test revealed that there is a relationship between subtitles and bottom-up processing skills. Students in the WSG did significantly better on the test of minimal pairs, which meant improved bottom-up processing skills. Additionally, reaction papers demonstrated that students favored subtitled viewing at first, but the process of watching without subtitles changed their preferences.

On the whole, in light of the results of the study, it could be argued that bottom-up listening processes should not be dealt without the framework of cognitive load theory as the participants in the SVG had to attend to two inputs through the same modality; they had difficulty in developing certain skills. Moreover, top-down and bottom-up processes acting together prove that "listening is not a single skill, but a variety of sub-skills" which requires teachers to maintain a balance between top-down and bottom-up listening practices.

### **Discussion**

When captioning technology made it possible to read what is heard, researchers first speculated that input channeled in two ways could distract people's attention (Vanderplank, 1988; Grimmer, 1992). However, the positive findings on SLA found in the early research into the matter (Danan, 1992; Neuman & Koskinen, 1992; Markham, 1999) must have caused the negative effect subtitled viewing might have on learners' listening skills to remain unquestioned.

Most of the participants in this study (37) initially favored subtitled viewing believing that this contributed to their listening comprehension and vocabulary improvement. Their preferences and justifications are in line with Tsai's (2010) findings. He interviewed 21 students and 6 teachers and concluded that they both tended to choose films with

subtitles. His participants also believed that subtitles promoted language learning. As a matter of fact, learners' positive attitudes towards subtitles do not contradict to what much of the research has found out. The related literature abounds in studies which proved subtitles to promote listening comprehension and vocabulary improvement (Markham, 1999; Bird & Williams, 2002; Bayon, 2004; Kothari, Pandey, & Chudgar, 2004; Etemadi, 2012).

All the positive findings in the literature relate to top-down processes of listening. Yet, there are also bottom-up processes involved in decoding meaning. Both processes interact to form listening comprehension (Nation & Newton, 2009). The present study revealed that watching with subtitles might impair these processes. Students who had very similar level of English significantly differed in their performance on a test of minimal pairs, which measured their bottom-up processing skills. Though the observed  $t$  value of 2.49 is not way above the critical  $t$  of 2.02, it still has a meaningful significance in statistical terms.

It may be speculated that the significant difference may be due to some external factors other than the variable of watching without subtitles. For example, some students might already be watching series and movies without subtitles after all participants study at a boarding school where they spend the whole week at school. Therefore, during the week they do not have much chance to watch something in English apart from those they see in their English classes. All viewing activities at school are subtitled. That also explains why they preferred subtitled viewing. Another factor could be those students who often listen to foreign music. Since they are more familiar with English sounds, they might have already developed bottom-up processing skills, which could have created an advantage in their performance on the test of minimal pairs. Considering that the chance of such students being in WSG or SVG is equal, the significant difference between the performances of the two groups must be due to subtitles.

One justification of this finding comes from cognitive load theory. As Mayer and Moreno (1998) found out, inputs presented through the same modality causes splitting of attention, which, in turn interferes with learning. Since students in the SVG had to follow the movie and read the text on the screen (both inputs are visual), this might have imposed cognitive load on them, and so they may have failed to focus on phonetic features. Actually, this problem was stated by two of the participants in their reaction papers they wrote after watching the series. One student, for example, said:

Since I believed watching movies is beneficial to language learning, I have always watched English movies and series both on TV and on the Internet. The ones on TV are always subtitled in Turkish. I also downloaded subtitles when I watched something on the Internet. I think it is taken for granted that subtitles contribute to language development. Since I was worried that I could not understand the movie, I could not do without subtitles. I was focusing only on reading the subtitles.

Therefore, it should be asserted that subtitled viewing makes students too reliant on reading the text. Thus, students fail to follow the soundtrack carefully enough to discern the distinctive sounds. With their attention distracted between reading and listening, students' listening comprehension skills, specifically the bottom-up ones since they require painstaking focus on the phonemes, are not developed sufficiently as compared to those who only have to listen. Participants in the WSG were able to direct all their attention on the soundtrack, and this must have enabled them to better process the

sound system of English. The study, hence, clearly concludes that there is a relationship between subtitles and EFL learners' bottom-up processing skills in listening.

### **Implications and Applications**

The findings of this study contribute to certain theories in cognitive psychology. Cognitive load theory, for instance, serves a theoretical framework for explaining the relationship between subtitles and listening comprehension. As observed in this study, bottom-up listening processes should not be dealt with outside this framework. One consequence of cognitive load theory is split-attention effect. Since the participants in the SVG had to attend to two inputs through the same modality, they had difficulty in developing certain skills, so the findings also support the split-attention effect.

Another theoretical basis that finds support in this study is the listening processes. People assign meaning to an oral message through two different processes: top-down and bottom-up. These two types of processes acting together prove that "listening is not a single skill, but a variety of sub-skills" (Nation & Newton, 2009, p. 40). Since bottom-up processes are not considered central to communication, there is generally an emphasis on top-down processes only. Nation and Newton (2009) report on a variety of studies which allege that learners should be adept at bottom-up processes, as well for successful communication. Therefore, SLA research into subtitles needs to consider bottom-up approach to listening, too. This also requires teachers to maintain a balance between top-down and bottom-up listening practice.

The findings also apply to classroom environment. The ultimate goal of teaching a language is to equip learners with necessary tools to enable them to read or listen to authentic materials or communicate with native speakers. They are eventually expected to approach the native speakers in their command of the target language. Since native speakers do not need subtitles to understand movies, EFL learners should ultimately be able to watch movies without the help of subtitles. They can definitely not do so by relying on subtitles.

The allure of subtitled viewing could be due to the advantages it offers to students and teachers. Most students are worried not to understand a movie especially if they feel they are not linguistically very competent. Without understanding what they are watching, they will inevitably not enjoy the time they spend watching something. Subtitles readily remove such concerns. Subtitled viewing facilitates teachers' work, as well. Teachers need to bring well-designed materials into classroom to ease students' comprehension. Without pre-, while- and post-viewing activities for a video class, having the desired outcomes is few and far between. Nevertheless, creating such a design is not that easy for teachers, who are already fully laden with many responsibilities. Teachers, therefore, resort to subtitles to foster their students' understanding.

This charm of subtitles is explicable considering also the positive findings in the literature reviewed in this study. However, teachers and students should see that subtitled viewing has the risk of impairing bottom-up processes, which impedes the efforts to be native-like. Since students hold a plausible reason to be rather dependent on subtitles, it is teachers' responsibility to remove the concerns causing this reliance. Through well-structured materials, teachers can facilitate learners' comprehension of the viewed material. Once students begin to understand with the help of activities promoting comprehension, they will voluntarily opt for viewing without subtitles.

### **Suggestions for Further Research**

Research into the effect of subtitles generally falls into two categories. SLA research is mainly interested in the association between subtitles and top-down listening processes, and research in the cognitive psychology looks into the matter with respect to input modality. It is perhaps the time to combine these two areas and do more experimental research seeking to explain the influence subtitles have on listening comprehension with both processes integrated referring to the principles of related theories in cognitive psychology. Such research will definitely shed light on the effect of subtitles and offer strong theoretical basis for both practitioners and researchers.

As the relation between subtitles and bottom-up processing skills is not questioned, conducting further research is a must. For those who wish to carry out such research or replicate this study, we strongly suggest having an experimental design. Findings have the potential of shaking some entrenched beliefs in subtitled viewing, so it is advisable to be fairly tough on the design. Besides, skills development is a long lasting process. We expected to observe development in our participants' bottom-up skills in comparatively a short period of time – 10 weeks. In reality, though, students may need an extended time span and more input in order to develop such skills.

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## Appendices

### Appendix 1. Quick Placement Test

The test can be reached at the following link.

[http://www.vhs-aschaffenburg.de/documents/5000/Oxford\\_Test.pdf](http://www.vhs-aschaffenburg.de/documents/5000/Oxford_Test.pdf)

### Appendix 2. Test of Minimal Pairs

Students only see the minimal pairs, not the sentences on the exam papers they were given.

#### Listen to the sentences and select the word you hear for each sentence.

1. The teacher caught the student **yawning / earning** during the class.
2. The pastor **blast / blessed** his pupils for their sins.
3. I bought a new **bat / boot** at the store.
4. Would you please not **beg / bug** me for any more money?
5. Could you **butt / boot** out of the conversation?
6. Please **call / curl** this up and don't mention it ever again.
7. General Kraft **commended / commanded** the soldiers for their bravery.
8. I think Tom is **doomed / damned** to fail.
9. If you want a **battered / bettered** one, you'll have to ask him.
10. He has gone to **chute / shut** the door.
11. Remember your **does / do's** and don'ts
12. Our **umpire / empire** at the ball park was fantastic.
13. Thick burgers are the latest **food / fad** at the Burger King.
14. His **daft / deft** use of the sword saved him from being killed.
15. The teacher was **curt / caught** with the police.

16. I **laughed / left** all the way home.
17. Is that the man **who's / has** sixty years old?
18. When I hear news of the **flood / fled**, I got in car and left the town.
19. Does he have a **gun / goon** in his hand? Yes, it's Halloween.
20. The **concert / consort** ended in harmony.
21. She went down in the **mud / mood** and now feels pretty bad.
22. I'm sure it will be **hull / hell** to clean.
23. This last **loop / lap** is killing me.
24. I'd better explain **lest / last** you forget again.
25. His **curse / course** language doesn't appeal to anybody.
26. Our **expert / export** managers are thinking of new possibilities.
27. The **lather / leather** is almost perfectly white.
28. The **man / moon** is smiling on us tonight.
29. It was **jest / just** a joke.
30. Let's meet at **noon / none** tomorrow.
31. The rat **passed / pest** the experiment.
32. I'm going to find out who is the **rat / root** of all our problems.
33. They'll see their **soon / sun**.
34. I don't think he has **many / money**.
35. I was **firm / form** with my son.
36. This is a beautiful new **vest / vast** you have on.
37. I'm going out on the **lawn / learn**.
38. He has decided to invest in a new **schooner / scanner**.
39. My pet **pawed / purred** as she sat on the ground.
40. He rushed the **nut / net** too early.
41. He **spun / spoon** the spaghetti on his fork.
42. **Snap / Snoop** that around here and you'll regret it.
43. The sound of typing came from **steady / study**.
44. These **shorts / shirts** need to be cleaned.
45. He was **said / sad** that he had to redo the assignment.
46. The **trap / troop** fooled him completely. He was surprised at their prank.
47. Jack's **ruddy / ready** cheeks showed embarrassment.
48. **Supper / Super?** OK. We'll meet then.
49. They **whom / hum** various tunes often.
50. I **work / walk** in the park.