THE EFFECTS OF L1/L2 SUBTITLED AMERICAN TV SERIES ON CHINESE EFL STUDENTS' LISTENING COMPREHENSION

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ABSTRACT

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Pavio's dual coding theory (1991) suggested that subtitled videos consisting of verbal information and nonverbal images can facilitate information processing and language learning. This study investigates the effects of subtitled TV series on Chinese EFL learners' listening comprehension. Eighty students in a Chinese university participated. Students were divided into four groups based on their grade level, with twenty in each group. The four groups were two classes of 1st year undergraduates, one class of 3rd year undergraduates, and one class of graduate students, all at the same Chinese university. Each group watched four video clips with three subtitled treatments: L1 Chinese, L2 English, dual (L1 and L2). There was also a control video with no subtitles. The video clips, their treatments, and the order in which the students watched them, were all counterbalanced using Latin Squares. After watching each video, students did a vocabulary and a comprehension test. The main research questions are to find the most effective subtitled TV series and students' attitudes towards subtitles. Four (groups) by four (subtitle conditions) mixed ANOVAs were used to compare the differences among the four treatments and four groups. The study has practical value in that educators, teachers, and the Chinese government can implement the appropriate subtitled videos inside and outside of class to improve learning of English.

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Introduction

In the field of second language acquisition and computer-assisted language learning, ample studies have pointed out that with advanced technology, foreign language learners are being exposed to subtitled TV series on their PCs (Brett, 1995; Chai & Eilam, 2008; Danan, 2004; Low & Chia-Tzu, 2012; Markham & Peter, 2003; Park, 1994; Taylor, 2005). Subtitled TV series have become increasingly popular. Many universities in the United States are using authentic TV series and videos in online foreign language classes. Some also incorporates TV series, especially in blended courses.

This case also applies to China. Undoubtedly, the Internet has made language learning from subtitled TV series more accessible. Some Chinese universities have used American TV series and films in English listening and audio-visual classes. However, how to effectively implement English language TV series in class has not been fully investigated in China. The present study investigates the most effective subtitled TV series on the listening comprehension of Chinese EFL learners and provides important information on the implementation of subtitled TV in class.

Additionally, since the Chinese government has already required all foreign films that are released in China to be dubbed into subtitles (Chen, S.J., 2004), in China there are many TV series with only Chinese subtitles, whereas L1 and L2 dual subtitles are available in some TV movies and in movie theaters. However, from the Internet, many people watch foreign videos with no subtitles because of the fact that lots of films need subtitles, yet there aren't many companies or groups creating subtitles on the Internet. Therefore, there are few subtitled foreign films available on the Internet. Only English subtitled film or TV series are less commonly used in any of the media settings in China. Whether subtitles can play an important factor in students'

listening comprehension is an open question. Considering the Chinese government has been emphasizing the improvement of Chinese students' English proficiency level since the close of the cultural revolution in 1978, if the government knows the effect of subtitled American videos on L2 English learners, they can implement the subtitles on TV, Internet, as well as movie theaters to improve students' listening comprehension. In this way, students could have more exposure to English and learn more about the language and culture while watching the TV series.

Theoretical Background

According to Paivio (2010), "all cognition involves the activity of two functionally independent but interconnected multimodal systems." (pp. 207). Dual-coding theory means that learners can use two ways independently to gain knowledge: verbal information and nonverbal images. This suggested that subtitled videos involving audio, visual, and image can facilitate information processing and language learning. Additionally, in 1991, Paivio suggested that subtitles may have positive influences in that they help language learners to make connections between auditory and visual input.

American TV series, which consists of audio, images and visual text in a multimodal setting, offers EFL learners rich input that can promote input processing. According to VanPatten and Caderino (1993), the input processing which involves form-meaning mapping is essential for second language acquisition. Furthermore, in a multimedia setting, the enhanced input of subtitles can help learners identify word boundaries and promote noticing (Schmidt, 1990).

Attitude and motivation are also essential to second language learning. According to Vanderplank (1990), students' attitude towards subtitles may influence their attention to the TV programs. This suggested that students' positive attitudes toward subtitles may help them absorb the language and aid acquisition.

Literature Review

Research has been conducted on the use of subtitled video and television programs for language learning (Brett, 1995; Garza, 1991; Paivio, 1991; Rubin, J, 1994; Vanderplank, 1990). While there were some studies investigating the quality of subtitles (Dollerup, 1974), much of the debate lies on the comparison between films with or without subtitles and the effectiveness of subtitled film on language learning. I divided the relevant research into three categories. First, I will discuss the research conducted on whether or not subtitles are effective in the learners' improvement of comprehension. Second, I will talk about studies investigating the relationship between the effectiveness of subtitles and learners' proficiency level. Third, I will focus on the most effective subtitles for the development of L2 learners' listening comprehension.

Can Subtitles Aid Language Learners' Listening Comprehension?

Some studies have pointed out that subtitles are not often beneficial for language learners (Diaz-Cintas, & Remael, 2007; Koolstra et al., 2002). According to Diaz-Cintas and Remael (2007); while students spend time reading subtitles, they may miss many events happening in the film. Koolstra et al. (2002) stated that subtitles can attract students' attention and may easily distract them from watching the image.

However, more studies have found favorable results of the effects of subtitled videos in language learning (Brett, 1995; Chai & Eilam, 2008; Danan, 2004; Low & Chia-Tzu, 2012; Markham & Peter, 2003; Park, 1994; Taylor, 2005, Winke et al., 2010). They carried out studies on the effects of subtitles on foreign language learning.

Parks (1994) suggested using subtitles to enhance foreign language learning. He claimed that students using captioned materials demonstrated significant improvement in reading comprehension, listening comprehension, vocabulary acquisition, word recognition, decoding

skills, and overall motivation to read. Additionally, in the study of Chai and Erlam (2008), the researchers investigated the effects of videos on Chinese ESL students' learning of words and phrases. They also found out that English subtitles aid students' learning.

Another study by Winke et al. (2010) investigated the effects of captioning videos used for foreign language listening activities. A hundred and fifty students participated in this study. They were 2nd and 4th year L2 learners' of Spanish, Russian, Arabic, and Chinese. The result of the study was comparable to previous studies which indicated that subtitled group performed significantly higher than no subtitled group in vocabulary learning and comprehension.

The four studies above all suggested that subtitles are more beneficial than videos without subtitles in foreign language learning. However, Parks (1994) didn't mention the effects of subtitles on specific foreign language learners. Chai and Erlam (2008) looked at the effects of English subtitled videos on Chinese ESL learners in New Zealand, however in a comparatively small number of participants,with 10 students randomly assigned to subtitled group, and 10 students assigned to no subtitled group. Winke et al. (2010) mainly investigated students whose native language is English, and looked at their listening skills in learning other foreign languages. In my study I specifically investigate students whose native language is Chinese, and who are studying English as a foreign language in China. I also used a larger sample size of 80 participants, with 20 in each subtitled group to generalize more credible results.

Are the Effectiveness of Subtitles on Students' Listening Comprehension Related to Learner's Proficiency Level?

Other studies took a different angle and discussed the possible relationship between L2 subtitles and students' proficiency level. Grignon, Lavaur, and Blanc (2007) investigated the effects of subtitles on the comprehension of the film's plot. The results indicated that the

language of the subtitles has different effects depending on viewers' fluency level in the target language. They found that viewers with a low fluency level had better linguistic information processing with subtitles than without subtitles. According to an eye movement study of captioned TV viewers from Jensema et al. (2000), someone with poor English skills may spend more time reading the L2 English subtitles. In addition, Taylor (2005) found that L2 Spanish 3rd year learners did better than L2 Spanish 1st year beginners in the captioning group. Furthermore, L2 Spanish beginners found the captions distracting and had trouble paying attention to the captioned videos in multi-media settings. This suggested that students have different comprehension gains in different proficiency levels while watching videos in a multi-media setting.

On the other hand, some researchers divided subtitled videos into interlingual (when subtitles and the film dialogue are in the different language) and intralingual (when subtitles and the film dialogue are in the same language) and investigated their effects on learners of different proficiency levels. Diaz-Cintas and Remael (2007) divided subtitled films into three categories: Original (no subtitles), interlingual, intralingual. According to their study, L1 English subtitles are useful when viewers do not understand the L2 Spanish dialogue spoken in the film. L2 Spanish subtitles are mainly useful to hearing-impaired viewers, but it may also assist language learning and provide additional information to L2 Spanish learners. If it is the same with Chinese EFL learners, then we would expect that L1 Chinese subtitles are especially important for EFL beginners, and L2 English subtitles can assist students with additional information mainly suitable to hearing-impaired students. All the students that participated in the study are not hearing-impaired; studies haven't indicate whether L2 English subtitle would be partly beneficial or not to Chinese EFL learners that do not have hearing problems, thus, the result of current

research can help to answer the question.

Some studies suggested that the effect of subtitled TV series is related to students' proficiency level. This paper takes the proficiency level into consideration and specifically taps into investigating high intermediate EFL students' performance.

Will Students' Attitudes Affect their Listening Comprehension?

In terms of studies on students' attitude towards subtitles, Winke et al. (2010) used their interview data as a source to help better understand students' comprehension of subtitles. They found that students view subtitles as crutches that aid their comprehension. Participants' interview results were in line with the results of their comprehension scores, which further suggested that there may be a positive relation between students' attitudes and comprehension scores. From the interview data, Chai and Erlam (2008) also discovered that Chinese EFL students did better with L2 English captions than no captions, and they had positive attitudes toward the use of L2 English captioned video in language learning. Based on the implication of these studies, in my study, I used students' attitude questionnaire to understand students' preferences for subtitles and explored further the possible relations between the two variables: students' preferences and comprehension scores.

What Kinds of Subtitles Are Most Effective for the Development of Listening Comprehension?

Most studies looked at the effects of subtitles under two subtitled treatments: L2 subtitles (when subtitles are the same as the language in the film) and no subtitles (Koskinen, 1993; Taylor, 2005; Sydorenko, 2010; Chai & Erlam, 2008; Winke et al., 2010). On the other hand, some researchers have investigated the effects of different kinds of subtitles under three treatments: L1 subtitles (when subtitles are not the same as the language in the film), L2

subtitles, and no subtitles (Diaz-Cintas & Remael, 2007; Lavaur & Bairstow, 2011; Hayati & Mohmedi, 2011; Markham & Peter, 2003). Very few studies has investigated subtitles under four treatments (but see Lwo & Chia-Tzu, 2012, who did; I will discuss this study below).

When two treatments (L2 subtitles and no subtitles) were investigated, L2 subtitles were discovered to be more effective than no subtitles in comprehension (Koskinen, 1993; Taylor, 2005; Sydorenko, 2010; Chai & Erlam, 2008; Winke et al., 2010).

As for three subtitled treatments, Markham and Peter (2003) looked at the influence of Spanish video subtitles on L2 Spanish students' reading/listening comprehension under three different treatments: L1 English, L2 Spanish, and no subtitles. They used a multiple-choice test and written summary to measure students' reading/listening comprehension. The result suggested that target language (L2 Spanish) subtitled group outperformed the native language (L1 English) subtitled group, and both of them performed at a higher level than no subtitles group. The researchers further proposed that multilingual audio and subtitles needed to be investigated more intensively. I agree with the researchers and hold that the effects of videos providing large amounts of input in multimedia setting that involves images, audio, and captions needed to be further explored in specific contextualized settings. In my study, I specifically looked into the population of Chinese under EFL settings and aimed to find out whether the four different subtitled videos would influence students' listening comprehension. Additionally, Markham et al. (2001) divided the participants into three groups and each group watched videos only in one captioned treatment. Unlike the between group analysis done by Markham et al. (2001), in my study, I divided Chinese EFL students into four groups. Each group viewed the subtitled videos under four treatments: Chinese, English, Chinese and English, and no captions.

They viewed four subtitles in different order. A within-group analysis of eighty participants' performances in different treatments was measured.

Lwo and Chia-Tzu Lin (2012) was the only study I found that focused on the population of Chinese learners of English and dealt with the influence of subtitles under four conditions. In the study, thirty-two Chinese junior high school teenagers participated in a multimedia learning program and were assigned to four groups based on their proficiency in English. Participants watched animations with English narrations and one of the following conditions of subtitles: no subtitles, L1 Chinese subtitles, L2 English subtitles, and L1 and L2 subtitles. The content of the reading texts were from two scientific articles. The research indicated that L2 English and dual subtitled groups did better than the other groups in reading comprehension. However, the study solely looked at the reading comprehension of four different subtitle conditions when viewing image with texts. The reading text shown in each animation scene consisted only of one or two sentences. The learning program included only reading texts and image. No audio or video were involved in this study. Therefore, studies are needed to further investigate the influence of watching four subtitled conditions with audio, image, and texts.

This study will tap into these areas and fill the gap. This study also serves to shed light on the use of authentic English materials in class and outside of class. Chinese government and educational institutions can make full use of the most effective subtitles in online, at home, or classroom environment and improve students' English listening comprehension ability and vocabulary learning.

Research Question and Hypothesis

Based on the prior research and the purpose of the study, the research questions in the study is as follows:

1. What is the most effective subtitle condition on students' vocabulary learning?

2. What is the most effective subtitle condition on students' listening comprehension?

3. Will students perform differently across the four subtitled conditions depending on their proficiency level?

4. What are students' general attitudes towards the four subtitle conditions?

The independent variables in the study are three conditions of subtitles and one control treatment (L1 Chinese, L2 English, L1 and L2, no subtitles). The dependent variables are students' scores on follow-up listening tests, as I will explain below in the materials section.

As for the first and second research questions, according to prior research, I hypothesized that students will perform better in watching TV series with subtitles than without (Markham et al., 2001, Lwo et al., 2012, Brett, 1995.,Grignon, Lavaur, and Blanc,2007, Winke et al., 2010). In addition, L2 subtitle is most likely to be more effective than L1 subtitle (Markham, P & Peter, L., 2003). Whether dual subtitles will be the most or least effective among the groups is not clear because of the lack of previous literature. The result of the pilot study I conducted with 16 Chinese ESL participants in a large Midwestern University indicated that L2 English subtitles is most effective condition on students' listening comprehension in terms of the average score. Students had slightly lower average score on dual subtitles. However, scores of dual subtitles are much more stable than scores of L2 English subtitles.

The third research question is on whether students' vocabulary and listening comprehension performance will vary based on their different proficiency levels. According to

Taylor (2005), higher level L2 learners outperformed lower level learners in L2 subtitled treatment. At the same time, lower level students found L2 subtitles distracting and hard to pay attention to. Therefore, I hypothesize that students will perform differently on the four conditions depending on their proficiency level. Specifically, to what extent higher L2 learners will perform better than lower level learners in four subtitled conditions in vocabulary learning and listening comprehension cannot be hypothesized based on previous literature research.

In terms of the fourth research question about students' general attitudes towards subtitles, based on studies by Winke et al. (2010) and Chai and Erlam (2008) and the survey data collected from the pilot study, I hypothesize that students will be more willing to watch TV series with L1 and L2 dual subtitles, followed by L2 English subtitles, then L1 Chinese subtitles, and lastly no subtitles.

Methods

Procedure

The study took place in a regular classroom in a university in China, with a screen and a projector. All the tests and questionnaires were done anonymously. Before beginning the experiment, participants were informed about the procedure of the test. Inact classes were used. The whole procedure of the experiment was shown in Figure 1.

Because four groups are divided based on classroom levels, and they follow four different orders of viewing the videos. In order for the experiment to take place effectively, I arranged the experiment based on different classes' schedule. Four groups' experiments were done in four different time during class break in the same week. Figure 1 shows the procedure of the study. That is, the first group consists of a class of first year undergraduate students (freshmanClass1) follow the first order (as shown in Table 1, freshmanClass 1 students watched video 1 with Chinese subtitles, then video 2 with English subtitles, then video 3 with dual subtitles, and finally video 4 with no subtitles). The second group is a class of third year undergraduate students (Junior students watched video 1 with English subtitles, then video 2 with dual subtitles, and then video 3 with no subtitles, and finally video 4 with Chinese subtitles). Third group is a class of first year graduate student (1^{st} year Graduate students watched video 1 with dual subtitles, then video 2 with no subtitles, and then video 3 with Chinese subtitles, and finally video 4 with English subtitles). Fourth group is another class of first year undergraduate students (freshmanClass2). Because groups, the ordering, and subtitled treatments were all counterbalanced, the fourth group which also consists of Freshman students as the first group will not influence the result of study, but it will serve to add more information to interpret the freshman group.

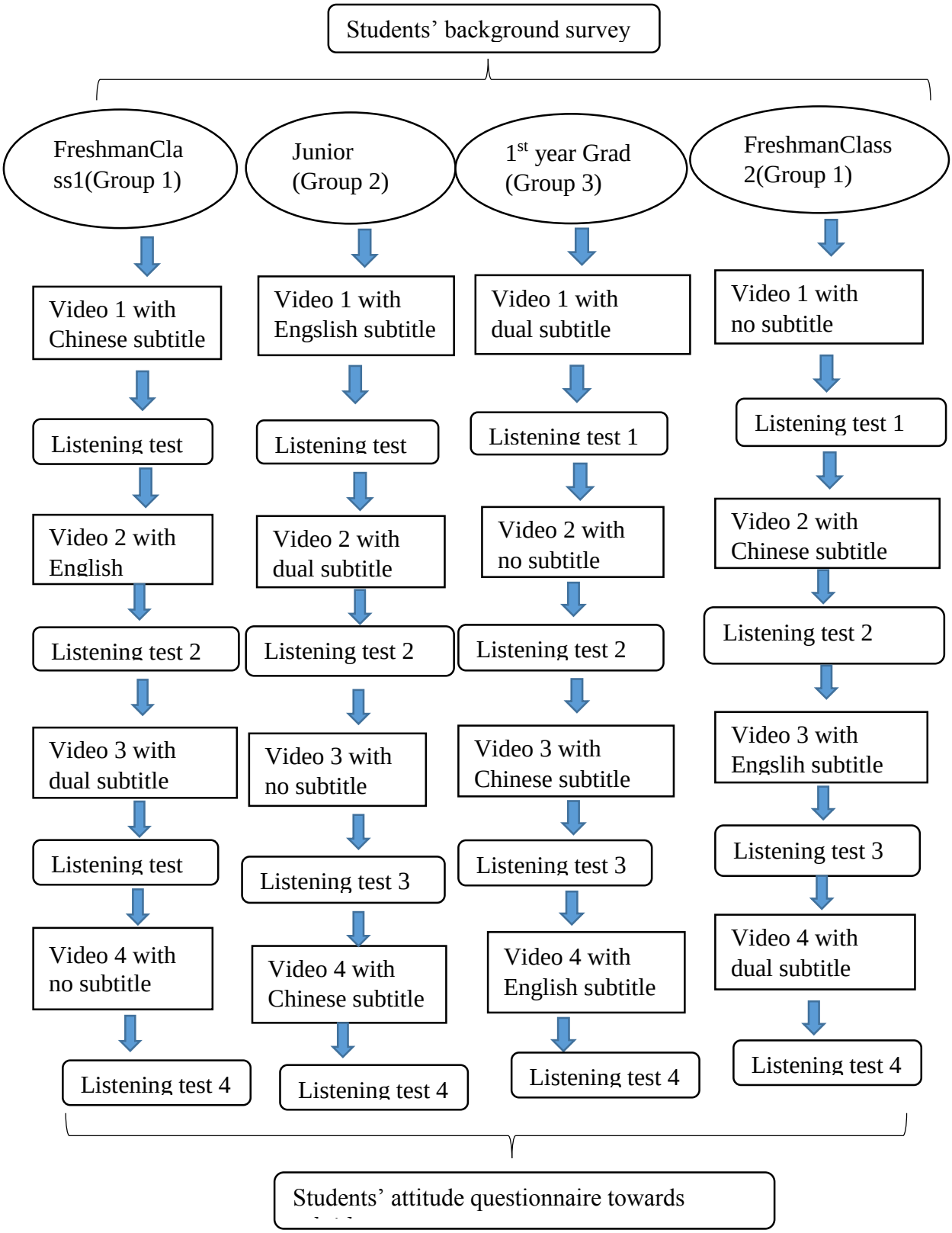
The procedure of the Each group first filled out the consent form and a background information survey, and the researcher showed the four clips one by one in the screen following the four different orders of treatments. Students in each group watched the clips together in the screen. To avoid any special focus on subtitles, they were not informed that they would watch four clips in different subtitled conditions.

After watching each video clip, students immediately did a listening test, which comprised one vocabulary test and one comprehension test. To avoid students paying special attention to the vocabulary words being tested, they were not given the test prior to watching the clips.

After watching the four clips and finishing the four tests, they filled out an attitude questionnaire about their general preference towards the three conditions of subtitled (and not subtitled) TV series. To have students better understand what conditions of subtitles are more suiTable and helpful for them, the attitude questionnaire was given after they had already watched the clips and done the tests.

All the participants did the research experiment in a seven-page paper including the procedure, background information, four listening tests, and a general attitude questionnaire (see appendices). The time of the experiment was about an hour total.

Figure 1. Procedure of the experiment.



Participants

Eighty Chinese EFL undergraduate students at a large central university in China participated in the current study. They are from four classes. Each class has 20 students and formed as one group in the study. They are all English majors. The group is based on students' year of studying in the university. Different years of studying represents students' different English proficiency training and level.

The age range of their age is 18 to 24 years old, with an average of 20. Because students majoring in English in China are mostly female, usually one class only had one or two male students. Among the eighty participants, five students were male and seventy-five students were female.

The participants have all had the national college entrance English exam before entering college. The total score of 110 out of 150 in the exam indicated that students English level were high intermediate. According to the admission requirement of the university, students majoring in English all have a score above 110 out of 150 in the exam. Additionally, according to the background questionnaire, 37 percent (*N=30*) of the participants started learning English from Elementary Grade 5 or Grade 6, 63 percent (*N=50*) of the participants began learning English from Middle school. 76 percent of the participants (*N=61*) perceived themselves as high-intermediate learners of English, 23 percent (N=19) of them perceived themselves as low-advanced learners. Considering the admission requirement of the university, students' first exposure of English, and their perception of their proficiency level, I concluded that eighty of them were in an intermediate proficiency level of English or higher. The participants which consisted of first year undergraduate, third year undergraduate, and first year graduate students can be seen as levels ranging from intermediate to highly advanced English level.

Materials

Background questionnaire. The purpose of the background questionnaire is to have a general overview of students' information. Students were asked to answer questions including gender, age, years of learning L2 English, TOEFL test score, proficiency test score (Test for English Majors 4/8), self-perceived English proficiency level, and preference to American TV series (see Appendices).

Authentic clips. The four video clips were selected from the same life comedy English TV series called Hannah Montana. This American TV series was about a girl who lives her life as a normal student in school during the day and as a very famous singer at night. It tells stories on how she keeps her identity as a popular singer secret and how she balances her life during the day. As Krashen (1982) has suggested that low anxiety is necessary for acquisition to occur, I chose this condition of genre in that it's more interesting for the audience and more likely to keep their attention, which may help improve learning. The four video clips are three to five minutes long respectively and were dubbed into four treatments. One subtitle is one treatment: L1 Chinese subtitles (Treatment 1), L2 subtitles (Treatment 2), L1 and L2 dual subtitles (Treatment 3), and no subtitles (Treatment 4).

In order to make sure the difficulty level of the TV series is about the same, I chose four clips from one American TV series. To ensure that the familiarity to the content of TV series prior to watching won't be a factor influencing students' understanding, all participants have indicated that they had no prior knowledge of the content and details of the series before watching the clips. In addition, because each video clip is only 3 to 5 minutes long, to make sure students understand the whole content of the TV series, the four clips were consecutive. All students watched the four clips from the first to the last one following the same order. They first

viewed video 1 (V1), then video 2 (V2), followed by video 3 (V3), and lastly video 4 (V4). Although clips were consecutive, each clip contained a comparatively independent story itself without additional information needed so that students can answer one test after watching each clip.

The conditions of the subtitled clips were made into four differently ordered groups (See Table 1). There were 20 participants in each of the four groups. The first group (G1) freshmanClass1 viewed the four clips as the following order: L1 Chinese subtitles, L2 English subtitles, L1 and L2 subtitles, no subtitles. The second group (G2) junior viewed the four clips as the following: L2 English subtitles, L1 and L2 subtitles, no subtitles, and L1 Chinese subtitles. The third group (G3) 1st year Grad viewed the four clips as the following order: L1 and L2 subtitles, no subtitles, L1 Chinese subtitles, and L2 English subtitles. The fourth group (G4) freshmanClass2 viewed the four clips as the following order: no subtitles, L1 Chinese subtitles, L2 English subtitles, L1 and L2 subtitles.

Table 1.

Orders of four treatments.

Group	Video 1	Video 2	Video 3	Video 4	N
Group 1 (FreshmanClass 1)	V1T1 (L1 Chinese)	V2T2 (L2 English)	V3T3 (L1 and L2)	V4T4 (No subtitles)	20
Group 2 (Junior)	V1T2 (L2 English)	V2T3 (L1 and L2)	V3T4 (No subtitles)	V4T1 (L1 Chinese)	20
Group 3 (1st year Grad)	V1T3 (L1 and L2)	V2T4 (No subtitles)	V3T4 (L1 Chinese)	V4T1 (L2 English)	20
Group 4 (FreshmanClass 2)	V1T4 (No subtitles)	V2T1 (L1 Chinese)	V3T2 (L2 English)	V4T3 (L1 and L2)	20

(cont'd)

Table 1. (cont'd)

Note. G=group. V=video clips. T=treatment. N= number of participants. Twenty participants were in one group. The total of participants was eighty. In this way, all eighty participants viewed the video clips under four conditions: L1 Chinese subtitles, L2 subtitles, L1 and L2 dual subtitles, and no subtitles (See Table 2).

Table 2.

Number of participants in each treatment.

T (Treatment)	Subtitles	Number of participants in each treatment
T1 (Treatment 1)	L1 Chinese subtitles	80
T2 (Treatment 2)	L2 English subtitles	80
T3 (Treatment 3)	L1 and L2 subtitles	80
T4 (Treatment 4)	No subtitles	80

Each video can only be viewed once and without pause. The four clips were dubbed with subtitles using Windows Moviemaker. Students watched the video clips together in the classroom from the screen.

Listening tests. There was one listening test after each video clip, four tests in total. One listening test consists of one vocabulary test and one comprehension test. The vocabulary tests and comprehension tests used in the study are illustrated in the following paragraphs.

Vocabulary tests. There was one vocabulary test for each video clip, four tests in total. Each vocabulary test consisted of 5 sentences, with one underlined word in each (see appendices). Participants did the vocabulary test right after watching one video clip. In the test, students were asked to give the correct Chinese/English synonym to the word underlined in the sentence. The exact sentences where the word appeared in the clips were given in the test so that students could

better understand the context of the word. For instance, “Don’t look at my booty”. In this sentence, booty was underlined, and students need to give the correct Chinese/English synonym.

Comprehension tests. There was one listening comprehension test for each clip, four tests in total. Each comprehension test consisted of 5 questions (see Appendices). Participants did each comprehension test after finishing the vocabulary test. To make sure students can understand the questions on the tests, there was Chinese translations for each question. Additionally, because the tests were more concerned with students’ comprehension of subtitles, to ensure accurate answers and have students be more comfortable about the tests, they could choose to answer the questions either in English or Chinese.

Attitude questionnaire. After finishing all the tests and video clips, students were asked to fill out an attitude questionnaire including ranking the four subtitles and answer open-ended questions related to their preferences towards subtitles (see Appendices A).

Scoring

Listening tests. There were four listening tests. Each test had one vocabulary test and one comprehension test. Each test had 10 questions (five vocabulary questions and five comprehension questions). One question counted as one point. Each test was 10 points.

Vocabulary tests. Exact translations or synonyms received full credit (1 point). Incorrect translations were given no credit (0 points). Half credit (0.5 point) was given if students were partially correct about the answer.

Comprehension tests. For the scoring of the comprehension tests, each idea unit mentioned in the summary received full credit (1 point). If the answer was inaccurate or partially correct, students received 0.5 point. If the answer was incorrect, they received 0 points.

Analysis

A reliability analysis Cronbach's alpha was used to measure how reliable the listening tests (vocabulary and comprehension tests) were.

To measure the most effective subtitled condition for the Chinese EFL students and to test whether group proficiency level would differ in students' performance of subtitles, I used two 4 (subtitle condition) by 4 (group) mixed design ANOVAs. One was to measure the vocabulary gains, the second time was to measure the listening comprehension. Then I ran post hoc tests to compare the effectiveness of four different subtitles in vocabulary learning and listening comprehension. I will first discuss the main effect of subtitle condition and the main effect of group proficiency. I will then present the post-hoc test in comparing which subtitle condition is more effective than another.

To find students' attitude towards different subtitle conditions, data were collected from the attitude questionnaire. The analysis was based on the ranking items of students' preference on four subtitled videos and their written response from the open-ended questions. Main themes related to research objectives were analyzed and concluded from students' questionnaire data.

Result

Preliminary data analysis, a reliability estimate, was conducted to measure how reliable each vocabulary and comprehension test was and how reliable the tests were in general. As illustrated on Table 3, the Cronbach's alpha was .666 for total vocabulary tests, and .815 for the total comprehension tests. The total four listening tests which consisted of four vocabulary and four comprehension tests had a Cronbach's alpha of .800, which is considered reliable (Field, 2009). Although the reliability for vocabulary test 2, 3, and 4 was comparatively low, one could argue that there was only 5 items in each vocabulary test and the Cronbach's alpha may be lower due to the number of the items. Additionally, the purpose of the study was to find the most effective subtitles on students listening comprehension, all participants did all the vocabulary and comprehension tests in different subtitled order. The tests were reliable in terms of the total tests and, therefore, were worth investigating the effectiveness of subtitles for students' listening skills.

Table 3.

Reliability estimates (Cronbach's alpha) for vocabulary and comprehension tests.

Listening Tests	Vocab. (5 items)	Comp. (5 items)	Total for test (10 items)
Listening Test 1 (Video 1)	.578	.641	.733
Listening Test 2 (Video 2)	.245	.613	.450
Listening Test 3 (Video 3)	.473	.536	.622
Listening Test 4 (Video 4)	.187	.484	.386
Totals for vocab/comp. tests (20 items) and totals for all listening tests (40 items)	.666 (for all the vocabulary tests, 20 items)	.815 (for all the comprehension tests, 20 items)	.800 (for all 40 items)

Research Question 1: What Is the Most Effective Subtitle Condition on Students' Vocabulary Learning?

In order to answer the first research question, I needed to first examine whether different subtitles would matter in terms of students' vocabulary gaining while watching the video clips. Therefore, I performed the 4 by 4 mixed design on students' vocabulary scores. As shown in Table 4, Chinese students performed significantly differently in four different subtitles in vocabulary. F (3, 76) =18.104, P<.001. z=.192. This means that when Chinese EFL learners watch American TV series, different conditions of subtitles do have different influences on their improvement and learning of vocabulary.

A close look into the descriptive statistics and marginal means of students' performance in vocabulary in four subtitle conditions will give us information about the most effective subtitled condition. Table 5 presented the descriptive statistics of vocabulary mean score and standard deviation in subtitle conditions and in groups. Table 6 presented the estimated marginal means of vocabulary mean score and standard deviation in different subtitle conditions. Table 8 presented the estimated marginal mean of vocabulary mean score and standard deviation in different groups. The marginal which calculated the overall mean score for each subtitle treatment is the main effect of subtitle condition. The marginal means which calculated the general mean score for each group is the main effect of group. To make my illustration clearer, I put the students' vocabulary mean score and the standard deviation of each group and condition on Table 8. I also put the average/marginal mean score and average/marginal standard deviation of the four groups and four subtitle conditions in Table 8. To answer research question one, as shown in Table 8, in general, the most effective subtitle condition is dual subtitle (M=3.38, SD=.11). The least effective subtitle condition is no subtitle (M=2.39, SD=.12).

Because students' performance on the four subtitle conditions are significantly different, to further compare the effects of 4 subtitle conditions and to look at which subtitle condition students performed better on, I performed a post hoc test, multiple comparison Bonferroni. As shown in Table 9, students' vocabulary scores under no subtitle treatment were found to be significantly different to other three subtitle treatment (Chinese, English, and dual). This makes sense because students who watched TV with no subtitles could only interpret the unknown vocabulary through the content and context of the video clip. They could only guess the meaning of the word by sound, gestures, and content. However, the dual subtitles, which offers Chinese translation and English original sentences at the bottom of the screen, is more useful for learners. Students can learn the meaning of the word much easier with the translation than solely watching the videos. However, no significant difference was found between Chinese and English subtitles, Chinese and dual subtitles, dual and English subtitles. This suggests that students overall didn't show great differences in vocabulary performance when they watched dual, Chinese, and English subtitle. As the marginal mean and standard deviation shown in Table 8, dual subtitle treatment (M=3.38, SD=.11) performed moderately higher than Chinese subtitle treatment (M=3.08, SD=.10), and Chinese subtitles treatment performed slightly higher than English subtitled treatment. (M= 3.03, SD=.11).

This also raises an interesting point that dual subtitles, which require students to watch the video, listen to the audio, and read the two subtitles concurrently, didn't seem to distract students from learning the vocabulary. On the contrary, students' improvement of vocabulary was the most effective in the dual subtitled treatment.

In the meantime, readers of this thesis should acknowledge that the marginal means and standard deviation were the mean score for all eighty participants and the post hoc test of

comparison among four subtitles were the overall effectiveness of subtitle condition for all participants. Because four groups (20 in each group) have differently proficiency levels, the result does not mean that all the four groups performed the same in different subtitled treatments. The mean score and performance for each group may vary based on their different proficiency levels. Some groups may perform much better or lower in one subtitle and make the overall average score higher or lower. As shown in Table 5, even though overall students watch dual subtitle videos performed better in vocabulary learning than in the other three subtitled conditions (M=3.38, SD=.11), the four groups who have seen the four video conditions all have different performance in vocabulary score. FreshmanClass1 performed much higher in dual subtitle (M=3.88, SD=1.20) than no subtitle (M=1.90, SD=.84), whereas the junior undergraduate student group performed almost equally among the Chinese (M=3.03, SD=.77), English (M=3.05, SD=1.09), dual (M=3.15, SD=1.16) subtitle conditions. Surprisingly, junior students (M=3.85, SD=1.13) performed slightly higher score in vocabulary in the no subtitled treatment (M=3.85, SD=1.13) than when they were watching video with Chinese subtitle (M=3.03, SD=.77), English (M=3.05, SD=1.09), dual (M=3.15, SD=1.16). This may due to the fact that learners are in their third-year of undergraduate study and they may have already learned the vocabulary tested in listening test 4. Therefore, it's possible that the vocabulary in the video tested happen to be the words they know and they performed better in the no subtitle treatment. The first year graduate students who are also English majors in the same university performed the best in Chinese subtitle (M=4.4, SD=.88), and they performed almost the same in English (M=3.4, SD=.70), Dual (M=3.68, SD=.77), No subtitle (M=3.28, SD=1.11). This may be because the graduate students' English has already been in a certain level and whether or not having subtitles don't influence their vocabulary learning much. This further indicates that

different proficiency level of students has different performance in vocabulary score. I will discuss the influence of proficiency levels in detail in the presentation of the results pertaining to the third research question.

Table 4.

Test of the effects of subtitle conditions across all participants in vocabulary.

Source		Condition III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
SubCondition	Sphericity Assumed	41.219	3	13.740	18.104	.000	.192
	Greenhouse-Geisser	41.219	2.896	14.231	18.104	.000	.192
	Huynh-Feldt	41.219	3.000	13.740	18.104	.000	.192
	Lower-bound	41.219	1.000	41.219	18.104	.000	.192
Error(SubCondition)	Sphericity Assumed	173.031	228	.759			
	Greenhouse-Geisser	173.031	220.133	.786			
	Huynh-Feldt	173.031	228.000	.759			
	Lower-bound	173.031	76.000	2.277			

Table 5.

Descriptive statistics of vocabulary score in subtitle conditions and in groups

	Group	Mean	Std. Deviation	N
ChineseSubtitlesVocab.	1stGrad	4.400	.8826	20
	FreshmanClass1	2.275	1.0818	20
	FreshmanClass2	2.600	.7363	20
	Junior	3.025	.7691	20
	Total	3.075	1.1856	80
EnglishSubtitlesVocab	1stGrad	3.400	.6996	20
	FreshmanClass1	2.400	.9814	20
	FreshmanClass2	3.250	1.0195	20
	Junior	3.050	1.0870	20
	Total	3.025	1.0154	80
DualSubtitlesVocab	1stGrad	3.675	.7656	20
	FreshmanClass1	3.875	1.2017	20
	FreshmanClass2	2.825	.8777	20
	Junior	3.150	1.1596	20
	Total	3.381	1.0828	80
NoSubtitlesVocab	1stGrad	3.275	1.1059	20
	FreshmanClass1	1.900	.8367	20
	FreshmanClass2	.550	.6669	20
	Junior	3.850	1.1251	20
	Total	2.394	1.5905	80

Table 6.

Estimated marginal means of vocabulary score in four subtitle conditions

			95% Confidence Interval	
Subcondition	Mean	Std. Error	Lower Bound	Upper Bound
1	3.075	.098	2.880	3.270
2	3.025	.107	2.812	3.238
3	3.381	.114	3.155	3.608
4	2.394	.107	2.182	2.606

Table 7.

Estimated marginal means of vocabulary score in four groups

			95% Confidence Interval	
Group	Mean	Std. Error	Lower Bound	Upper Bound
1stGrad	3.688	.130	3.428	3.947
FreshmanClass1	2.613	.130	2.353	2.872
FreshmanClass2	2.306	.130	2.047	2.566
Junior	3.269	.130	3.009	3.528

Table 8.

Students' vocabulary performance in subtitle conditions and in groups

Groups	Subtitle Condition						Marginal Means for groups	
	Chinese Subtitle (Condition 1)		English Subtitle (Condition 2)		Dual Subtitle (Condition 3)		No subtitle (Condition 4)			
	M	SD	M	SD	M	SD	M	SD	M	SD
FreshmanClass 1	2.28		2.40		3.88		1.90	.84	2.61	
	1.08		.98		1.20				.13	
Junior	3.03	.77	3.05		3.15		3.85		3.27	
			1.09		1.16		1.13		.13	
1stGrad	4.4	.88	3.4		3.68		3.28		3.69	
			.70		.77		1.11		.13	
FreshmanClass 2	2.60		3.25		2.83		.550	.67	2.31	
	.74		1.02		.88				.13	
Marginal Means for subtitle conditions	3.08		3.03		3.38		2.39	.12		
	.10		.11		.11					

Table 9.

Comparing subtitle conditions in vocabulary performance

(I) Subcondition	(J) Subcondition	Mean Difference (I-J)	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
					Lower Bound	Upper Bound
1	2	.050	.129	1.000	-.300	.400
	3	-.306	.144	.216	-.695	.083
	4	.681*	.128	.000	.336	1.027
2	1	-.050	.129	1.000	-.400	.300
	3	-.356	.134	.058	-.720	.007
	4	.631*	.143	.000	.245	1.018
3	1	.306	.144	.216	-.083	.695
	2	.356	.134	.058	-.007	.720
	4	.987*	.148	.000	.586	1.389
4	1	-.681*	.128	.000	-1.027	-.336
	2	-.631*	.143	.000	-1.018	-.245
	3	-.987*	.148	.000	-1.389	-.586

Note. The analysis is based on estimated marginal means. It is for multiple comparisons: Bonferroni.

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

Research Question 2: What Is the Most Effective Subtitle Condition on Students' Listening Comprehension?

To answer research question 2, I needed to first find whether different subtitle conditions would have different influence on students' listening comprehension when they watched the video clips. Therefore, I performed 4 (groups) by 4 (subtitle conditions) mixed design on students' listening comprehension. As shown in Table 10, students performed significantly different in the four subtitle conditions in listening comprehension. $F(3, 76) = 21.114$, $p<.001$, $z=.217$. This suggests that four different subtitle conditions do have different influence on Chinese EFL learners' performance on listening comprehension.

To understand information about the most effective subtitle condition, we need to look at the descriptive statistics and marginal means of students' performance in listening comprehension in four subtitled treatments. Table 11 is the descriptive statistics of comprehension mean score and standard deviation in subtitle conditions and in groups. Table 12 presented the estimated marginal/average means of comprehension mean score and standard deviation in four different subtitle conditions. Table 13 presented the estimated marginal/average means of comprehension mean score and standard deviation in four different groups. Table 14 gives an overall view of all the information showed in Table 11, 12, and 13. To answer research question two, as shown in Table 14, the most effective subtitle condition in general is dual subtitle (M=3.48, SD=1.05) and Chinese subtitle (M=3.47, SD= .98), the least effective condition for listening comprehension is no subtitle (M= 2.70, SD= 1.18).

Since students' performance on the four conditions are all significantly different, to further compare the effects of 4 subtitle conditions and find which condition students performed better on in listening comprehension, a post hoc test, multiple comparison Bonferroni, was performed. As shown in Table 15, significant differences were found between Chinese and English subtitle, Chinese and no subtitle, English and no subtitle. No significant differences were found between Chinese and dual subtitle condition. This suggests that students who watched video clips with dual subtitle (M=3.47, SD= .98) and Chinese subtitle (M=3.47, SD= .98) performed equally the same. They significantly outperformed English subtitle condition ($P<.05$) and no subtitle condition ($P<.001$). Students who watched English subtitles (M= 3.01, SD= 1.1) performed significantly higher than no subtitles (M=2.70, SD=1.18, $P<.001$). The result that students who watched dual and Chinese subtitle performed almost the same suggests that in general students can comprehend an American video almost at the same level either watching

only L1 language subtitles or L1 with the addition of an L2 English translation. Only L2 English subtitles are not as effective as L1 Chinese subtitles in terms of comprehension. The four videos' soundtrack were all in L2 English, however, when the sound of the video and the subtitle were in the same language, it seemed not as helpful as when the sound of the video and the subtitle were in different languages.

This may due to the reason that students' overall proficiency level was not as proficient as native speakers or high advanced L2 English students, and because of that, the students still needed to look at the Chinese translation to help them understand the content of the video.

Additionally, researchers should also take into account of the group differences. In particular, researchers need to consider the marginal/average means and standard deviations for all eighty participants. The post hoc test comparison gave the overall effectiveness of subtitles for all the participants. This does not mean that all the groups performed the same in the listening test in four subtitle conditions. As shown in Table 15, even though overall dual and Chinese subtitle conditions promoted higher scores than English and no subtitle, freshmanClass2 performed higher with dual subtitles (M=3.28, SD=.75) than with Chinese subtitle (M=2.78, SD=.72). Furthermore, freshmanClass2 performed slightly higher with English subtitles (M=2.88, SD=2.78) than Chinese subtitles. Junior students performed better with Chinese (M=3.33, SD=.86) than with English (M=2.5, SD=1.16) and dual subtitles (M=2.60, SD=1.19).

Surprisingly, freshmanClass1 performed very well with dual subtitles (M=4.23, SD=.62). They performed even slightly better than with Chinese subtitles (M=3.68, SD=1.22), and much better than with English subtitles (M=3.33, SD=1.41). The average score of comprehension from the freshmanClass1 (M=3.73, SD=.16) was even better than that of first year graduate students (M=3.44, SD=.16). I rechecked the data collected during the summer; the number I put in the

data base was accurate. I argue that the reason why freshmanClass1 performed better than 1st year graduate students in no subtitle treatment may due to the ordering effect or students' proficiency. FreshmanClass1 watched the four videos in the order as follows: Chinese, English, dual, no subtitle. Because the four videos were derived in a sequenced episode, the no subtitle treatment was last viewed by the participants in group one. Students may be able to understand the last video better because they were already familiar with the content by watching the first three videos. Even though they still needed to comprehend the detailed information in the fourth video to answer the test, it may still be easier for them due to familiarity. Comparing to 1st year graduate students, they also did fairly well across four subtitles: Chinese (M=4.1, SD=.53), English (M=3.4, SD.70), dual (M=3.80, SD=.82), no (M=3.28, SD=1.11), however, they are group three and watched the four videos in the following order: Dual, no, Chinese, English. In this case, no subtitle was viewed second, some readers may think that students may not be very familiar with the content and, therefore, didn't achieve a higher score in the no subtitle treatment (M=3.28, SD= 1.11) over that of the undergraduate freshmen (M=3.79, SD=2.28). However, I argue that the order of the subtitled videos is counterbalanced and students were in different years of school, which indicates that their proficiency is an important indicator of different comprehension scores, not the group order. It is not likely that the order of subtitle conditions played a factor in students' listening comprehension score. Therefore, freshmanClass1 students' higher performance in no subtitled treatment may due to the fact that they also have very good English as 1st year graduate students do. Freshman students may receive more language training, tests, having more English courses every day from the teacher. They are more exposed to the language and also, therefore, performed well in the no subtitle treatment. FreshmanClass2 didn't have the same teacher who focused a lot on language training as class 1, which may be why the

average score of class 2 (M=3.73, SD=2.69) outperformed class 1 (M=2.69, SD=.16)

As illustrated above and as we observed from Table 8 and Table 15, students' performance not only differs in subtitle conditions but also in groups. Four groups that represent four different English proficiency levels performed differently in vocabulary learning and comprehension. Therefore, it is also essential to look at the role of group proficiency in watching subtitles. We will now turn to the third research question which looked at whether students with different English proficiency would perform differently in four subtitle treatments.

Table 10.

Test of the effects of subtitle conditions across all participants in comprehension

Source		Condition III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
SubCondition	Sphericity Assumed	34.227	3	11.409	21.114	.000	.217
	Greenhouse-Geisser	34.227	2.967	11.537	21.114	.000	.217
	Huynh-Feldt	34.227	3.000	11.409	21.114	.000	.217
	Lower-bound	34.227	1.000	34.227	21.114	.000	.217
Error(SubCondition)	Sphericity Assumed	123.203	228	.540			
	Greenhouse-Geisser	123.203	225.469	.546			
	Huynh-Feldt	123.203	228.000	.540			
	Lower-bound	123.203	76.000	1.621			

Table 11.

Descriptive statistics of comprehension score in subtitle conditions and in groups

	Group	Mean	Std. Deviation	N
ChineseSubtitlesComp.	1stGrad	4.100	.5282	20
	FreshmanClass1	3.675	1.2169	20
	FreshmanClass2	2.775	.7159	20
	Junior	3.325	.8626	20
	Total	3.469	.9819	80
EnglishSubtitlesComp.	1stGrad	3.400	.6996	20
	FreshmanClass1	3.325	1.4075	20
	FreshmanClass2	2.875	.8252	20
	Junior	2.450	1.1574	20
	Total	3.012	1.1080	80
DualSubtitlesComp	1stGrad	3.800	.8176	20
	FreshmanClass1	4.225	.6172	20
	FreshmanClass2	3.275	.7518	20
	Junior	2.600	1.1877	20
	Total	3.475	1.0491	80
NoSubtitlesComp	1stGrad	2.450	.6669	20
	FreshmanClass1	3.700	1.1169	20
	FreshmanClass2	1.825	1.0672	20
	Junior	2.825	1.0036	20
	Total	2.700	1.1789	80

Table 12.

Estimated marginal means of comprehension score in four subtitle conditions

			95% Confidence Interval	
Subcondition	Mean	Std. Error	Lower Bound	Upper Bound
1	3.469	.097	3.275	3.662
2	3.013	.118	2.777	3.248
3	3.475	.097	3.281	3.669
4	2.700	.110	2.482	2.918

Table 13.

Estimated marginal means of comprehension score in four subtitle conditions

			95% Confidence Interval	
Group	Mean	Std. Error	Lower Bound	Upper Bound
1stGrad	3.438	.157	3.125	3.750
FreshmanClass1	3.731	.157	3.419	4.044
FreshmanClass2	2.688	.157	2.375	3.000
Junior	2.800	.157	2.487	3.113

Table 14.

Students' comprehension performance in subtitle conditions and in groups

Groups	Subtitle Condition								Marginal Means for groups	
	Chinese Subtitle (Condition 1)		English Subtitle (Condition 2)		Dual Subtitle (Condition 3)		No subtitle (Condition 4)			
	M	SD	M	SD	M	SD	M	SD	M	SD
FreshmanClass 1 (Group one)	3.68	1.22	3.33	1.41	4.23	.62	3.79	1.12	3.73	.16
Junior (Group two)	3.33	.86	2.5	1.16	2.60	1.19	2.83	1.10	2.8	.16
1stGrad (Group three)	4.1	.53	3.4	.70	3.80	.82	3.28	1.11	3.44	.16
FreshmanClass 2 (Group 4)	2.78	.72	2.88	.83	3.28	.75	1.83	1.07	2.69	.16
Marginal Means for subtitle conditions	3.47	.98	3.01	1.1	3.48	1.05	2.70	1.18		

Table 15.

Comparing subtitle conditions in listening comprehension

(I) Subcondition	(J) Subcondition	Mean Difference (I-J)	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
					Lower Bound	Upper Bound
1	2	.456*	.116	.001	.143	.770
	3	-.006	.122	1.000	-.337	.324
	4	.769*	.110	.000	.471	1.066
2	1	-.456*	.116	.001	-.770	-.143
	3	-.462*	.116	.001	-.778	-.147
	4	.313*	.114	.046	.003	.622
3	1	.006	.122	1.000	-.324	.337
	2	.462*	.116	.001	.147	.778
	4	.775*	.119	.000	.453	1.097
4	1	-.769*	.110	.000	-1.066	-.471
	2	-.313*	.114	.046	-.622	-.003
	3	-.775*	.119	.000	-1.097	-.453

Note. The analysis is based on estimated marginal means. It is for multiple comparisons: Bonferroni.

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

Research question 3. Will Students Perform Differently Across the Four subtitled Conditions Depending on Their Proficiency Level?

The answer for research question 3 is yes. Students with different proficiency levels performed differently across the four conditions. First, I examined the effects of group differences in students' vocabulary and comprehension performance. If it was found to be significantly different, we then I would use post hoc tests to compare the differences among groups.

The between subject-within subject ANOVA revealed the effects of group differences in students' vocabulary and comprehension performance. This four (groups) by four (subtitle conditions) mixed ANOVA was already performed to answer the previous two questions. Thus, I can draw from the descriptive statistics found in the analysis to answer the effects of group differences.

The effect of group differences in vocabulary tests. Table 8 presents the descriptive statistics and average means of students' vocabulary performance in subtitle condition as well as in groups. We have analyzed the statistics in the previous two research questions to answer the effectiveness of the subtitle conditions. Average/Marginal means for groups indicated on the right side of the Table were calculated based on the vocabulary score in four subtitled treatments. The marginal means shows us the effects of four groups in vocabulary performance. As presented in Table 8, first year graduate student achieved the overall highest score (M=3.69, SD=.13), higher than the other three groups in vocabulary tests. Juniors received the second highest score (M=3.27, SD=.13), followed by freshmenClass1 (M=2.61, SD=.13); the lowest score was obtained by freshmanClass2 (M=2.31, SD=.13). This suggested that in general advanced level students performed higher than lower level students in vocabulary tests. This may be due to two reasons. One is that advanced students understood more words than lower EFL learners before watching the video clips. The other reason is that advanced students acquire more strategies in learning and watching American video clips, therefore, they learn new words more quickly than lower level students. However, I should acknowledge that the marginal means for the groups only indicate the overall mean score of the groups. It doesn't mean that one group performed better than another group in all four conditions.

I found significant differences among subtitle conditions from the previous two research questions. Therefore, it is also important to consider the differences of subtitle condition when discussing about the influence of group differences. More specifically, one can see from Table 8 that even though 1st year graduate student performed highest in terms of the overall score, they had a lower score (M=3.68, SD=.77) than freshmanClass1 (M=3.88, SD=1.20) in dual subtitle treatment. They also had a lower score (M=3.28, SD=1.11) than Juniors (M=3.85, SD=1.13) in

the no subtitle condition.

This suggests that advanced EFL students did better than lower level students in only Chinese subtitle and only English subtitle treatment, but not in dual subtitle treatment and no subtitle treatment. It is not very surprising in that I have already found that students performed significantly differently in dual subtitle treatment and no subtitle treatment. The reasons why lower level English learners slightly performed better than 1st year graduate students in dual or no subtitle treatment may be due to several factors. FreshmanClass1 students may pay more attention to the dual subtitle, as it is more difficult for them to comprehend, so they relied more on subtitles and performed slightly higher (M=3.88, SD=1.20) than 1st year graduate students (M=3.68, SD=.77). Additionally, they watched the dual subtitle in the third place of the videos, when they had already seen the first two video clips of the TV episode; the 1st year graduate students watched dual subtitle in the first place when no previous video has been introduced. The ordering effect may influence students in some way. However, I argue that the order should not make a difference in terms of taking the tests. If the order had an effect, freshmanClass1 which watched no subtitled treament in the last order should have performed relatively better with no subtitles, but instead they did worse than other subtitle treatments. As shown in Table 8, they performed lower (M=1.90, SD=.84) compared to their performance in Chinese subtitles (M=2.28, SD=1.08), English (M=2.40, SD=.98), and dual (M=3.88, SD=1.20). They also did poorly across groups in the same no subtitled condition. Compared to the other two advanced groups in watching videos without subtitles: Junior (M=3.85, SD=1.13), first year Graduate student (M=3.28, SD=1.11). It reveals that students' performance is normal and is not influenced by the order of subtitles presented to them. Therefore, it is likely that the group effect is due to students' different proficiency levels, rather than due to the order of the video clips.

For the junior undergraduate students, they had slightly lower scores (M=3.05, SD=1.09) than freshmanClass2 (M=3.25, SD=1.02) in the English subtitle treatment. They performed less satisfactorily (M=3.15, SD=1.16) than freshmanClass1 (M=3.88, SD=.98) in the dual subtitled treatment. They also slightly outperformed (M=3/85, SD=1.13) first year graduate students (M=3.28, SD=1.11) in no subtitles.

When it comes to freshmanClass1, they performed slightly lower (M=2.28, SD=1.08) than freshmanClass2 in Chinese subtitles (M=2.60, SD=.74). However, they outperformed (M=3.88, SD=1.20) the other three groups in dual subtitle treatment. They also performed higher (M=1.90, SD=.84) than freshmanClass2 (M=.550, SD=.67).

For the freshmanClass2, they performed higher than freshmanClass1 when they saw the video with the Chinese subtitles. They also performed higher than freshmanClass1 (M=2.40, SD=.98) and junior (M=3.05, SD=1.09) when they saw the English subtitles. However, they performed the lowest in the dual (M=2.83, SD=.88) and no subtitle treatments (M=.550, SD=.67).

These results revealed that students with different English levels performed differently in different subtitled conditions. Therefore, when looking at the overall effects of group differences, I should also take into account that individual group performance varies with different subtitle conditions. Figure 2 presents a chart of students' vocabulary performance in subtitle conditions and groups. In terms of the different treatment, when watching the video with only Chinese subtitle, first year graduate students did better, followed by junior students, and then freshmanClass2, and freshmanClass1. The vocabulary score varies a lot in the Chinese subtitle condition, ranging from 2 to 4.5 out of 5 points. 1st year graduate students did extremely well with the Chinese subtitles. When watching video with only English subtitles, the four groups

performed within a small range from 2.0 to 3.5 points. First year graduate students still performed slightly better than other three groups. When watching the video with dual subtitles, the four groups all performed within a small range, from 2.5 to 4 points. When watching the video with no subtitles, there is a large variance among the four groups' vocabulary performance. Their score ranges from 0.5 to 4 points.

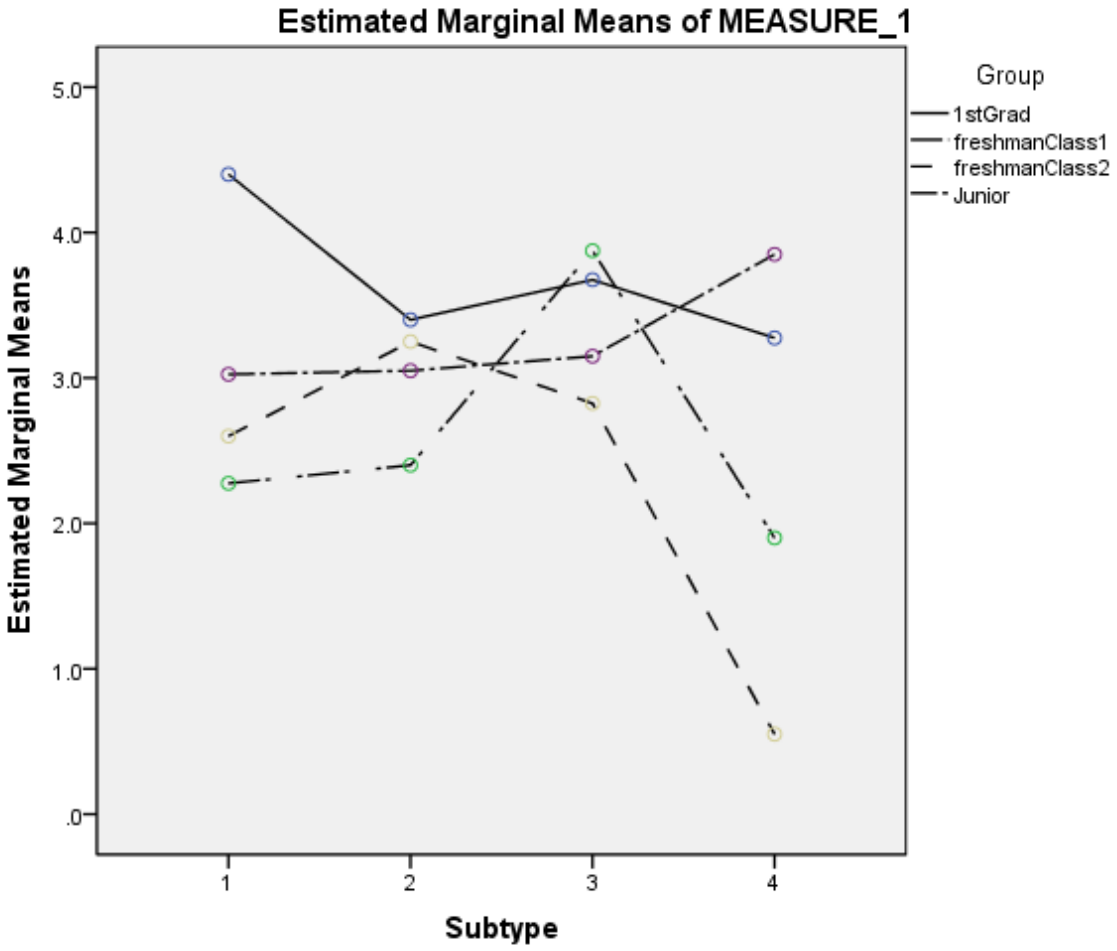
In terms of different proficiency levels, as presented in Figure 2, first year graduate student did best when watching Chinese subtitles, followed by dual subtitles, English, and no subtitles. Junior students did best in watching no subtitles, followed by dual, English, and Chinese. FreshmanClass1 did best when watching dual subtitles, followed by English, Chinese, and no subtitles. FreshmanClass2 did best watching English subtitles, followed by dual, Chinese, and no subtitles. One can also see from the curve that when watching videos with dual subtitles and no subtitles, freshmanClass1 and freshmanClass2's results are paralleled, which means that their vocabulary scores are consistent. They both performed much better in the dual subtitle treatment than with no subtitles.

Comparing four Group (proficiency) differences in vocabulary performance. A post hoc test. Because students' performance on the four groups were significantly different, to further compare the effects of 4 groups and to look at which group performed best in vocabulary gaining and listening comprehension, I ran a post hoc test, multiple comparisons, using Bonferroni (See Table 16).

Table 16 presents the post hoc test of comparing group differences on vocabulary performance. There is a significant difference between 1st year graduate students and freshmanClass1 ($p<.001$), That is, freshmanClass1 ($M=2.61$, $SD=.13$) performed significantly lower than first year graduate students ($M=3.69$, SD-.13). There is also a significant difference

between first year graduate students and freshmanClass2 ($p<.001$). That is, freshmanClass2 performed significantly lower than 1st year graduate students. Additionally, a significant difference was also found between freshmanClass1 and Juniors ($p<.05$), which means freshmanClass1 ($M=2.61$, $SD=.13$) performed significantly lower than Juniors ($M=3.27$, $SD=.13$). Another significant difference was found between freshmanClass2 and Juniors ($p<.001$) which means that freshmanClass2 ($M=2.31$, $SD=.13$) performed significantly lower than the Juniors did ($M=3.27$, $SD=.13$). No significant difference was found between junior undergraduate students and first year graduate students. No significant difference was found between the two freshman classes on their vocabulary tests.

Figure 2. Students' vocabulary performance in four groups and in four subtitle conditions.



Subtitle condition1: Chinese subtitle. Subtitle condition 2: English subtitle.

Subtitle condition 3: Dual subtitle. Subtitle condition 4: No subtitle

Table 16.

Comparing group differences (proficiency) in vocabulary performance

(I) Group	(J) Group	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
1stGrad	FreshmanClass 1	1.075*	.1842	.000	.576	1.574
	FreshmanClass 2	1.381*	.1842	.000	.882	1.880
	Junior	.419	.1842	.155	-.080	.918
FreshmanClass 1	1stGrad	-1.075*	.1842	.000	-1.574	-.576
	FreshmanClass 2	.306	.1842	.603	-.193	.805
	Junior	-.656*	.1842	.004	-1.155	-.157
FreshmanClass 2	1stGrad	-1.381*	.1842	.000	-1.880	-.882
	FreshmanClass 1	-.306	.1842	.603	-.805	.193
	Junior	-.963*	.1842	.000	-1.462	-.463
Junior	1stGrad	-.419	.1842	.155	-.918	.080
	FreshmanClass 1	.656*	.1842	.004	.157	1.155
	FreshmanClass 2	.963*	.1842	.000	.463	1.462

Note. Based on observed means. The error term is Mean Square(Error) = .339.

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

The effect of group differences in comprehension tests. After discussing the effects of group differences in vocabulary tests and compare four different proficiency level students' vocabulary performance, I now analyze findings derived from the listening comprehension tests. I will first discuss the effects of group differences and then talk about the post hoc test conducted for the comparison of four groups.

Table 14 presents the descriptive statistics and average means of students' comprehension performance in subtitle condition as well as in groups. I have talked about the findings of the effectiveness of the subtitle condition in comprehension scores in the previous two research questions. I now draw from Table 14 to look at the effects of group differences. The

average/marginal mean on the right side of the Table presents the average comprehension score among four subtitled treatments. The average scores indicate the effects of four group differences on listening comprehension. As presented in Table 14, to my surprise, in general, freshmanClass1 students achieved the highest score among the four groups (M=3.73, SD=.16) followed by 1st year graduate students (M=3.44, SD=.16), juniors (M=2.8, SD=.16), and freshmanClass2 (M=2.96, SD=.16). I argue that the reason for this may be because students in freshmanClass1 received more intensive training during their first year of study in the fundamental English course and listening courses, whereas, first year graduate students had less class every week and focused more on doing research. As an undergraduate alumni from this university, I am familiar with the courses they took and the instructors they had. The teacher in freshmanClass1 paid a lot more attention on reinforcing and practicing English in and outside of class than the teacher in freshmanClass2. Therefore, the freshmanClass1 overall did the best in comprehension than other groups. It may also due to the ordering effect that the combination of the order following Chinese, English, dual, and then no subtitle is the most effective in listening comprehension which may be why students in freshmanClass1 performed the best in the average comprehension score. Except for the result that FreshmanClass1 performed higher than the two advanced EFL groups seemed surprising, the results of the other groups appeared to be normal in that overall first year graduate students had higher scores than juniors, and junior students outperformed freshmanClass2.

In the meantime, I should note that the effects of group differences only showed the overall comprehension performance among four groups. Different groups may perform differently in the four subtitled treatment which is why it is very important to also look into the different group performance in the four subtitle conditions when we discuss the group effects.

For the first year graduate students, they outperformed (M=4.1, SD=.53) the other three groups, freshmanClass1 (M=3.68, SD=1.22), junior (M=3.33, SD=.86), and freshmanClass2 (M=2.78, SD=.72) in Chinese subtitled treatment. They outperformed freshmanClass1 (M=3.33, SD=1.41), freshmanClass2 (M=2.88, SD=.83), and junior (M=2.5, SD=1.16) in English subtitled treatment. Even though 1st year graduate students performed slightly lower (M=3.44, SD=.16) than freshmanClass1 (M=3.73, SD=.16) in the overall comprehension performance, the graduate students performed better than freshmanClass1 in Chinese subtitled treatment. However, they performed less satisfactory (M=3.80, SD=.82) than freshmanClass1 (M=4.23, SD=.62) in dual subtitled treatment. They also had less score (M=3.28, SD=1.11) than freshmanClass1 (M=3.79, SD=1.12) in no subtitled treatment.

When it comes to junior undergraduate students, they had lower score (M=3.33, SD=.86) than freshmanClass1 (M=3.68, SD=1.22) in Chinese subtitle condition. They performed less satisfactory than freshmanClass1 (M=3.33, SD=1.41) and freshmanClass2 (M=2.88, SD=.83) in English subtitle condition. They also didn't do well (M=2.60, SD=1.19) in dual subtitle condition compared to freshmanClass1 (M=4.23, SD=.62) and freshmanClass2 (M=3.28, SD=.75). In no subtitle condition, they did worse than freshmanClass1 (M=3.79, SD=1.12), but did better than freshmanClass2 (M=1.83, SD=1.07).

When it comes to freshmanClass1, they did better (M=3.68, SD=1.22) than Junior (M=3.33, SD=.86) and freshmanClass2 (M=2.78, SD=.72) in Chinese subtitle condition. When watching video with only English subtitle, freshmanClass1 did better than junior (M=2.5, SD=1.16) and freshmanClass2 (M=2.88, SD=.83). While watching video with dual subtitle, freshmanClass1 outperformed (M=4.23, SD=.62) other three groups, freshmanClass2 (M=3.28, SD=.75), junior (M=2.60, SD=1.19), and 1st year graduate students (M=3.80, SD=.82). When

watching video without subtitle, freshmanClass1 outscored (M=3.79, SD=1.12) other three groups, first year graduate students (M=3.28, SD=1.11), junior (M=2.83, SD=1.10), and freshmanClass2 (M=1.83, SD=1.07)

For freshmanClass2, they had the lowest score (M=2.78, SD=.72) in Chinese subtitled treatment compared to other groups. However, they (M=2.88, SD=.83) outperformed junior (M=2.5, SD=1.16) in English subtitled treatment. They (M=3.28, SD=.75) also outperformed junior (M=2.60, SD=1.19) in the dual subtitled treatment. They performed extremely low in the no subtitled treatment (M=1.83, SD=1.07)

These results suggest that students in different group performed differently in different subtitled treatments. I should not only look at the overall performance in each group, but also take four subtitled treatments into consideration while discussing the effectiveness of proficiency level in students' comprehension performance. I can also see that even though there are differences among subtitle conditions as well, students' comprehension performance were quite consistent in their performance across subtitle conditions based on their proficiency levels and the English training they received (shown in Figure 3). For instance, freshmanClass1 performed consistently well across four subtitle conditions ranging from score of 3.5 to 4.5 out of 5 points. FreshmanClass2 performed consistently poor across four subtitle conditions ranging from 1.5 to 3.5 out of 5 points. First year graduate student performed consistently well ranging from 3.5 to 4.5 out of 5 points.

Table 17 shows an overall view of all participants in different subtitle condition. As shown in Table 17, freshmanClass1, freshmanClass2, and 1st year graduate student have three almost parallel lines, which indicates students all performed with dual subtitled the best and no subtitled the worst. All participants' comprehension performance on Chinese subtitle ranges

from 2.5 to 4.5. Their performance on English subtitle has small variance ranging from 2.0 to 3.5. Their performance on dual subtitle has a larger variance range from 2.5 to 4.5. Their performance on no subtitle has the biggest variance ranging from 1.5 to 4.0. Additionally, we can see from the angle of the line that freshmanClass1 did extremely goo in the dual subtitled treatment. FreshmanClass2 did extremely worse in the no subtitled treatment.

It is noteworthy that though students performed differently in different subtitle condition, the tendency of their vocabulary and comprehension performance follows almost the same pattern. Comparing Figure 2 and 3, junior students have a tendency to perform better on the Chinese condition, then on the English, then dual, and then the no subtitles condition in the vocabulary performance. In the comprehension performance, they did very well in the Chinese subtitle, then went down to the English subtitle, then started a tendency to perform better with dual subtitles and no subtitles, while other groups' lines all have a tendency to go down from dual subtitles to no subtitles. Junior students performed better with no subtitles than dual subtitles in terms of both their vocabulary score and their comprehension score. It would be very interesting to look at their questionnaire and see if junior students' prefer to watch videos with no subtitles than with dual subtitles, and if other groups prefer to watch videos with dual subtitles than with no subtitles. Their attitude questionnaire towards different subtitled condition may shed light on the reason why students' performed better in one subtitled condition than another.

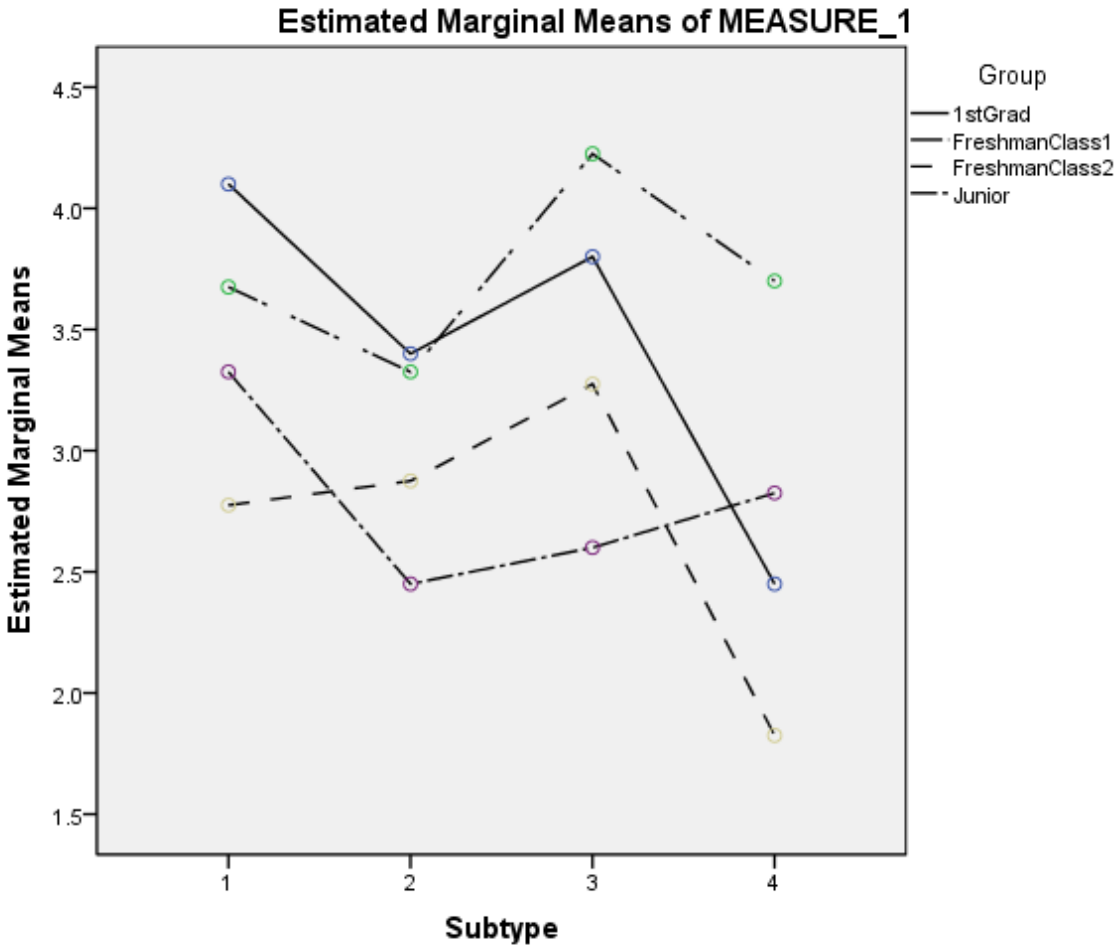
Compare four Group (proficiency) differences in comprehension performance. A post hoc test. After finding that there are differences among groups, a post hoc test (Table 16), multiple comparisons, was performed to compare the group performance in students' listening comprehension to one another.

As presented in Table 17, there is a significant differences between 1st year graduate

students and freshmanClass2 (P<.05), which means that in general 1st year graduate students (M=3.73, SD=.16) performed significantly better than freshmanClass2 (M=2.69, SD=.16). There is also a significant difference between freshmanClass1 and freshmanClass2 (p<.001), which means that freshmanClass1 (M=3.73, SD=16) performed significantly better than freshmanClass2 (M=2.69, SD=.16). As mentioned previously, the reason for the different performances between two freshmen groups may due to the different English training they received and their teaching methods used by their English instructor. Another significant difference was found between Junior and freshmanClass1 (P<.001) which indicates that juniors (M=2.8, SD=.16) had significantly lower score than freshmanClass1 (M=3.73, SD=.16)

No significant difference was found between first year graduate students and juniors, which means that first year graduate students and third year undergraduate students did almost the same in listening comprehension. No significant difference was found between first year graduate students and freshmanClass1. This reveals that first year graduate student and freshmanClass1 both performed well in the listening comprehension tests.

Figure 3. Students' comprehension performance in four groups and in four subtitle conditions.



Subtitle condition1: Chinese subtitle. Subtitle condition 2: English subtitle.

Subtitle condition 3: Dual subtitle. Subtitle condition 4: No subtitle

Table 17.

Comparing group differences (proficiency) in comprehension performance

(I) Group	(J) Group	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
1stGrad	FreshmanClass 1	-.294	.2220	1.000	-.895	.308
	FreshmanClass 2	.750*	.2220	.007	.149	1.351
	Junior	.638*	.2220	.032	.036	1.239
FreshmanClass 1	1stGrad	.294	.2220	1.000	-.308	.895
	FreshmanClass 2	1.044*	.2220	.000	.442	1.645
	Junior	.931*	.2220	.000	.330	1.533
FreshmanClass 2	1stGrad	-.750*	.2220	.007	-1.351	-.149
	FreshmanClass 1	-1.044*	.2220	.000	-1.645	-.442
	Junior	-.112	.2220	1.000	-.714	.489
Junior	1stGrad	-.638*	.2220	.032	-1.239	-.036
	FreshmanClass 1	-.931*	.2220	.000	-1.533	-.330
	FreshmanClass 2	.112	.2220	1.000	-.489	.714

Note. Based on observed means. The error term is Mean Square(Error) = .493.

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

Research Question 4. What Are Students' General Attitudes Towards the Four Subtitle Conditions?

When being asked about their general impression or comments on the subtitled American TV series they just watched, among the eighty participants, thirty-four students indicated that the videos were very funny and interesting. Four students said the subtitled TV series was easy to understand. Five students mentioned that the video is authentic and close to everyday life. Six students thought it was a good listening material. One student thought that the pronunciation was very clear. One student pointed out that the video was old. Students' general attitude towards the subtitled videos was positive.

This suggests that students were more likely to enjoy the video if it's authentic, close to everyday life, and interesting, as it can help to reduce their affective filter. Finding less difficult videos for students is also important to build their confidence and motivate them to learn. Therefore, videos that are authentic, easy to understand, and close to everyday life can be regarded as good and useful listening resources that most students would prefer to use to practice or improve their English. Most English teachers in China only use textbook audios that were made for English learning purposes. They should also recognize students' preference in choosing listening files and use enjoyable videos and authentic materials in the classroom to make the lesson more diverse and relaxing. It is also a good way to improve students' listening comprehension.

Attitude questionnaire one: When watching an American TV series at home, which one would you prefer? When being asked about which subtitle condition students would most and least prefer if they watch American TV series at home, sixty one (76 percent) students most preferred to watch videos with dual subtitles at home and least preferred to watch videos with no subtitles. This is consistent with their performance in the vocabulary and listening comprehension test. In the vocabulary test, students in the dual subtitled treatment performed higher than in the English subtitle, followed by Chinese, and then no subtitled treatment. In the listening comprehension test, students in the dual subtitled and Chinese subtitled treatment outscored English subtitle treatment, followed by no subtitled treatment. This suggests that students' overall preference towards watching subtitles is consistent with their general performance on vocabulary learning and comprehension.

However, the questionnaire also revealed some interesting findings that even though junior students performed slightly higher in vocabulary (M=3.85, SD=1.13) with no subtitles

conditions than the other three conditions, their comprehension score was also slightly higher with no subtitles (M=2.83, SD=1.10) than with English subtitles (M=2.5, SD=1.16) and dual subtitles (M=2.60, SD=1.19); all 20 participants in the junior group still prefered to watch dual subtitled videos than no subtitled videos. No subtitled video is the least they prefer when watching it at home. This may due to the fact that they are more comfortable in watching dual subtitles at home. One student said that "I am used to watching American TV series online without subtitles. Watching no subtitle will make me feel very unpleasant." The other student said that "you don't need to be too concentrated on the listening when watching dual subtitles. It's good for entertainment."

When stating the reason why students prefer watching American TV series with dual subtitle at home as their first option, they mentioned that dual subtitles make it easier to understand the plot and story of the video. Some answers about students' positive attitudes on watching dual subtitles are presented as follows:

"I'd like to see the films with dual subtitle because Chinese subtitle makes me understand all the stories and details. The English subtitle makes me know more native English."

"If there is both Chinese and English subtitle, I can understand it well."

Ten students mentioned that they can learn more words and expressions when watching with dual subtitles.

The reason why students don't like watching American TV series without subtitles are presented as follows:

"If there is no subtitle, I would feel less interested in watching the video."

"If there is no subtitle, maybe I will be confused and I will not enjoy the film."

Five students said: "I can hardly understand the TV series if there is no subtitle"

Nine students said: “No subtitles is difficult to understand”

Interestingly, six of the twenty 1st year graduate students mentioned that “dual subtitle can help them compare the Chinese translation and learn” One of them said, “I can pretty much understand the TV series without subtitle, but dual subtitle can be a good reference. It helps you to recheck things you are not sure and learn some unknown words.”

The 1st year graduate students are more advanced L2 EFL learners. They also choose dual subtitles as their first, most preferred option, however, their answers for choosing dual subtitle are somewhat different than the other three groups. They focused more on how they would use them to “compare” and “recheck” words or expressions they already know. Lower level learners choose dual subtitles as their first option because dual subtitle make the video much easier to understand. While lower level EFL students prefer to watch dual subtitles for entertainment, the 1st year graduate students were more aware of the advantages of dual subtitles and more motivated in learning unfamiliar words and expressions through comparing Chinese and English subtitles, and learning. This may also suggests a strategy that lower level EFL students can implement when watching dual subtitles. By watching dual subtitled American movies or TV series, students pay more attention to the use of English expressions and compare the two languages. As they write down notes about unknown words and new expressions, they are also learning and improving their English comprehension ability.

When talking about only Chinese or only English subtitle, students generally have a more positive attitude towards English subtitles than with Chinese subtitles. Twelve students mentioned that English subtitles can help them learn more authentic language. They can gain more knowledge about the use of English and how to accurately express oneself. Students generally think that English speaking film or TV series plus English subtitled is a good way to

help them learn the language. On the other hand, students think Chinese subtitles are not good for learning English. “You don’t use your brain when watching Chinese.” “If there is only Chinese subtitles, one may unconsciously look at the Chinese translation which will not help improve comprehension.” “Sometimes Chinese translation is not accurate.” Therefore, English subtitles are often the second choice students prefer to watch when at home.

Attitude question two: If watching a movie in an English listening class, which one do you think is more helpful for the improvement of your listening ability? When being asked about their preference in what condition of subtitle is the most and least helpful in improving their listening ability, students showed different, contradictory opinions on whether no subtitle is helpful or not. Twenty two out of eighty (28 percent) students think that no subtitle is the most helpful condition to improve their listening ability in that no subtitle helps them to pay more attention to the listening materials. Twenty four out (30 percent) of eighty students prefer dual subtitles as their first option. Six (7 percent) out of all students preferred English as the most helpful subtitle condition. Two out of all students (2 percent) preferred Chinese as the most helpful one. The rest of the students didn’t give a clear answer.

Among the 22 students who preferred no subtitles as their first option in improving their listening ability, ten students stated that no subtitle is more challenging. It forces the hearer to listen. One student said “you can’t use subtitle if you are practicing listening. Otherwise, you are reading the subtitle and not practice your listening.” Another student had a similar comment: “Without subtitle, students have to concentrate on listening and use their ears rather than their eyes.” To summarize students’ opinion, no subtitle makes students active listeners who don’t rely on reading either L1 or L2 subtitles to aid comprehension. While subtitles offer students opportunities to learn new words and expressions, no subtitle trained students to be more active.

Despite the fact that most students reported that they cannot fully understand videos without any subtitles, twenty eight percent of the students stated that no subtitles are their first option when it comes to improving their listening skills. Other students hold different views. Thirty percent of all students still prefer dual subtitles as their first option, as it's easier to understand, they reported. Twelve out of twenty 1st year graduate students thought that dual subtitle was the most helpful condition in improving their listening ability. As stated above, the reason for this is that students can compare and contrast the use of two languages. Students in lower proficiency levels generally prefer no subtitles as the most helpful in that it gives them more chances to practice their listening skills.

To conclude the findings from the questionnaire, most students, especially the higher English level students, had more positive attitudes towards dual subtitles when watching at home. When it comes to helpfulness of the subtitled videos, no subtitle was more preferred by most low level EFL students. Students showed more negative attitudes towards only Chinese subtitles, stating that they are not good for learning English. To some surprise, no students reported that dual subtitle is distracting; all students seemed to be able to handle the multimedia listening material involving audio, image, and two subtitles, and they actually preferred the dual subtitled condition as it gave them more information about the video, they reported.

Conclusions

Subtitles Helped Students' Vocabulary Learning and Listening Comprehension.

According to the results of the study, students who watched American TV series with subtitles (L1 Chinese, L2 English, Dual subtitles) performed significantly higher than watching TV clips without subtitles. This revealed that subtitles can aid vocabulary learning and comprehension. This was in line with previous studies which suggested the positive effects of subtitled videos in language learning (Brett, 1995; Chai & Eilam, 2008; Danan, 2004; Low & Chia-Tzu, 2012; Markham & Peter, 2003; Park, 1994; Taylor, 2005, Winke et al., 2010). Because most of the studies conducted research on L1 and L2 subtitles under two treatments, this study reveals a significant finding that not only L1and, L2 subtitles are helpful to learners, but also dual subtitles are helpful.

The study has pedagogical implications. Subtitles, in general, can be used as valuable authentic materials in EFL classroom settings. And subtitles can also be used outside of the class. The current study is conducted in a multimedia classroom setting with a projector and a screen. This is the place where my participants, Chinese EFL students, have English class every day. The experiment, including vocabulary and listening tests, as well as watching subtitled videos, all ran very smoothly. Students were laughing and enjoying themselves while watching the videos. This provides evidence of the feasibility and practically of using subtitled videos in classroom settings.

According to Brett (1997), the use of multimedia resources can promote students' listening comprehension. I propose more multimedia materials to be implemented in foreign language instructional settings. Based on Krashen (1982), large amounts of comprehensible input just above the learner's level of linguistic competence (and low anxiety) lead to second language

acquisition. VanPatten (2004) stated that rich input can promote second language acquisition. Furthermore, Gass (1997) mentioned that students were able to intake and finally product the language by processing and learning the new forms of aural input. Because foreign language TV series can be regarded as authentic input, it is essential for EFL teachers to make full use of these resourses. Teachers can use these authentic listening materials that they gather from the Internet, and use them in the classroom, online or in blended courses in China to facilitate English learning. I propose that the Chinese government should advocate the use of English-language videos as authentic materials in classroom settings. Students can not only learn new vocabulary and improve their listening comprehension in a relaxing setting, but also know more about the language and culture.

The Most Effective Subtitle for a Certain Proficiency Level of EFL Students

Generally speaking, dual subtitles are the most effective subtitle condition, followed by only L1 Chinese, only L2 English, and no subtitles in terms of both vocabulary and comprehension performance. This is in line with Lwo and Chia-Tzu Lin (2012) in that L2 English and Chinese and English dual subtitled conditions elicited better test scores than no subtitles. However, this study found that students who watched videos with L1 Chinese subtitle condition slightly outscored no subtitle condition, which was inconsistent with Markham and Peter (2003), whose students who watched videos with L2 English outperformed those with L1 Spanish subtitles. This may due to the different language that was being investigated. In this study, students performed the worst when watched with no subtitles. This indicates that students may encounter difficulty understanding when watching American TV series without subtitles. This was in line with Winke et al. (2013) who showed that subtitles worked as an aid in comprehension. These students are English majors in a first level university in China and they

still cannot perform equally the same across four subtitle conditions. This indicates that subtitle does make a big difference for them in helping them comprehend the videos. One can imagine for lower level learners and larger population of people who are not English majors in China, subtitles may play a more important role in helping them understand English movies and TV. In general, first year graduate students did better than junior students, followed by freshmanClass1, and freshmanClass2 in vocabulary test. In comprehension performance, freshmanClass1 outperformed first year graduate students, then followed by Junior and freshmanClass2. The vocabulary tests suggest that in general students with higher levels of English proficiency performed better than lower level learners in subtitled TV series. This is in line with Taylor (2005) who found L2 Spanish 3rd year learners did better than L2 Spanish 1st year beginners when they watched videos with subtitles.

The comprehension tests result are not the same as the vocabulary tests, which suggest that students' understanding of the video may not solely depend on the vocabulary level of the video. Furthermore, as illustrated in the results, intensive English training and video ordering effects may be two factors that influence students' comprehension of the video, and which may be the reason that freshmanClass1 outperformed first year graduate students and junior students on comprehension tests. Teachers should also take into account the ordering effects of viewing subtitles. Winke et al. (2010) suggested that the order of viewing English subtitles first and then no subtitles second is different than viewing no subtitle first and English second. As mentioned in the result section, learners' comprehension may depend on the order of subtitles, with an overall higher listening comprehension score gained by this order: watching with Chinese subtitles first, English subtitles second, dual subtitles third, and then no subtitle last. Therefore, teachers should use different subtitles based on his or her objectives. To build students'

confidence and interests, teachers can show students videos with dual subtitles or English subtitles at first as it's easier for students to understand with them. I suggest teachers to use no subtitles for training, use dual subtitles as later confirmation or additional information for students. If the no subtitle appear to be very difficult and challenging for students' level, the teacher can change the video to be more relaxing and easy or choose to use dual subtitles at the beginning and gradually change the TV series to no subtitles.

Based on Vygostsky's Zone of Proximal Development (1980), subtitles serve as the mediation part of the theory in which "learner can do with help." It gives learners hints and necessary help in understanding and learning English from the videos. Subtitles can work as an aid and help students to perform beyond their current abilities. In multimedia settings, subtitled videos can be used as a self-pace or controlled-pace choice for EFL students' self learning. In this way, students would be able to adjust which subtitled condition to use based on the difficulty level of the video, their different proficiency levels, their needs, and objectives.

Students' Preference on Subtitled conditions

Students generally choose to watch videos with dual subtitles than with other subtitles. No subtitle condition was lease preferred when they watched videos or TV series at home. However, when talking about which subtitled videos help them with their study of English, almost half of the students gave the same answer as at home that dual subtitle is their first preference and no subtitle is the least preferred; the other half of the students had the opposite preference. Students who preferred no subtitles in helping them with English argued that no subtitles lead them to be more focused on the listening materials in that there were no subtitles available. Students need to try to understand the materials on their own instead of reading the subtitles provided. It is more challenging for learners. As illustrated by Chinese EFL students,

without subtitles, they may not understand the American TV series and they may not be interested in watching the videos.

There are audio-visual and English listening classes where watching TV series and films are a large proportion of one class. Students can also watch films and complete listening assignment online. Knowing students' preference and attitude towards subtitled films will facilitate their learning online. The pilot study I conducted was implemented online with online tests and questionnaire lasted about an hour and half long. Teachers can also assign self-assess or online listening homework using subtitled American TV clips and online tests.

Additionally, students' general vocabulary and comprehension performance in four subtitled conditions was in line with their attitudes towards subtitles. However, it is interesting to note that most students thought watching videos with only Chinese subtitles was not helpful in learning a foreign language, even though their vocabulary and comprehension performance with Chinese subtitles was high compared to when they watched in the other conditions. This indicates a possible difference between students' perception of learning through only L1 or only the L2 subtitles, and students' actual learning outcome through L1 or L2 subtitle condition. This also suggests that students less prefer Chinese subtitled condition than other conditions when it comes to English language learning.

Furthermore, the questionnaire suggests that students at different proficiency levels didn't find dual subtitled videos distracting, which was in contrast to Taylor (2005) that L2 Spanish beginners found the captions distracting and had trouble paying attention to the subtitled videos in multi-media settings. The study reveals interesting findings that dual subtitled TV series, which consists of multiple channels: image, audio, Chinese subtitles, and English subtitles, are helpful rather than distractful to learners. Learners are able to attend to the verbal (Chinese and

English subtitles) and nonverbal information (image and audio) independently (Pavio, 1991). According to Pavio (1991), subtitles help language learners make connections between auditory and visual input. This is also in line with the redundancy principle in Cognitive Theory of Multimedia Learning. According to Clark and Mayer (2011), there are three special situations for the redundancy principle. They pointed out that the foreign language learning settings is one of the special situations where visual text will not be redundant; on the contrary, it will be helpful for learners to understand. That is, based on the redundancy principle, in EFL settings, using redundant text is acceptable and even suggested (Mayer, 2001,2005). And in this study, dual subtitles are found to be the most effective subtitle condition for EFL Chinese students' vocabulary learning and listening comprehension, corroborating the suggestions from Mayer (2001, 2005). I further propose that dual subtitles be used as input to facilitate learners' listening comprehension. According to the attitude questionnaire I administered in the study, students also prefer watching dual subtitles to other subtitle conditions. Dual subtitles can build students' confidence, help them learn new words and phrases, allow them to check comprehension, and help them develop their interests in language learning. In the meantime, I agree that no subtitled videos can be used as listening exercises to practice and train students' ears and ultimately improve their listening skills as well.

Finally, because students performed differently across the different groups (first year graduate students, freshman, and junior students) in this study, and students' attitudes were consistent with their performance in the listening tests, I propose that teacher should use different subtitles based on students' needs and proficiency levels. According to Brown et al. (2004), students' positive attitudes towards Computer Assisted Language Learning is essential in second language acquisition. Therefore, when chosing authentic videos, teachers should pay special

attention to their learners' attitudes toward watching videos with different subtitle conditions.

Limitation and Directions for Future Study

As suggested by Markham and Peter (2003), multilingual audio and subtitles need to be investigated more intensively. Based on the limitations of the study, I conclude several aspects that researchers should be aware of in future related studies. Additionally, based on the research questions, findings, and method used in the current study, I propose several ideas that researchers can further explore in the future.

Prior knowledge of the vocabulary has not been analyzed, this may question whether subtitled videos helped students' vocabulary learning or not. However, because one must also take into account the proficiency level of students, it does make sense that students with higher levels of proficiency would perform better on the vocabulary test. The prior knowledge tests data shows that students do answer correctly on some of the vocabulary that they indicate that they don't know beforehand. Because the vocabulary test is an English/Chinese translation test, not multiple-choice questions, it is difficult for learners to guess the answer right if they don't know the answer. This suggests that students do learn some of the vocabulary by watching subtitled videos. Future studies in the vocabulary learning of subtitles should take into account students' prior knowledge when investigating whether students learn more vocabulary in one subtitled treatment than another. Additionally, I argue that because the test was counterbalanced in a way that all participants watched four subtitled conditions, the result do suggest that all participants in general performed better with dual subtitles than other subtitles, and participants performed significantly worse with no subtitles. Furthermore, in the student attitude questionnaire, students mentioned that dual subtitles help them learn new words and expressions. This suggests that students do learn more vocabulary in watching dual subtitles than other subtitle conditions.

I used four video clips in this study. Each group (20 students) watched the four video clips with the four subtitle conditions. The four video clips selected should be of the same

difficulty level to the students. As illustrated in the instruments, the video chosen is consistent in content, is 3-5 minutes long, and is independent as each video clip consisting of a story which cannot be obtained from other clips. However, after collecting the data, I ran the analysis and found that students do perform differently in the four video clips which suggest that the difficulty of the four video clips may vary. Future studies should conduct pilot study, test the video clips and make sure that all the video clips chosen are of the same difficulty level to the students. In this study, the difficulty of the four video clips was not controlled effectively. This may result in difficulty of finding any significance in subtitle conditions or the group proficiency, however, I argue that, under this situation, I still found significant differences in subtitle conditions and the group proficiency levels which is a strong indicator for the findings that subtitle conditions do influence students' listening comprehension significantly and students' performance differ based on different proficiency levels.

As mentioned in the result of the listening comprehension, freshmanClass1 performed better than 1st year graduate students in the no subtitled treatment. This may due to the ordering effect in that four groups (20 in each group) of students watched subtitled videos in different orders. The group of students not only represents the proficiency level of students (freshmen, junior, and 1st year graduate students), it also represent a different order of the subtitle conditions. Because all the students in each group also watched the clips in each order, therefore, group represents both students' English proficiency level and the ordering of subtitle. However, I argue that since all the videos were counterbalanced in a way that there should not be any ordering effect in watching the videos, it is very unlikely that the order played a role in the group effects. Because students' level of English were so different, the freshmen didn't pass Test for English major band 4 yet (minimum level for English majors), and the 1st year graduate student

has already passed Test for English major 8 (highest level for English majors), the year of schooling is also different, which indicates students' different proficiency in English. Therefore, it is more probable that the proficiency level is the factor that represents the group effect, not the ordering.

Participants in this study were divided into four groups. Each of the group (20 students) represents different proficiency levels of English. Future studies can find students that have the same level of English proficiency. For example, eighty randomized participants who were all EFL beginners or all highly advanced EFL students. To compare the differences between the influence of subtitled American videos on EFL beginners and advanced EFL students' listening comprehension can give us more insight on how to implement authentic materials in beginning and advanced English class.

Winke et al. (2013) used an eye-tracking study investigating factors influencing the use of L2 English subtitles by foreign language learners. Future studies can look at what exactly Chinese students pay attention to on subtitled TV series. If L1 and L2 dual subtitles have been suggested to be the most effective to improve students' listening skills, researchers can conduct eye-tracking to investigate students' attention on L1 and L2 dual subtitles specifically. Studies on whether students paid more attention to image or the L1 Chinese/L2 English subtitles that are showed concurrently on the screen can be further explored.

Additionally, many teachers have used authentic videos in class and online courses. However, to effectively incorporate subtitled TV series as part of authentic listening materials in EFL settings has not been investigated. Therefore, future studies can look into strategies on how to implement subtitled TV series in class and how to create interactive activities to help students to learn while watching subtitled TV series.

Another possibility for future study is to investigate the effects of subtitled L1/L2 subtitled TV series on different proficiency levels, especially beginner and advanced learners. Numerous studies have pointed out that learners' listening comprehension towards subtitles vary according to their proficiency level (Grignon, Lavaur, and Blanc, 2007; Jensema et al., 2000; Taylor, 2005). Beginning level students who don't know very much English may not prefer only English subtitles or no subtitles in that the videos may be very difficult for them to understand. Advanced L2 English students are like native speakers who may have no preference in choosing subtitles. Therefore, future studies can focus more closely on the effects of different conditions of subtitles on beginning and advanced level L2 English learners' listening comprehension. Researchers can also compare the effects of subtitled TV series on different proficiency levels.

APPENDICES

APPENDIX A

Background Information

Background Information

1. All the research is anonymous (匿名的） You are participant____ (give a number)

2. Are you male or female?
Male
Female

3. What is your age?
What is your age?
18 to 24
25 to 34
35 to 44
45 to 54
55 to 64
65 to 74
75 or older

4. What is your TOEFL Score?

5. Did you pass Test for English Majors band 4 or band 8? 你考过中国的英语四级,六级或者八级吗？

6. How long have you been learning English?

7. What do you think your English level is?
beginner
low intermediate
high intermediate
low advanced
high advanced level

8. Do you like watching American TV series (美剧）?
Yes
No

APPENDIX B

Listening Test

Listening Test

Listening test 1

1. Vocabulary test: use English to explain the word, or give the correct Chinese/English synonym. 单词题 （5分）给出正确的解释或者，中文/英文近义词

14-year-old sensation continues her smash tour

Don't look at my booty

It is also a wonderful moisturizer

He is so hot, an I'm so lame

We didn't get those seats, minor setback

2. Answer the following questions (5 points) 回答下列五个问题（5分）：

1. What happened to Fermine that makes him feel awkward? (Miley的设计师怎么了，为什么会觉得很尴尬)

2. Why Miley does not want to go to the concert with Lily?（为什么Miley不想陪Lily去那场演唱会？）

3. Why did Miley put ketchup on her hand when she saw Johnny Collins?（当Miley看到Johnny的时候，为什么她要把番茄酱涂在手上）

4. What did Johnny Collins react when Miley put ketchup on his hand?（当Miley把ketchup涂在Johnny手上的时候，Johnny是怎么反应的？）

5. Amber and Ashley took the seat near Johnny, where do they tell Miley and Lily to sit? (Amber和Ashley占了靠近Johnny的座位，她们让Miley和Lily做哪里？)

Listening test 2

1. Vocabulary test: use English to explain the word, or give the correct Chinese/English synonym. 单词题 （5分）给出正确的解释或者，中文/英文近义词

Before the seagull attacks you

Boy, the sucker is in there too

She is your best bud

Squirrels and little puppy dog

I'll go check on the limo.

2. Answer the following questions (5 points) 回答下列五个问题（5分）：

1. What does Oliver think about Hannah Montana？Oliver觉得Hannah Montana怎么样？

2. Why everyone gets so excited about the extra ticket? 为什么大家都对额外的演唱会票那么感兴趣？

3. Miley's brother wants his father to give him money for what? Miley的哥哥想他爸爸给他钱做什么

4. Why Miley doesn't want to tell the truth to her best friend Lily? 为什么Miley不想把真相告诉她最好的朋友Lily?

5. Why does Lily sneak to the dressing room after the concert? 为什么演唱会结束后Lily跑到Hannah的化妆间?

Listening test 3

1. Vocabulary test: use English to explain the word, or give the correct Chinese/English synonym. 单词题 （5分）给出正确的解释或者，中文/英文近义词

I'll call security

My memories which will fade too, too quickly

You cannot just freeze me out like this

I have a lucky bracelet just like that.

I happen to be real tight with Hannah Montana

2. Answer the following questions (5 points) 回答下列五个问题（5分）：

1. Why did Hannah shove pie in her face? Hannah为什么把Pie弄到自己脸上

2. What did Hannah say to Lily the reason she shove pie in her face? Hannah告诉Lily她把Pie推到自己脸上的原因是什么？/Hannah跟Lily说那个Pie是干什么用的？

3. What did Lily think when Hannah told her the reason about her changing voice? 当Hannah告诉Lily自己声音变了的原因的时候，Lily是怎么想的？

4. What did Hannah give Oliver as a souvenir? Hannah给了Oliver什么做纪念？

5. How did Lily find out that Miley is actually Hannah Montana? Lily是怎么发现Miley就是Hannah的

Listening test 4

1. Vocabulary test: use English to explain the word, or give the correct Chinese/English synonym. 单词题 （5分）给出正确的解释或者，中文/英文近义词

Cut me some slack, Hannah

Behind my closet is my closet

I'll squeeze

Mega-popularity

Here's my cell

2. Answer the following questions (5 points) 回答下列五个问题（5分）

1. Why is Lily upset about Miley after knowing she is Hannah? 得知Miley的真相后，为什么Lily会生Miley的气？

2. What is Miley afraid of if she tells the truth to Lily? Miley说她害怕告诉真相给Lily的原因是什么？

3. At first, why Lily don't understand for standing in front of Miley's closet? 一开始Lily为什么不理解Miley带她站在closet前？

4. What things did Miley show to Lily (things she never showed to any friend)? Be as detailed as possible. Miley给Lily展示了什么,越详细越好。

5. Why is Miley upset at the end? 为什么片段的最后Miley生气了？

APPENDIX C

Attitude Questionnaire

Attitude Questionnaire

1. You are participant_____(give a number)

2. What do you think of the subtitled TV series you watched just now in general

1. When watching an American TV series at home, which one would you prefer? 1 being the most prefer, 4 being the least prefer

___Chinese subtitle
___English subtitle
___English and Chinese subtitle
___No subtitle

4. Please give your reasons for the 3rd question? = why do you rank it like that?
Please give your reasons for the 3rd question? = why do you rank it like that?

5. If watching a movie in an English listening class, which one do you think is more helpful for the improvement of your listening ability? 1 being the most helpful, 4 being the least helpful.

___Chinese subtitle
___English subtitle
___English and Chinese subtitle
___No subtitle

6. Please give your reasons for the 5th question=Why do you rank like that?

7. Did the subtitles help you in understanding the film and complete the test ? If it helped you, which one do you think helped you the most and the least (1 being the most helpful, 3 being the least helpful)

____Chinese subtitle
____English subtitle
____Chinese and English subtitle

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