The Role of Videos' Subtitles in Second Language Acquisition

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Abstract. With the ongoing advancement of science and technology, the multimedia teaching method is becoming more and more important. Among them, watching movies and TV plays is the most common way because it can provide a relaxed learning environment. This paper attempts to explore how subtitles in videos can assist learners to acquire a second language, whether positively or negatively. Since the author is from China, the first language mentioned in this paper basically refers to Chinese and the second language refers to English. In the course of this research, the author reviewed the past literature and experiments from China and abroad, and also combined them with her own experience in the process of watching videos. Finally, a conclusion is reached that in general, applying subtitles to videos like movies or TV series is helpful for the whole second language acquisition, but in different categories of subtitles (L1, L2 or both L1 and L2), learners' second language competence and different types of videos also have positive and negative effects on it. In response to this conclusion, this paper also puts forward corresponding suggestions to different groups, such as teachers, learners, media, video producers, etc. at the end of the paper. The aim of this paper is to look forward that in the future, the method of watching videos can be more beneficial for acquiring a second language.

Keywords: Subtitles; videos; second language; learners.

1. Introduction

The first language (L1) often refers to a language that people learn passively after birth, which is also the language used by other people for normal communication at the place of their birth. The second language (L2) is frequently used to describe the next language that people learn after mastering the first one [1]. Therefore, the former is often acquired by nature, and the latter can only be acquired through afterbirth learning (either systematic or needed to be taught). L1 mentioned in this paper refers to Chinese (and mainly Mandarin), and L2 refers to English.

It is generally believed among the scholars that in China, English teaching has begun since the 1960s. One authoritative claim is made by Stephen Evans, who jumped to a conclusion that English teaching originated in church schools [2]. He found it through the diary written by the missionaries of these years: 'The MES school was established in Macao in 1839, a few months after the first headmaster, American missionary Samuel Brown, arrived there [3].' So nowadays, people also tend to believe the fact that in China, English is officially educated as an L2 very early. However, at that time, not everyone could have the opportunity to get in touch with this foreign language, because missionary schools basically only appeared in trade port cities, namely Guangzhou, Shanghai, Fuzhou, Ningbo, and Xiamen. Therefore, regional differences in foreign language teaching emerged at that time and even have continued in recent years.

Born in Shanghai, which is a metropolitan city, the author came into contact with English teaching at a very young age. However, at the same time, in many other inland cities, children only began to learn English in junior high school, and in the past ten years, the purpose of English education was only there for various entrance examinations. But as globalization has developed rapidly in recent years, more and more emphasis has been put on L2 teaching and learning. Some students may need to go abroad for further study because of the rich educational resources, some workers may go on business trips to other countries, etc. There are various reasons like these causing increasing numbers of people to start to learn English. As years go on, English has played an increasingly important role in Chinese education.

In the past, English lessons are repetitive and dull. Students could only attend classes held by the Chinese teachers and try to understand the English words with the help of L1 back and forth, so when they needed to have a talk with the native speakers, it may cause some difficulties and problems due to the lack of an immersive native environment. So over the past few years, since technology has become more and more essential in people's daily life, it is very crucial in the area of education as well. People have the chance to be taught by foreign teachers and the reasons for learning L2 has transformed from taking the exams to broadening the horizons and learning the culture all around the world. More and more people try to learn an L2 to meet their spiritual demands. Technology has brought different kinds of multimedia into English teaching, which helps promote authentic communication and encourages learners to be more effective in improving communication and comprehension [4]. The most interesting and relaxing method is watching videos, and it undoubtedly contributes significantly to both multimedia and multimodality because it combines spoken and visual information together [4]. However, there are a lot of disputes over whether to apply L1 to the L2 acquisition these years. Different scholars hold different views on the use of the type of the subtitles, such as Chinese (L1) subtitles, English (L2) subtitles or mixed Chinese and English subtitles (bilingual subtitles).

This paper seeks to investigate the specific function of the subtitles in the videos in L2 acquisition, that is, how it helps learners to acquire the L2, or whether it is harmful to the learning of the L2. Since the author is a Chinese person, it will mainly focus on that the L1 is Chinese and L2 is English. The paper will be divided into four or more parts, discussing the influence on understanding the content of the videos, listening comprehension, grammar learning, vocabulary acquisition, etc. The author tries to draw a more objective conclusion by analyzing the experimental data completed by predecessors and integrating the self-understanding gained from her own learning process. In addition, the author will also put forward some practical suggestions for different groups (such as teachers, video producers, and mass media learners), so that educators can better apply videos to L2 teaching in the future.

2. Analysis of the Role of Subtitles

After collecting a large number of documents and data, the author found that in the existing studies, those involving the research on the role of subtitles in L2 acquisition mainly focus on the subtitles' functions in content understanding, listening comprehension, grammatical structure learning, vocabulary memorizing and some other small aspects. Due to the time and difficulty in collecting a universal sample size, the author will discuss their experimental results on her own understanding and draw some conclusions after analysis.

2.1. Understanding and Memorizing the Contents

It tends to be common sense that with subtitles, people can easily understand what the actors are saying in the episode. Indeed, Vulchanova has proved that it is true, he expressed that due to the fact that they prevent the need for a second adaptation of teaching materials, subtitled foreign language videos can be used in academic language instruction [5]. In China, people take English classes given by other Chinese people who have superior English competency than them in school or in other educational institutions. For better understanding, teachers will explain it by adding some L1 in it which is full of their own translation, so using raw materials in L2 teaching can prevent the Chinese teachers' understanding from becoming distorted [1]. When applying English subtitles in the videos, people can read them in the process of listening and form their own comprehension. Sometimes they may have difficulty in completely understanding, which will force them to get to know the idioms or words they don't know before to fully know what a film or TV serial is about. It exactly promotes English learning.

Furthermore, a famous theory can also support that watching subtitled videos can better improve the understanding of a video's main plot. It is put forward by Mayer which is called the theory of

multimedia learning [6, 7]. This theory states that learning occurs best when there are two channels involved: a verbal channel that processes written text and a visual channel that processes pictures and video [8]. Mayer believes that these two channels can play a better role in recognizing video content when they coexist, and then promote the understanding of the video content, that is, if learners watch an L2 video without subtitles, the video is not good enough for language acquisition. The simultaneous use of these two channels promotes learning because, in contrast to verbal or written information alone, an audiovisual presentation enables input to be processed by both the verbal and visual systems, which allows for more cognitive resources to be devoted to the processing of information [9]. The author believes that over time, learners will more easily grasp the video content quickly with the help of subtitles, which means that their listening and vocabulary understanding have to be improved.

In addition, the ability of cognition in foreign language learning can be strengthened by adding text images to video images because in terms of content comprehension, picture processing greatly outperforms soundtrack processing [1]. In 2015, Bisson has conducted a control experiment and the outcomes reviewed that the group using visuals performed better than the one using sound [10]. He proved the theory that pictures can produce richer sources of information than only listening to teachers talk about the words written in books or reading them by learners themselves. It is more conducive to learning and can promote deeper processing, which means watching videos with subtitles can really assist content understanding in L2 acquisition [11].

2.2. Listening Comprehension

In 2010, a scholar called Han Yanmei designed an experiment, in which 80 non-English major students were divided into four groups (according to the ANOVA analysis of SPSS13, there was no discernible difference in English proficiency between these four groups) to participate in the test. The subjects were required to not take notes during the video-watching process, and when they could not answer the questions due to their poor comprehension or memory loss of the details in the videos, they should leave them blank to reduce the experimental error. The results show that different subtitles have different effects on listening comprehension. To be more specific, the subjects who watched movies with subtitles scored better than those who didn't use subtitles when watching movies; the subjects who watched movies with English subtitles scored better in listening than those who watched movies with Chinese subtitles. This may be due to the fact that English subtitles are more convenient than Chinese subtitles for the subjects to directly obtain the original listening text and promote their understanding of listening. However, the results of the participants who watch videos with Chinese and English subtitles and those who watch videos with only English subtitles do not significantly differ from one another. The reason may be that both of them have English subtitles, which can allow the subjects to directly obtain the original listening text [12].

From this experiment, it seems that adding subtitles in the videos can promote listening comprehension in English learning because with the help of the texts, learners cannot only get the main idea in the videos through the talk between the characters, but they can also know it by reading the subtitles, which may be like doing the reading comprehension. However, since the test did not give a result of the differences between the videos with English subtitles and the videos with bilingual subtitles, it is not absolute because the experiment still has limitations. For example, the subjects have already known that they need to do the listening test before participating in this research, so during the watching process, those in the bilingual subtitled video group may mainly put their emphasis on the English text and try to ignore the Chinese one, causing that there is a little gap between these two groups. Therefore, it still needs to be further studied.

However, there is another theory called cognitive load theory presented by John Sweller in 1988. According to it, the learning process is to actively use working memory to understand and process learning materials and encode the acquired information to store in long-term memory. However, the capacity of working memory is limited. If the amount of target information exceeds the cognitive load limit of working memory, information processing will be blocked or even lost [13]. In China,

the imported British or American videos must have subtitles, and most of the time, the original English subtitles will be retained, and Chinese subtitles will be added to the basis. Once Chinese subtitles are available, English subtitles are equivalent to only a decoration for Chinese learners who take Chinese as L1. Although learners can understand and master video content faster and better with the help of native subtitles, they will lose the meaning of the listening material itself [13]. If learners only listen to the original sound of the video, they will return to the condition that is taught by audio materials that have lower efficiency. Some scholars hold the view that due to the fact that videos offer numerous input modalities, the application of them is preferable to audio-only instruction when teaching English. That is, by drawing students' attention to both audible and visual inputs, videos can improve learning and comprehension [14]. Similarly, it is difficult for Chinese learners to completely shield L1 subtitles from their eyes (in the case that the video playback software cannot turn it off) unless they are told before like in Han's experiment. If they are forced to pay attention to English subtitles simultaneously, it will lead to cognitive load, that is, their limited attention will be scattered, their working memory will be overburdened and their information processing efficiency will decrease, which is too excessive for L2 learners to handle in a short amount of time [8, 13]. Those will not only do harm to their ability to understand the video content (2.1), but also be bad for the listening comprehension.

Take some of the subtitles in the film *Sherlock* as an example, in about 25 minutes and 30 seconds, the L2 subtitles shown on the screen are 'intended to stay in London for one night/before returning to Cardiff', while the L1 subtitles are 'She is planning to stay overnight in London before returning to Cardiff'. This sentence was broken into two phrases and appeared on the screen successively. As it is a detective film, the clues and evidence just collected by the characters also appear on the screen in bilingual form with subtitles, so it is not difficult to find that at this time, learners need to concentrate on understanding the content, the expressions of the characters and the bilingual subtitles on the video in play. And due to the inverted differences in the word order between Chinese and English, the two subtitles cannot correspond, that is, the Chinese subtitles in the left picture actually correspond to the English subtitles in the right picture, and vice versa. So when learners try to observe these three things at the same time, and simultaneously, their tasks are to listen to the characters' dialogues to improve their listening comprehension. Obviously, it is the time that cognitive load happens, that is, their brains will not be able to process these inputs at the same time, which will have a certain negative effect on listening comprehension.

Therefore, it is difficult to say whether video with subtitles plays a positive or negative role in the listening part of English learning. It may be necessary to carry out more in-depth research in order to fully get a conclusion. According to the author's current research findings, a single English subtitle is more helpful for listening comprehension, while a single Chinese subtitle seems to have no help for English learning. Bilingual subtitles do assist to understand the content and be beneficial to listening comprehension, but they may still have a negative impact if they make the learners' brains overloading.

2.3. Grammar

It is very important for learners to learn a language in the corresponding context. In this way, an authentic chatting context can be created, so that learners can feel that they are immersive in the scene, helping them grasp the L2 expression more quickly and accurately. Regarding the definition of authentic context, there has a lot of disputes. The author tends to believe more about the text being written is equal to what an actual language user would write because it is not intended for language instruction. In this sense, media such as movies and television shows should be regarded as sources of authentic language input if they meet the stipulation that they contain actual instances of language use rather than exemplars created particularly for language education [15].

Mercè Torrens Llabrés conducted an experiment to find out whether watching subtitled videos has a positive or negative effect on cleft sentences in English grammar [16]. He has proposed a view that it is very important to create an environment for learners without negative feelings so that it can be

ensured that he or she can get a ton of information that is understandable. And after that, it is possible to guarantee that the aspect of language acquisition that must be finished is successful. So watching videos with subtitles give learners an anxiety-free learning environment to learn language because it can provide learners with different accents, dialects and grammatical expressions and it promotes the contextualization of language learning, providing students with a direct connection between real life and the learning process [16]. In other words, students can thus make connections between what they have learned in class and how it is applied in real-world situations because they will observe how language is used to convey ideas rather than only to emphasize certain linguistic features [15].

In addition, the experiment jumped to a conclusion that overall, adding subtitles to videos can be beneficial to grammar learning [16]. However, for beginners, subtitles can help them identify simple grammatical structures. The author thought that the possible reason is that as the cognition load theory shows that, people cannot deal with so much information in a short period of time. The subtitles will roll with the speed of speech of the characters, so the learners can only pay attention to the corresponding subtitle content through sentences that can be fully understood when the whole subtitles are not fully mastered, so some grammatical structures can still be remembered under the dual effects of listening and vision. For example, some of the simplest structures like 'It is...that', 'it is +adjective+ for someone to do something', etc. But this will lead to the fact that learners with high English proficiency, as they are accustomed to the existence of these simple grammatical structures, will not be so sensitive to what they hear and see. Their focus may be on understanding the content. Yet, if meeting with the more complex structures, such as subjunctive mood and inversion structures, and most of the time, they are integrated into some native oral expressions and it may even lead to wrong acquisition.

Another experiment conducted by Henrik Eye was focused on the Norwegian, but the author guessed it will almost appear the same result in Chinese. The result has showed that learners who are exposed to English subtitles have a better score on the test, which proved that the L2 subtitles have some benefits for grammar learning [17]. For single L1 subtitles, learners can only see the native texts, but at the same time, they can hear the English talks. However, it seems that there is little assistance for grammar learning, although they can guess what the structures are, they may have some problems like whether the use of this structure is true or not. After that, they still need to search for these on their books or websites, which may add a burden on them.

Therefore, there are both benefits and harm to grammar learning in the process of watching videos with subtitles to learn English and it depends on the complexity of different grammar structures and the English competence of learners.

2.4. Vocabulary

For the vocabulary learning part, it is obvious that there are a lot of differences between the types of subtitles. A scholar called Gong Hao conducted an experiment, in which the participants need to finish various types of translation tasks after watching videos with subtitles to test the incidental vocabulary acquisition. The results demonstrate that when playing movies with English subtitles and students are forced to finish the translation from English to Chinese, learners' test scores are inferior to the opposite group [18]. The author believes that this means it is better to be exposed to only the L1 (Chinese) subtitles than the L2 (English) subtitles for vocabulary acquisition. The possible reason may be that when only watching videos with single L2 subtitles, learners can only see the strange new word, but if they want to know the meaning, they need to stop playing the videos and try to search for them in the dictionary or on the websites, causing that they cannot watch the video with a relaxing mood and with several pauses, it may be difficult for them to understand the content of the whole video.

However, when watching videos with L1 subtitles, learners can listen to the dialogues in the videos and read the subtitles on the screen. They can combine the new words they hear with the corresponding English words in the context to help them understand and complete the vocabulary acquisition. L1 subtitles are helpful because they allow listening comprehension and vocabulary

learning in addition to facilitating a better understanding of the videos' contents. Moreover, L1 subtitles could make up for the rapid speaking and challenging new words in the videos [19]. However, it seems to have no benefit for the spelling of the word. Learners can only listen to the sound and pronunciation of the word, but they cannot see how it spells, so when they need to use the word to do the writing, it has some negative effects.

When learning the vocabulary, both students and teachers had a preference for bilingual subtitles [4]. The possible reason could be that these kinds of subtitles help students identify irregular pronunciation and facilitate greater understanding. According to the majority of students and teachers, bilingual subtitles can act as an efficient technique to reduce their learning anxiety and boost confidence in study. They can also offer a means of bridging the gap between the cultures of the target language and the native language [4]. For those who cannot recognize the corresponding context at a rapid speed, that is, maybe their L2 competence is low, they need to learn the vocabulary better with the help of both Chinese and English subtitles. The same result has been given by another experiment, in which the result is that bilingual subtitles contribute to helping users produce vocabulary dramatically better than intralingual and/or interlingual subtitles due to the fact that when having the translation available, users are conscious of the grammatically accurate, properly-punctuated, and unambiguous written form in both L1 and L2 [20].

However, some scholars thought that it not only depends on the proficiency of the learners, but is also related to the types of different videos [21]. The author thinks it is somehow true. For example, there are a lot of scientific films or movies in the field of pharmacy, surgery, artificial intelligence and etc. There is a wide range of terminology in them so that it will make the learning of vocabulary complicated, or it can be said that, only even those working in the translation industry need to learn these kinds of words. Common people only acquire L2 for daily communication, so they do not need to use these professional words.

Therefore, in the whole view, bilingual subtitles are much more useful in vocabulary learning in L2 acquisition. But factors like learner's competency and video types still need to be considered.

3. Suggestions

3.1. For Teachers

Since watching film and television video plays have been used as a new teaching method, they are still not mature enough. Also, if only using these videos for teaching, it seems that students do not need to come to school and English teachers are not required anymore. Therefore, in the case of existing subtitles, teachers can assist video to teach learners. According to studies, cross-bilingual subtitles are the learners' preferred subtitle mode, that is, a video mainly uses L2 subtitles, and when there are some new words appear, the L1 subtitles will also show on the screen [1]. The dual subtitles condition greatly outperformed the regular subtitles condition on the written word recognition test, which is supported by Lazareva as well [11].

Teachers can prepare for the video plays to be used in the class in advance, making preparation for the new words, slang and proverbs that may appear. They can pause the video when new words, slang and proverbs appear for the auxiliary explanation. In order to prevent students' English thinking from being interrupted, the video corresponding to the sentence can be replayed after the explanation. Or they can also print the new words, slang and proverbs into a handout and send it to the students before the class, giving them time to be familiar with them before watching the videos, so that they can fully understand when hearing unfamiliar words and sentences.

3.2. For Learners

For learners, they should choose the appropriate subtitles according to their L2 level to better assist their L2 acquisition ability. For example, according to a previous experiment, English subtitles can better help learners improve their ability to spell words and recognize words from listening texts, while Chinese subtitles can better assist learners in mastering the meaning of words. The effects of

both L1 and L2 subtitles on vocabulary acquisition are conspicuous for students of both high and low L2 proficiency. Students with low levels of English language proficiency appear to gain more benefits from Chinese subtitles than from English ones in terms of word meaning, whereas the effects of Chinese subtitles and English subtitles are not as different for students with high levels of English language proficiency [22]. Therefore, those with high competence in L2 can choose English subtitles when watching videos, in which they can get more intuitive access to the language. The author believes that it cannot only benefit vocabulary acquisition, but also can assist overall English learning. For those with low competence in L2 can take a step-by-step method, that is, watching videos with L1 subtitles only first. After some time, watching videos with L2 subtitles only. Finally, learners should try to watch videos without any captions [22]. Along with the accumulation of time, their English level will improve day by day, so as to successfully acquire the L2.

3.3. For Video Producers

During the process of making videos, game subtitles can be used as a reference by the creators [1]. They can make full use of the screen space and design subtitles without causing a cognitive load. For example, they can set memorable slang or proverbs next to characters in the form of chat boxes to distinguish them from ordinary subtitles, which can not only add fun, but it can also reduce the cognitive load of the learners.

Also, there is still a lot of translation bias in the videos. For solving that, combing people and artificial intelligence together to complete the translation can be taken. This can reduce part of the work of translators and provide better viewing effects. And also, the errors can be solved from the origin, so as to avoid combing the students' own errors in the subsequent learning process and the errors brought by the video to produce worse learning effects.

3.4. For Mass Media

In China, the most commonly used APPs are Tecent videos, iQIY, YouKu and Mango. The author found that there is no button for the audience to choose the subtitles, that is, all the learners could only be forced to watch the bilingual or Chinese subtitles. So if possible, in the future, the designer or operator of the media can add a choice to the subtitles when updating the Apps. The choices can be provided as single native subtitles, single English subtitles, Chinese-English bilingual subtitles, or the alternate Chinese and English subtitles mentioned before.

In addition, almost all software in China now has a ‘teenagers’ mode. The author thinks that a learning mode can be set by following this function. That is, learners who watch videos can have an additional ‘notebook’ function while the mode is opened. When they encounter new words or unfamiliar slang, proverbs, grammatical structures, etc., they could be recorded in time to avoid the forgetfulness caused by capturing a lot of screenshots and taking notes down after finishing watching the videos.

4. Conclusion

It is undeniable that a new teaching method of watching videos is becoming more and more important in L2 learning. In the eyes of many teachers, it cannot only share the academic pressure, but also help students learn L2. While in this process of L2 acquisition, subtitles play an essential role. This paper analyzes the specific role of subtitles in L2 acquisition from four aspects by tracing back to other people's research literature and strengthening the author's own understanding.

The research results show that in terms of memorizing and understanding the content of the videos, according to the ‘multimedia learning theory’ and the experiments completed by past scholars, it can be obviously concluded that watching subtitled videos is helpful for language learning because it provides learners with a dual channel learning, assisting them better identify the content of the videos.

In terms of listening comprehension, the author draws a conclusion from Han Yanmei’s experiment that because of the appearance of the characters’ dialogue text on the screen, learners can

read it while listening to them. Over time, they will get used to such authentic language expressions as continuous reading and weakening the sound, which is helpful for listening comprehension. However, according to the cognitive load theory, the human brain cannot receive so many inputs at the same time—sound and vision (including pictures and text content). If too much attention is paid to subtitles, watching videos is like reading books, which will do harm to listening comprehension. At the same time, if too much attention is paid to audio input, it will have a negative impact on content understanding.

The effect on grammar and vocabulary is almost similar. As watching videos can provide learners with an English context, learners can immerse themselves in language learning, which is much more effective than being taught at schools. But the grammatical structure itself has a certain complexity, and similarly, there are also more complex words and professional terms in the videos, which will lead to certain errors if the grammar and vocabulary are only learned in videos. In addition, learners' L2 competence is different. For those with superior L2 ability, they already have a foundation of vocabulary and grammar, while ordinary types of film and television often do not use more difficult grammar and vocabulary in it. But for those with inferior L2 ability, it can help them identify the basic grammatical structure and complete vocabulary memorization.

Subtitle types also make certain differences in their functions. L1 subtitles can hardly help grammar learning at all. For vocabulary learning, they can only help understand the meaning of words, and they cannot play a significant role in spelling. L2 subtitles play a more important role in grammar acquisition than in vocabulary. The role of bilingual subtitles on grammar learning seems not to be supported by too much experimental data, but it has a great effect on vocabulary. It is also liked by many teachers and students, but it seems to cause a cognitive burden.

Therefore, the role of subtitles in videos in L2 acquisition has certain advantages and disadvantages, which will vary according to different variables. However, it is still obvious that such a new teaching method can play a certain role. In order to minimize such negative effects, the author also puts forward some suggestions for different groups. For video producers, subtitle styles can be changed to increase the fun and reduce cognitive load. Also, AI can be added to subtitle translation to reduce the labor force and the acquisition errors caused by a video. For media software, the optional subtitles can be added to allow different learners to select subtitle types as required. In addition, a learning mode is needed so that learners can make notes in time during the learning process. For teachers and learners, learners should develop their own learning plans according to their own competence and gradually choose subtitles, while teachers can play a role in assisting video teaching. When the media has not yet developed the subtitle selection function, they can help do some explanation of the new words, idioms, etc. in the subtitles.

References

[1] Zhang, Z. Review of the Incidental Second Language Acquisition of Subtitles in Video Products. In 2022 3rd International Conference on Language, Art and Cultural Exchange (ICLACE 2022). Atlantis Press. 2022: 98-102.

[2] Evans S. The beginnings of English language teaching in China. Asian Englishes, 2006, 9(1): 42-63.

[3] Ge, R. Review of the History of Chinese English Education. Overseas English, 2021, (15): 5-7.

[4] Li, M. Investigation into the differential effects of subtitles (first language, second language, and bilingual) on second language vocabulary acquisition. 2016.

[5] Vulchanova, M., Aurstad, L. M., Kvitnes, I. E., & Eshuis, H. As naturalistic as it gets: subtitles in the English classroom in Norway. Frontiers in Psychology, 2015, 5: 1510.

[6] Mayer, R. E. Multimedia learning: Are we asking the right questions? Educational Psychologist, 1997, 32(1): 1-19.

[7] Mayer, R. E. Multimedia learning. In Psychology of learning and motivation (Vol. 41). Academic Press, 2002: 85-139.

[8] Dizon, G., & Thanyawatpokin, B. Language learning with Netflix: Exploring the effects of dual subtitles on vocabulary learning and listening comprehension. Computer Assisted Language Learning, 2021, 22(3): 52-65.

[9] Brünken, R., Steinbacher, S., Plass, J. L., & Leutner, D. Assessment of cognitive load in multimedia learning using dual-task methodology. Experimental psychology, 2002, 49(2): 109.

[10] Bisson, M. J., Van Heuven, W. J., Conklin, K., & Tunney, R. J. The role of verbal and pictorial information in multimodal incidental acquisition of foreign language vocabulary. Quarterly Journal of Experimental Psychology, 2015, 68(7): 1306-1326.

[11] Lazareva, E., & Loerts, H. Double subtitles as an effective tool for vocabulary learning. Konin Language Studies, 2017, 5(1): 61-92.

[12] Han, Y. The influence of the choice of subtitles on the second language acquisition of learners. Film review, 2010, (10): 70-71.

[13] Wang, Z. Research on the correlation between subtitle audio-visual input and two language acquisition: review, thinking and prospect (Eds.). Proceedings of the 12th International Symposium on Chinese Teaching Modernization, 2021: 257-267.

[14] Hasan, R., Palaniappan, S., Mahmood, S., Shah, B., Abbas, A., & Sarker, K. U. Enhancing the teaching and learning process using video streaming servers and forecasting techniques. Sustainability, 2019, 11(7): 2049.

[15] Bahrani, T., & Sim, T. S. Authentic language input for language learning in EFL/ESL contexts. The International Journal of Language Learning and Applied Linguistics World, 2013, 3(2): 67-72.

[16] Torrens Llabrés, M. The Role of Subtitles in the Acquisition of L2 English Grammar: A Case of Study of Cleft Sentences and Harry Potter and the Philosopher's Stone, 2021.

[17] Eye, H. The impact of subtitles in second language acquisition: an experimental study on Norwegian upper secondary students (Master's thesis, NTNU), 2016.

[18] Gong, H. Effect of different tasks on the collateral acquisition of subtitle translation words. Journal of Mudanjiang Institute of Education, 2020, (11): 17-21.

[19] Guillory, H. G. The effects of key word captions to authentic French video in foreign language instruction. CALICO Journal, 1998, 15(1-3): 89-108.

[20] García, B. Bilingual subtitles for second language acquisition and application to engineering education as learning pills. Computer Applications in Engineering Education, 2017, 25(3): 468-479.

[21] Matielo, R., D'Ely, R. C. S. F., & Baretta, L. The effects of interlingual and intralingual subtitles on second language learning/acquisition: a state-of-the-art review. Trabalhos em Linguística Aplicada, 2015, 54: 161-182.

[22] Wang, H. The effects of captions or Chinese EFL students' incidental vocabulary acquisition. Teaching English in China, 2007, (04): 9-16+128.