Review of the Incidental Second Language Acquisition of Subtitles in Video Products

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ABSTRACT

Learning through video-based media with subtitle is generally regarded as an effective way to enhance second language acquisition. Watching video programs, TV or movies provides people with a way to relax. In their spare time, online classes and video learning have gradually become popular learning methods. With subtitles, viewers can better understand the content of foreign language videos and accumulate foreign language vocabulary and grammar. This study focuses on the incidental second language acquisition of subtitles and influencing factors that cause deviation. This study reviews the academic works in the application of subtitled video programs and analyses the connection between different views, in order to explore more comprehensive research methods in this field, to develop the most efficient expression forms of subtitles to accumulate foreign vocabulary and grammar.

Keywords: subtitle, second language acquisition, subtitled video programs.

1. INTRODUCTION

Second language refers to any language that people acquire after acquiring the first language. First language usually refers to mother tongue or local language. When a person is born, the first language is acquired passively by the influence of parenting or local social environment. Second language acquisition usually requires people to take the initiative to systematically learn another language through books or teaching institutions. d'Ydewalle and Pavakanun pointed out that if a community is multilingual, people often acquire more than one language[1]. Thus, the SLA discussed in this paper refers to the language that people actively acquire in addition to the languages acquired passively, rather than simply refers to a second language.

With the advent of the information age, people tend to spend more leisure time in television, movies, streaming media and so on. Along with the influence of COV-19, online courses and video teaching have gradually become popular learning methods. Facing the video resources from all over the world, subtitle is the best way to help audiences understand the content. Researchers found that subtitles can help learners enhance their vocabulary accumulation and listening comprehension [2-3].

The aim of this study is to provide, through selected research paper, a clear understanding of the enhancement to SLA through subtitled video viewing, and factors affecting the subtitles incidental second language acquisition. Experimental observations of subtitles in SLA are reviewed, a cornerstone article is discussed, it provided many insightful views and 4 influencing factors of subtitles in SLA. This article is very comprehensive, basically covering the theme and research focus of subsequent studies. In the second chapter, this paper will first discuss the main contents of the cornerstone article. The rest will focus on the 4 factors mentioned in the cornerstone article to discuss the different research findings and viewpoints in subsequent studies.

Next, this paper will draw insight from these findings in order to provide suggestion for the development direction of the subtitle application in SLA, optimize the application of subtitles to help people enhance language learning in the information age and different language environments.

2. RESEARCH ON THE APPLICATION OF SUBTITLES

2.1. Cornerstone Article

Research has suggested that subtitles are beneficial to

Incidental Second Language Acquisition. Through experiments, d'Ydewalle (1999) proposed that a considerable amount of language acquisition can be obtained only by watching movies with subtitles. Also, this article put forward 4 factors that will affect the acquisition efficiency of subtitles in second language acquisition. (1) The influence of native language type and social background. (2) Observation of eye movements to measure audience's attention to subtitles while watching videos. (3) The influence of Image processing on content understanding. (4) The Performance of subjects under different types of subtitles. The questions raised in this article are very comprehensive, and the research results also answer some of them. Most of the subsequent studies are in-depth discussion of these questions mentioned in this article. The general direction is to agree with the enhancement of subtitles on SLA, but there are many different views on the 4 influencing factors. I will briefly introduce the experimental results and his views of d'ydewalle (1999), and the controversy in the 4 influencing factors is discussed in the next part.

First of all, according to the experimental results, when foreign language and native language are very different, SLA will not necessarily decrease, and there is no evidence to support the impact of different social backgrounds. Second, the data obtained by observing eye movements strongly showed the automatic and mandatory nature of reading subtitles. For different types of subtitles and videos, subjects would still read subtitles automatically. More detailed analysis confirmed that subjects were processing tracks while reading subtitles. Third, image processing will promote understanding. Simply watching the film can let the subjects understand what happened in the story. They seem to be able to connect the images with the meaning of the foreign language and help them draw elements from the foreign language. However, the emergence of foreign language subtitles decreased understanding. d'ydewalle (1999) agreed with the following explanation. The subjects could follow the movie in image mode while processing the soundtrack; However, it is completely impossible to observe images and at the same time. By switching visual attention between images and subtitles, a lot of resources and time are lost, resulting in some interference. Forth, his research results show that reverse subtitles can enhance language acquisition more than standard subtitles.

2.2. The Subsequent Studies of the 4 Influencing Factors

In this part, we will discuss the controversy in the 4 influencing factors purposed by d'ydewalle (1999), which is mentioned above, of the subsequent studies.

2.2.1. The Incidental Second Language Acquisition of Subtitles

Most studies agree with this view on the enhancement of subtitles in SLA. Ina (2014) pointed out that subtitled cartoons have positive impacts on children's incidental second language acquisition and will not distract them from unfamiliar foreign language words [4]. Ayand agreed that the enhancement of English and Persian subtitles on oral fluency and accuracy to intermediate Iranian EFL learners [5]. Aminatun concluded through questionnaire surveys that people subjectively agree with the enhancement of subtitles on video content understanding and incidental second language acquisition [6]. Researchers' views are focused on incidental second language acquisition, but there is still a gap in the practical application of subtitled video materials in teaching.

Controversy emerged in the application of subtitle in language teaching. Vulchanova proposed that subtitled foreign language videos can be applied to academic language teaching, because it avoids the secondary adaptation of teaching materials. Using raw material in foreign language can avoid the understanding deviation of local teachers [7]. Bahrani (2014) referred that although there is agreement on the use of various types of audio-visual programs as sources of real language input, especially in the classroom environment of language learning, there is little empirical evidence of their impact on the improvement of language ability in the informal environment[8].

2.2.2. The Influence of Native Language Type

As for the influence of mother tongue diversity on SLA, many studies pointed out its possibility. The same alphabetic script language may trigger reading behavior, the audience would use English spelling behavior to read subtitles [9]. Language similarity may increase the audience's cognitive ability of spelling [10]. According to the experimental results of d'ydewalle (1999), there is no evidence that language differences affect SLA, but this factor still needs more observational experiments to prove its possibility.

2.2.3. Observation of Eye Movements

In the subsequent studies, Kruger (2014) and Bisson (2014) used eye tracker to measure the eye movements of subjects during watching videos with subtitles [11-12]. Conklin demonstrated the application of eye tracker in SLA in more detail [13]. Although no evidence could therefore be found that the mere presence of subtitles improves performance, this study has shown that subtitled audio-visual material may still add significant value to education because of the high correlation between subtitle reading and performance Kruger (2014). Subtitle as a dynamic text can help students to enhance

their content understanding ability combined with video content. According to the experiment results of Kruger (2014), the size and number of subtitles do not significantly affect subtitle reading. Bisson (2014) referred that the appearance of subtitles will not distract the audience. Even for foreign languages, subjects spent less time on subtitles, accounting for only 30% of the time browsing the screen. After browsing the subtitles, they returned to look at the image. The eye movement instrument was also used to carry out a control group experiment, and the different understanding performances of the three groups in FL (Foreign language) audio with written NL (Native Language) translation and picture, FL audio with written NL translation, and FL audio. This analysis is mentioned in the next paragraph.

2.2.4. Image Processing

Image processing is more effectively than soundtrack processing in content understanding. Subtitles can enhance SLA because it adds text images to video images, so as to strengthens the cognitive ability in foreign languages. In the control experiment of Bisson (2015), he found that the control group with images performed better than the control group with sound. The results show that pictures are richer sources of information than written words, promote deeper processing and are more conducive to learning. findings clearly indicate that students in the subtitle conditions viewed and processed all the scenes even better than the group who watched the cartoon without subtitles [10].

2.2.5. The Performance of Subjects Under Different Types of Subtitles

As for the performance of subjects under different types of subtitles, d'Ydewalle (1999) agreed reverse subtitles is the most efficacy. With the advent of the information age, subtitles have developed into more and more different forms. Boni found that bilingual subtitles are the most useful in SLA [14-15]. In addition, the study found that the subjects' favourite double subtitle consumption mode is cross bilingual subtitles (L2→L1 + L2, i.e., audio in L2 with dual subtitles). Reading L2 by default and switch to L1 screen when new words appear. It is also supported by Lazareva (2017) for the dual subtitles condition significantly outperformed the standard subtitles condition on the written word recognition task. All studies agreed that the subjects under the standard subtitle conditions perform the lowest accumulation in SLA. Preference for viewing native language subtitles has a negative impact on comprehension and vocabulary skills (e.g., assessing word definitions), thus indirectly confirming the importance of foreign language subtitles (compared with no subtitles at all) (Lazareva, 2017).

2.2.6. Attenuation of the Enhancement of Subtitles In SLA

An important point not mentioned in d'Ydewalle (1999) is that the enhancement effect of subtitles in SLA will weaken with the increase of learners' academic level. Vulchanova (2014) found no differences in the performance of different types of subtitles in the older and more advanced groups. The survey results in Lazareva (2017) also showed that higher-level language learners have very low demand for bilingual subtitles. High level learners may choose more foreign language subtitles or no subtitles for two language acquisition. Reverse subtitles or dual subtitles may cause more interference to their attention. In general, the incidental second language acquisition of subtitles is still effective, but its enhancement may be mainly applicable to lower-level language learners or beginners.

3. INSIGHT ON RESEARCH FINDINGS

Following the time flow, we can see that more science and technology are applied in experimental means (such as eye tracker technology instead of manual observation), and the renewal of subtitle types has brought new research topics. The efforts of researchers have provided many valuable research results in this field. It is believed that there will be more scientific and technological means to improve the research on subtitle incremental second language acquisition in the future.

As many authors mentioned in their articles, there are still many deficiencies in their experiments. The working memory skills or other cognitive abilities of subjects known to affect language acquisition and use had not been observed (Vulchanova, 2014). Subjects are likely to have differences in language experience, background, awareness and sensitivity, these individual differences may lead to the overall success of vocabulary gain were not taken into account in the experiment (Lazareva, 2017).

However, in my opinion the influence of individual differences on the incidental SLA of subtitles may be very little. Because individual differences can affect many aspects of SLA in addition to reading subtitles. As mentioned in the last part, high level learners' demand for subtitles is very low.

Therefore, besides individual differences, there are still many vacancies in this research area. First, in-depth study is necessary in the influence of native language differences. Although the experimental results in d'Ydewalle (1999) have shown that language differences do not affect SLA, they are only in word accumulation. The influence of language differences on SLA is still significant. For example, the word order is inconsistent in the bilingual subtitles of the Chinese translation text and the English original text of foreign language films.

Sometimes the Chinese translation corresponding to the second sentence of the English text will appear on the English text of the first sentence. This is due to the difference between Chinese grammar and English grammar. Language differences will cause learners to be unable to correctly correspond L1 and L2 texts, this will cause deviations in grammar understanding ability.

The study of video types is also worth further studying. Some videos with strong action scenes and dazzling visual effects distract people from subtitles. The audience will ignore the foreign language subtitles in the bilingual subtitles and pay more attention to the images after reading the translations.

Deviations in some minor respects, such as slang and idiom in different languages, could be considered as an influencing factor. The influence degree of this factor mainly depends on the translation tools or the translator's language understanding ability. At the same time, under the influence of political factors or social factors, there may be a certain degree of compromise translation in the streaming media, and the translation results may deviate from the original text.

4. SUGGESTIONS FOR FUTURE DEVELOPMENT

Researchers should take more measures to test the influence of these different factors on SLT, the sample collection should also be expanded to increase the universality of the research. With the increase in the number of samples collected, the cost will increase correspondingly. It is suggested that the online survey method can reduce the cost and increase the coverage of sample collection.

In order to improve the enhancement effect of subtitle video-based media on second language acquisition, this paper suggests using the bilingual conversion of subtitles mentioned by Boni (2017), to display other explanations of polysemy words at the top of the screen, and separate display of obscure terms to improve the audience's attention.

Thus, the display of subtitles is a decisive factor for the audience's attention. Video producers can refer to the design of game subtitles in the process of adding subtitles, to set up dialogs next to different characters. Considering that the placement of dialog boxes may obscures the picture and affect the overall viewing effect, this method can be applied more to video viewing based on VR and AR, and larger screens can allow subtitles to have more display space.

For translation bias factors, this paper suggests using Artificial Intelligence to reduce the bias of manual translation. Google has already used online verification codes to train artificial intelligence, such as identifying and classifying different object images before logging in,

so as to enhance Google's artificial intelligence. By displaying the bilingual translation of FL and NL in the verification code on the Internet in different countries, people can rate the accuracy of translation and fill in what they think is the correct translation, so as to increase the storage of translation database. Artificial intelligence can be compared according to the reports of different language versions of the same event, analysing the language habits and translation texts of different countries' editors, so as to increase the accuracy of text translation. It can also analyse the use of slang and idioms under different emotions on the Internet to increase the translation database.

5. CONCLUSION

With the development of the information age, video-based media is becoming more and more popular and widely used in formal language classroom teaching. Subtitles will inevitably become the main target of today's language learners.

So far, most empirical studies have confirmed the incremental second language acquisition of subtitles. Many influencing factors causing deviation had been experimented and discussed. There are many controversies about influencing factors, such the application in formal and Informal learning environments, performance under different subtitles etc. Some ignore the further empirical research on the impact of different mother tongue types, especially their role in second language acquisition, as well as other influencing factors. After analysis, it is the most effective for SLA learners under the condition of bilingual subtitles, but subtitles have little impact on high-level learners. In the future development of subtitles, this paper suggests that designers refer to the form of game subtitles to typeset and display subtitles, mainly focusing on the videos played in AR or VR. Artificial intelligence can be used to reduce translation bias. In view of the more extensive use of multimedia in teaching, the research of subtitles will be more important.

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