Effects of Students Using Smartphones to Receive Different Amount of L1 Support for Listening Comprehension and Vocabulary Recall

Gwo-Jen HWANG[a], Yi-Hsuan HSIEH[a], Ching-Kun HSU[b*]

[a] *Graduate Institute of Digital Learning and Education, National Taiwan University of Science and Technology, Taiwan*
[b]*Department of Technology Application and Human Resource Development, National Taiwan Normal University, Taiwan*
[*]ckhsu@ntnu.edu.tw

Abstract: The study aims to explore whether different amount of the first language (Chinese) information will lead to different effectiveness on high school students' listening comprehension and vocabulary recall. Furthermore, the study also discusses the relationship between different difficult degrees of videos with two kinds given amount of subtitles/ captions and students' learning performance in English listening comprehension and vocabulary recall. One class was given the full first language subtitled movie with no foreign language captions while the other class was given the partial first language subtitled movie with full foreign language captions. The findings indicated that although the students received only the assistant of the partial first language subtitles, learners' understanding of the listening comprehension will not be affected and their performance in the vocabulary recall test statistically better than those who use the full first language.

Keywords: subtitle, caption, listening comprehension, vocabulary recall

1. Research Background and Purposes

English seems to be the most important communication tool for the global world. Many linguists would actually call it a universal language or a lingua franca. From the year 2005, Ministry of Education in Taiwan stipulates that every elementary school should start English education from the third grade. Yet English education is not confined to schools only, as living in a world surrounded by technology and multimedia nowadays, people have far more accesses to learn a foreign language (FL) than before. It is likely to use technology and multimedia to assist language learning. While there has long been interested in the relationship between multimedia and language learning, those studies have extensively investigated in the field of reading (Lysenko & Abrami, 2014) and vocabulary acquisition (Emine & Gülcan, 2012). However, the use of multimedia or mobile devices for listening comprehension is relatively unexplored; in particular how the effects of the interference of different amount of the first language (L1) information on the listening comprehension and vocabulary recall.

It goes without saying that if people want to be able to communicate with others, they should somehow comprehend what other people are talking about instantly. It can't deny that listening is an essential skill in understanding a language (Chung, 1999; Liu, Chen, & Chang, 2009). From the year 2013, every high school graduate has to participate in the TELC which is referred to as Test of English Listening Comprehension. Therefore, it is urgent to provide high school students with more opportunities of foreign langauge listening practice. Besides TELC, the TOEIC, Test of English for International Communication, also includes 100 questions for the listening comprehension part.

However, in their own country, there is rare opportunity for the students to touch foreign languages after English class. Fortunately, with the advance of technology, there are abundant methods and materials available to support students in learning a foreign language. In daily life, many convenient computer-assisted or online learning systems are also handy for training English listening proficiency (Chapelle, 2009; Liu, Liu, & Hwang, 2011).

Of all the rich learning resources, videos are the most common and popular way to promote English listening comprehension. As a result, many researches regarding EFL learning often choose videos as learning materials instead of audios or texts (Chapple & Curtis, 2000; Vanderplank, 2010). The reason for the popularity of choosing videos as learning materials is partly because there are subtitles or captions on the videos. Chun and Plass (1997) have proposed that videos with captions are useful in learning second language reading. Recently, Hsu, Hwang, Chang and Chang (2013) also indicated that veiling the easy foreign vocabulary and showing only the difficult words in the captions can promote elementary school students' listening comprehension.

Before proceeding with the following exploration on listening comprehension or vocabulary recall, the study needs to define two important concepts, "subtitles" and "captions". According to Longman dictionary of contemporary English, "subtitles" means words printed over a film in a foreign language to translate what is being said, such as an English film with Chinese subtitles. It is contrasted with the concept "captions", which deals with "words printed above or below a TV program, film, etc., to say what it is about or to give further information to help viewers who are deaf or hard of hearing to follow the dialogue, and it's usually provided in the same language." The above mentioned was as defined in related studies (Hsu, Hwang, Chang, & Chang, 2013; Danan, 2004) as well.

The study aims to explore whether different amount of L1 (Chinese) information will lead to different effectiveness on high school students' listening comprehension and vocabulary recall. This study hypothesize that less L1 (Chinese) given information will not affect the understanding toward students' listening comprehension. In the meantime, it is expected that less L1 (Chinese) interference can even be beneficial to students' vocabulary recall. L1 interference or so-called "cross-linguistic and language transfer" refers to the influence of native language structures on students' performance and development in the target language (Hashim, 1999). Furthermore, this study also discusses the relationship between different difficult degrees of videos with two kinds given amount of subtitles/ captions and students' learning performance in English listening comprehension and vocabulary recall. To evaluate the proposed hypotheses, an experiment has been conducted to investigate the following research questions:

(1) Whether less L1 (Chinsee) given information will affect the understanding of the listening comprehension?
(2) Can less L1 (Chinese) interference be beneficial to students' vocabulary recall?
(3) Will different difficult degrees of videos with two kinds of subtitles/ captions bring about diverse learning performance in English listening comprehension and vocabulary recall?

2. Method

2.1. Participants

The participants included two classes of 11th graders of a private high school in Taipei city. There were a total of 86 students who volunteered to take part in the experiment. The average age of the subjects was 16. It's worth mentioning that the school is an all girls' school, so there will not be gender difference in the case. All the participants learned

English as a foreign language and were all taught by the same instructor who had taught the English course for over 7 years.

2.2. Research Design

In this study, a quasi-experiment was conducted in a high school regular English course. The participants included two classes of 11th graders and there were a total of 86 students. Each student was equipped with one smartphone and a pair of earphone. One class was assigned to be the experimental group and the other was the control group. The experimental group, including 44 students, used the smartphones and earphones to watch the filtered L1 (Chinese) subtitle video with its corresponding captions (English) individually, while the control group with 42 students used the smartphones and earphones to watch the video with full L1 (Chinese) subtitles and with no (English) captions.

The videos for the two groups are the same content with different amount of the first language subtitles and foreign language captions. Figure 1 shows the different amount of the first language subtitles and foreign language captions for the control group (right) and the experimental group (left). In addition, there are two kinds of different difficult filtering degrees of the videos being used in the experimental group. Video one (V1) displays all English words (foreign language) and partial Chinese (the first language) translations which hidden the translation of 220 words, while video 2 (V2) presents all English words (foreign language) and partial Chinese translations (the first language) which hidden the translation of the highest frequently used 1000 words. In the control group, both two videos will have full first language (Chinese) subtitles and with no (English) captions.
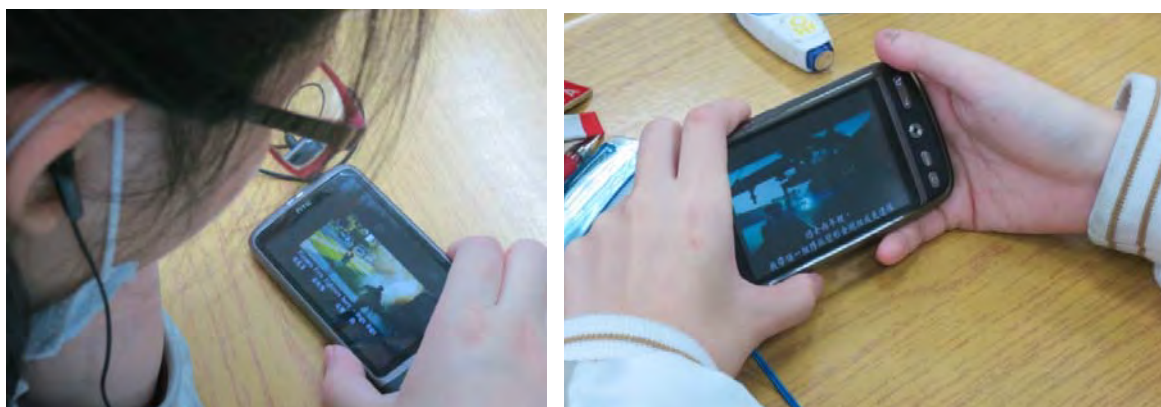

Figure 1. Students use the smartphones to watch the videos individually. The one to the left is the experimental group (partial L1 subtitles with full captions) and the one to the right is the control group (full L1 subtitles with no captions).

All the videos are 15-minutes long. The students in either group can operate the function of the player in the smartphone to "play", "pause" or "replay" the video according to their own watching requirements at will in the given time (20 minutes). After watching each video for 20 minutes, both groups of students took a listening comprehension test and a vocabulary recall test to assess their understanding in listening comprehension and the remembrance of the vocabulary. The experiment was conducted for a month, as shown in Figure 2.
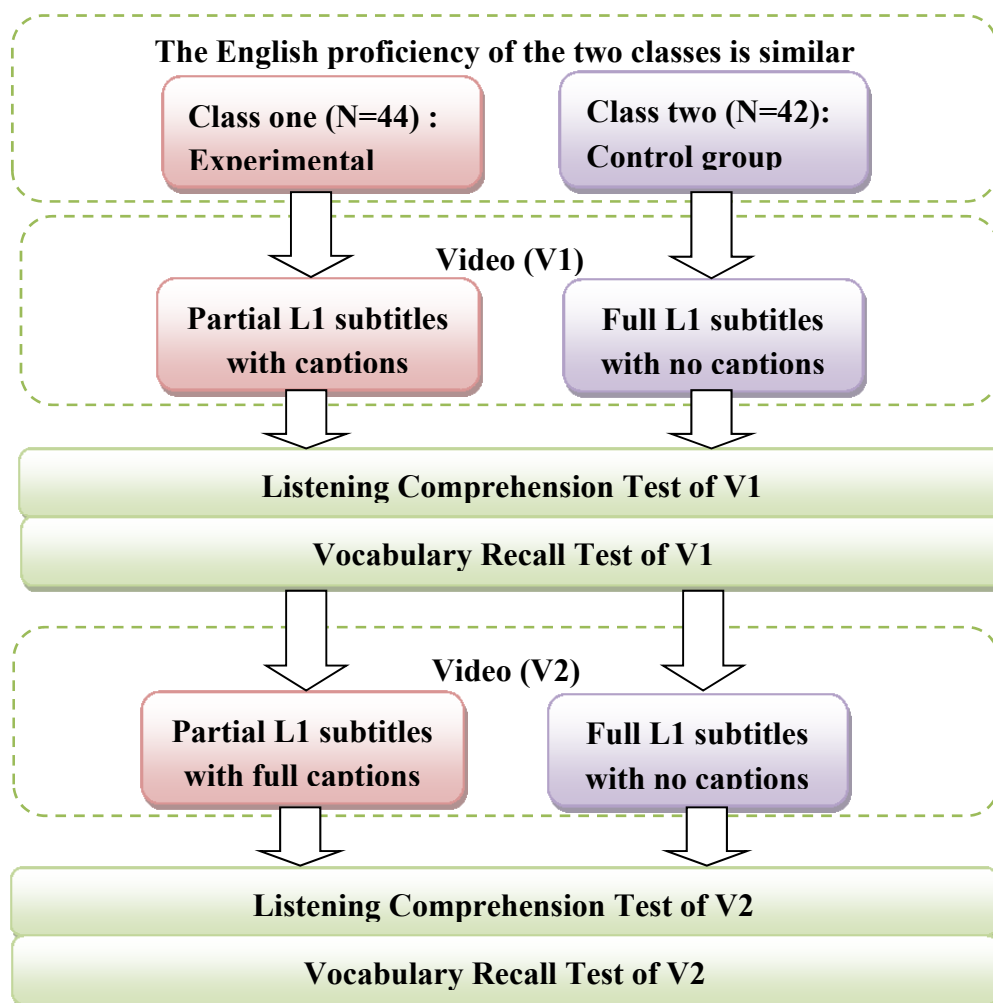
Figure 2. The procedure of the experimental treatments.

2.3. Research tools

The instruments utilized in the present study were the listening comprehension and the vocabulary recall test. The listening comprehension test and the vocabulary recall test are developed by two experts in the English teaching field. One is an experienced professor in a university and the other is an English oral training instructor who is also a native speaker. The listening comprehension test consists of 5 multiple choice questions, each account for 20 points, with a perfect score of 100. The vocabulary recall test consists of two parts. The first part is the dictation test, it consists of 5 questions, and each accounts for 8 points. The second part is the vocabulary cloze test, it consists of 6 questions, and each accounts for 10 points. The two parts add up to be a perfect score of 100.

3. Research Results

3.1. Analysis of listening comprehension test

One of the objectives of the study was to examine whether to reduce the amount of the L1 (Chinese) information will affect students' understanding of the listening comprehension.

By employing Independent t-Test on the listening comprehension test scores of the two groups, the results of this study showed that the mean values and standard deviations of the listening comprehension test scores were 39.05 and 16.20 for the control group, and 39.09 and 13.09 for the experimental group, as shown in Table1. The result showed that there was no significant difference between the two groups in the listening comprehension

test (*t=0.01; p>.05*). As a result, it indicated that reducing the amount of the L1 (Chinese) information will not affect students' understanding toward the listening comprehension.

Table 1. Independent t-Test   Analysis results of listening comprehension test

Group	N	Mean	SD	*t*
Experimental group	44	39.09	13.09	*0.01*
Control group	42	39.05	16.20	

*p<.05

3.2. Analysis of vocabulary recall test

One of the objectives of the study was to examine whether to reduce the amount of the L1 (Chinese) information will affect students' recall of vocabulary. Table 2 showed the Independent t-Test result of the vocabulary recall test of the two groups. The means and the standard deviations of the control group were 31.17 and 13.87, while they were 39.20 and 14.04 for the experimental group. According to the results (t= 2.67, *p* < .05), it is found that there was a significant difference between the two groups; that is to say, less L1 (Chinese) interference and full foreign language caption will be beneficial to students' vocabulary recall. Students who watched the video with less amounts of L1 (Chinese) subtitles but full foreign language caption exhibited better learning performance in vocabulary recall.

Table 2. Independent t-Test   Analysis results of vocabulary recall test

Group	N	Mean	SD	*t*
Experimental group	44	39.20	14.04	*2.67**
Control group	42	31.17	13.87	

*p<.05

3.3. The variation between difficult degrees of videos

Another objective of this study was to examine the relationship between different difficult degrees of videos with two kinds of subtitles/ captions and students' learning performance in English listening comprehension and vocabulary recall. The study employs two different difficult degrees of videos in the experiment. The degrees of the videos were assessed by two experienced university professors in the language learning field. Video 1 (V1) is considered the harder one, and video 2 (V2) is thought to be the easier one to the subjects in this study.

From the research results, it was found that students in the experimental group which were provided with filtered L1 (Chinese) subtitles along with corresponding FL (English) captions performed better in V1's vocabulary recall test compared with the control group, as shown in Table 3. However, the results also showed that speaking of the V1's listening comprehension test, the control group statistically performed better than the experimental group. The results inferred that because the difficult piece (V1) has left more L1 (Chinese) subtitles with FL (English) captions words in the video which led students of the experimental group to divert attention from only listening to seeing the vocabulary provided. Therefore, those L1 subtitles and FL captions provided in the V1 improved the performance of the experimental group in V1's vocabulary recall test while because those experimental group students' attention was distracted by the vocabulary provided in the video, the test scores in V1's listening comprehension part was consequently lower than

the control group's test result.

Table 3. ANOVA analysis of vocabulary recall of different difficult degrees of videos.

Group Treatment	Video Category	N	Mean	SD	F	Pair Comparison
Experimental (E)	Hidden the translations of 220 sight words (V1)	44	43.14	19.28	5.99*	EV1 > CV1*
	Hidden the translations of 1000 HFU words (V2)	44	35.27	15.20		
Control (C)	All L1 (V1)	42	27.29	16.16		
	All L1 (V2)	42	35.05	18.42		

*p<.o5

The research results was just in line with the theory of the split-attention effect in multimedia learning (Mayer, 1998). Many previous studies have also proved this so-called redundancy effect that integration of the redundant information with essential information imposes a cognitive load interfering the learning process. Under this circumstance, the redundant sources of information is beneficial for learning. (Bobis, Sweller and Cooper, 1993; Chandler and Sweller, 1991; Kalyuga, Chandler and Sweller, 1998; Sweller and Chandler, 1994).

The reason why there were no significance appeared between V1's and V2's vocabulary recall in the experimental group was somehow because no matter in V1 or V2, there were FL (English) captions embedded in both videos, and thus there were no significant difference between V1 and V2's vocabulary recall experiment results. Conversely, because the study provided less L1 information with less FL captions in the video (V2), the experimental group students could put full attention to the listening and thus the students in the experimental group performed better in V2's listening comprehension test. Accordingly, it is inferred that fewer captions may be better for students to practice listening proficiency.

On the other hand, it was because students in the control group who were provided with full L1 (Chinese) subtitles that they hold a higher level of understanding to the plots in V1's listening comprehension test, although V1 was viewed as a harder one in two videos. However, since the study provide only L1 (Chinese) subtitles with no FL (English) information to subjects of the control group, it was hard for them to do the vocabulary recall, and hence the scores in the V1's vocabulary recall test was lower than those in the V2's.

Table 4. ANOVA analysis of listening comprehension of different difficult degrees of videos.

Group Treatment	Video Category	N	Mean	SD	F	Pair Comparison
Experimental (E)	Hidden the translations of 220 sight words (V1)	44	28.18	20.83	26.08*	EV2 > EV1* EV2 > CV2*
	Hidden the translations of 1000HFU words (V2)	44	50.00	18.04		
Control (C)	All L1 (V1)	42	54.76	19.78		CV1 > CV2*
	All L1 (V2)	42	23.33	21.15		CV1 > EV1*

*p<.o5

4. Conclusions

This study examined two groups of students with different given amount of L1 (Chinese) subtitles and FL (English) captions. The control group was given full L1 subtitled movie with no FL captions while the experimental group was given filtered L1 subtitled movie with the corresponding FL captions. The findings indicated that although the experimental group received only partial L1 subtitles will not affect learners' understanding of the listening comprehension. Moreover, the findings further showed that with only filtered L1 subtitles, the experimental group students' performed statistically better than those in the control group with full L1 subtitles in the vocabulary recall test. While most of the multimedia assisted learning studies laid huge stress on using as much multimedia tools as one can during the teaching process, one of the major contribution of this study was that the results showed although it was partly useful with the help of the multimedia such as L1 subtitles, yet it could also be a distraction toward students' learning process. Therefore, this study recommended that to avoid distraction from the multimedia distraction, there should be only the needed amount of the multimedia provided. It was not that as much multimedia assisted as better in teaching. For example, when it comes to course design, the instructors should choose appropriate and not excessive amount of multimedia according to the curriculum objectives. Moreover, with a view to achieving the teaching goals properly, the technology-assisted multimedia or tools should take students' learning level into consideration.

This study found that if students need immediate aid to understand the content, they do not need to be provided with full L1 language. That is to say, the videos or movie series now available on TV showing L1 subtitle may provide opportunities for students to touch foreign language conditions and practice listening, but can actually offer limited training opportunities for learners to recognize vocabulary. To sum up the conclusions in this study and previous studies (Hwang, Chang, & Chang, 2013 ; Hsu , 2014 ; Hsu, Hwang, & Chang, 2014), if students want to train their listening proficiency and they have better prior proficiency of that target language, they can use no captions as well as subtitles, or only use the caption as well as subtitle of harder words. If students want to train their listening proficiency but they have poor prior proficiency of the target language, they can use caption which providing full or partial foreign language words and partial subtitles which are the translation of the harder words. If the students also want to recognize or memorize vocabulary during using the video to learn foreign language, they can use captions with full foreign language words and leaving only essential L1 information while only providing L1 subtitle without foreign language captions will not affect the vocabulary recall very well, but just support the immediate understanding to the content.

Accordingly, one of the major contributions of this study is to propose that the importance of foreign language (FL) captions is much higher than the significance of L1 language subtitles. However, previous studies have found that videos with whole foreign language but without any L1's help will bring a risk of cognitive failure understanding. Still, this study found that full L1 (Chinese) subtitles without any FL(English) captions neither do any good to language learner's vocabulary recall, but mainly instant comprehension of content. As to how much amount of the L1 information should be left to assist the learners, in fact, this study suggests future research combine with instant or online dictionary at hand or to provide scaffolding based on individual differences.

Still, it might be difficult to claim that the findings in this paper are significant since the number of subjects is not large and the experimental period is relatively short. For that reason, it was worth conducting extended studies with a large number of participants and a longer period of time in the future. Also, it is worth mentioning that the English listening and vocabulary proficiency can't be achieved or promoted overnight. Still, it is believed that this study could provide a descriptive basis for the following and additional research

as long as there is a continuing need for and adequate theoretical basis for the practical application of language teaching and learning.

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