

Research on the Differences in the Use of Subtitles in China and Abroad from the Perspective of New Media

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Abstract. The rise of film and television industry has brought more rich viewing experience to the audience, but people seem to ignore the subtitles at the bottom of the screen when watching various kinds of videos. In China, almost all film and television programs are equipped with subtitles that cannot be closed, known as Open Caption. In most other countries, Closed Caption is commonly used, and audiences can choose to close it. There are many possible reasons behind the difference in the use of subtitles, such as the difference in language systems, the superiority of subtitles themselves, and the reasons of the audience themselves. The advantages and disadvantages of subtitles will also promote the improvement and innovation in related aspects in the future.

Keywords: subtitles, open caption, closed caption, Chinese, English.

1. Introduction

Now the film and television industry is increasingly prosperous, a large number of excellent film and television works have been created. However, audiences generally pay attention to the idea, content and narrative structure of the works themselves, actors' acting skills, lines and costumes, as well as editing skills and shooting techniques of the works, but rarely pay attention to the subtitles presented at the bottom of the screen. Language symbols in film and TV series are divided into discourse and text. Discourse is the dialogue, monologue, voice-over and voice-over of characters in the play, while text refers to the text and subtitles in the image. Subtitle includes title subtitle, end subtitle, dialogue subtitle, voice-over subtitle, character introduction subtitle, explanation screen subtitle, explanation time, location, event subtitle, credits, background music lyrics and so on. In this paper, we take China and English-speaking countries as examples to study the subtitle in a general sense.

Closed Caption is widely used in English-speaking countries, that is, the button on the TV remote control can be used to choose to open or close the subtitles, and the subtitles are generally not displayed by default. This function mainly serves for the disabled with hearing impairment, the elderly and the masses who need to watch videos without sound. In addition to displaying the character's dialogue, all the important sound effects in the movie and TV series also have corresponding subtitles. For example, when someone is crying in the distance in the film, the words "Cry in the distance" will be displayed on the subtitle. In contrast to Closed Caption, Open Caption was first used to provide translated subtitles for audiences from other countries. Almost all Chinese film and television works use this kind of spoken dialogue subtitles, which are embedded in the video and only show the content of characters' speech to help audiences solve some problems like unclear characters' words. But it also deprives people with normal hearing of their right not to want to watch subtitles. So, why do China and foreign countries use two different subtitles?

2. Differences and current situation of subtitle use in China and abroad

2.1 The meanings and differences between Closed Caption and Open Caption

Closed Caption is also known as Soft Caption, used in other countries except Chinese. It separates the subtitle from the video, saves the subtitle file as SUB, ASS or SSA format separately, and realizes the freedom of subtitle display by opening or closing the subtitle decoder on the premise of the same file name as the video. Subtitle is just like a "buoy". The advantage is that the audience can choose

whether to watch subtitles or not and modify the font style arbitrarily according to their personal habits and hobbies. The disadvantage is the need for player and subtitles plug-in support, which is incompatible. Open Caption, also known as Hard Caption or Embedded Caption, is mainly used in China. Subtitle and video are fused into the same set of data files by suppression. The two cannot be separated, so it is difficult to modify the subtitle content, which is like a "watermark". The advantage is that as long as digital equipment support, video files can play, so the compatibility is very good. The disadvantage is that the entire video file needs to be modified once the subtitles are faulty, and users cannot close or modify the subtitles. The biggest difference between Closed Caption and Open Caption lies in whether the audience can choose to turn on or off the subtitles.

2.2 Development and current situation of subtitle use in China and abroad

Western countries are equipped with Closed Caption, and the application system is very complete. In 1980, several major radio and television organization in the United States simultaneously launched TV programs with Closed Caption for the hearing impaired to watch television. In 1993, all TV sets with Closed Caption decoders sold in the United States were equipped with DVD, videotape, broadcast TV, cable TV and other devices. Since the implementation of the 21st Century Communications and Video Access Act of 2010, 100 percent of public television programs in the United States are equipped with Closed Caption for the deaf. "Unlike the United States, subtitling in European countries did not specifically serve the hearing impaired, but originated from European translation of Hollywood movies from the United States. Later, the prosperity of film and television culture and democratic protection of the hearing impaired enabled the spread of Closed Caption."^[1] Well-known foreign online video platforms, such as Netflix, YouTube, Twitter, Vimeo, Hulu, Metacafe, etc., have used fully standardized Closed Caption, but it is generally closed by default. This function mainly serves the hearing-impaired and is rarely used by ordinary audiences.

China mainly uses Open Caption, which developed slowly in the early stage and then developed rapidly. Chinese film subtitles have appeared in the 1920s, used to translate foreign film and television works, but at that time there was a general lack of education, the text reading ability is limited, "as in the late 1940s began to rise dubbing translation, subtitle translation once forgotten, until the end of the 20th century, subtitle translation is popular in domestic again."^[1] Li Dongxiao's research team once made statistics on the subtitle allocation of the top 10 TV stations in China in the first half of 2011, and found that "the average subtitle allocation proportion of the programs of these 10 TV stations is 56.57%. We can roughly infer the overall situation of China from the situation of subtitling in these 10 TV stations, that is, about half of the daily broadcast programs are equipped with real-time subtitling."^[2] According to Article 21 of Chapter 3 of the Regulations on The Construction of Barrier-Free Environment implemented in 2012, publicly published and distributed film and television video products shall be equipped with subtitles. As a result, Chinese imported and domestic films and TV series are now equipped with Open Caption, as are Chinese online video platforms such as Tencent Video, IQiyi, Youku, Sohu and Tudou.

3. The Influence of language system differences between Chinese and English on the use of subtitles

In real life, conversations are conducted without subtitles, and people can normally understand and communicate with only voice input. However, when watching TV programs, many Chinese viewers say that they cannot understand characters' conversations without subtitles. What's behind this phenomenon? Communicative dialogue is a form of communication in which the two parties alternately ask and answer each other under the premise of joint participation. They themselves are the participants of the dialogue and follow the dialogue logic and chat ideas step by step. Even if you don't understand what the other person is saying, a few words won't affect the overall conversation at all. Content is different, it is a fictional product which unfolds the story in the way that the writer and director think. So most of the time the audiences who are the passive receivers of information can't

know what will happen next as they do not keep up with the plot language logic of thinking. Then, since Chinese audiences can't understand the dialogue without looking at the subtitles, why don't the foreign audiences who don't like using subtitles have the same phenomenon? This may be related to the deep language differences between Chinese and English.

3.1 The amount of information contained in unit space

In typesetting, an English letter takes up one byte, a word takes up even more, but a Chinese character takes up only two bytes. In addition, English is composed of words in sentences, and there should be a certain amount of space between words so as not to hinder the understanding of the meaning of words. The Chinese language consists of Chinese characters, which usually leave little space between them so as not to disturb the coherence of reading. In addition, Chinese ideographic features are more concise, that is, Chinese characters occupy less space. Therefore, it can be concluded that Chinese can contain more information in the same space. As the prompt symbol at the bottom of the screen, subtitles should be concise and clear instead of blocking the video screen. Hence, Chinese with more information in the same space is more suitable.

3.2 The shape structure affects the eye movement processing mode

According to Han Yuchang et al. (2003), "Chinese and English processing have different eye movement patterns, and Chinese processing has higher eye movement efficiency, while English processing has lower eye movement efficiency. In terms of response time, human eyes had the shortest response time to pictures, the longest to English words, and the middle to Chinese words."^[3] English word is composed of syllables linear string as the font is long and thin with gaps between words, so it's not easy to form the consciousness of wholeness. No matter how to change viewing angle, there is a clear saccade track, and the eyes are scattered during reading, which not only lengthens the fixation time, but also increases the saccade distance. And in saccade recognition process, the human body needs to provide more energy and has a certain disadvantage in time efficiency. Therefore, the reading speed of English speaking audience is generally slower than the speaking speed and listening speed. Chinese characters, on the other hand, have dense structure with concentrated information, so the gaze coverage is high and reading perceptual span is large. (In reading, the range of perceptual processing of reading material can be carried out when the eyes are fixed at one point, which can effectively reflect the reader's reading efficiency) It can effectively reduce the number of visual horizontal scanning improving visual comprehension and perception of wholeness. Therefore, Chinese audience can effectively use Chinese characters to speed up information processing and text reading speed.

3.3 Morphological features of grammatical rules

From the basic structure of sentence pattern, both Chinese and English are in form of "subject + predicate + object". However, there are obvious differences in sentence structure between the two languages, which is mainly manifested by the emphasis on hypotaxis in English and parataxis in Chinese. "English sentences are complete in form and structure, with an emphasis on logic. The sentence takes the predicate verb as the center, and it fully reflects the integrity and rigor of English structure and form through the overlapping of various relative clauses, infinitives, participles, conjunctions and prepositions that reflect formal relations."^[4] Chinese is a non-morphological language—not mechanically fixed at a certain point, but is spread out in the order of logic, relying on word order and function words to express grammatical meaning. Therefore, it has a fluidity, and in order to avoid logical confusion caused by long sentences, it is necessary to use a large number of loose sentences, short sentences and flowing sentences to express meaning. For example, when Chinese and English express the same sentence meaning, English "Rose is a mother whose son wears a pair of shoes which fit him", while Chinese "露丝是一位母亲，她的儿子穿着一双适合他的鞋子". As can be seen from the examples, English has a much higher degree of compliance with

grammar than Chinese, resulting in a formal and tedious form. While long sentences will reduce the audience's reading desire to a certain extent, most English audiences are unwilling to use subtitles.

3.4 Corresponding ways of form, sound and meaning

Chinese characters are different from phonetic characters in expressing sounds. English contains only 26 letters which is relatively simple to distinguish. And each letter has a corresponding phoneme, which can be read directly without representing the meaning. The essence is to transcribe received auditory signals through visual symbols, emphasizing the importance of "sound-meaning" connection. Therefore, the phonetic text itself is based on pronunciation to directly identify the meaning of reading with subtitles will appear cumbersome. Chinese characters, as a complete visual symbol, take thousands of square glyphs as the core unit, and each square character is generally combined in different ways such as nonlinear up and down, left and right, inside and outside to form the perception of the shape of a single word. Each individual symbol of Chinese character can represent a syllable of pronunciation, and while representing the syllable, it also represents the semantic meaning represented by this syllable in pronunciation. Therefore, the syllables represented by Chinese characters are actually syllables restricted by meaning, emphasizing the importance of "form - meaning" connection. Hence, as a kind of visual auxiliary information on the screen, subtitles are more favored by Chinese audience.

3.5 Chinese characters are visual language symbols

There are so many homophones in Chinese that it's hard to tell them apart just by hearing them, such as “世子”和“士子”, “星星”和“猩猩”, “失忆”和“诗意”, “意味”和“异味”, that is, "prince" and "scholar", "star" and "orangutan", "amnesia" and "poetry", "meaning" and "peculiar smell". Although there is a big difference in the shape, the audience is only a passive receiver of information when watching movies and television programs. In many cases, it cannot distinguish and recognize accurate information by voice input alone, thus causing misunderstanding and ambiguity. However, just because "Chinese characters are visual phonetic symbols, they can be made up for the lack of phonetic symbols." [5] Character symbols contain three aspects of information: shape, sound and meaning. The processing process of character symbols mainly involves the mutual relationship between shape, sound and meaning. When individuals process and remember a character symbol, the most intuitive information is the visual information of the character symbol, that is, the font. The unique square glyph structure is bright and eye-catching, and the glyph distinction of many homophonic words is very high. If the phonetic input cannot be distinguished, the visual input can play a decisive role in helping the audience understand the meaning. In this sense, the expressional meaning of Chinese is relatively clear, and the differentiation degree is high. Whether it can accurately express the sound does not have much influence. This is why Chinese characters are separated from sounds, and why they have different phonetic values in different dialects, but can also be recorded without undue difficulty in reading in other dialects. Similarly, despite the huge phonetic differences between different regions, it does not affect people to watch the same film or TV series, even if it is a work with strong dialect as Chinese subtitles can solve this problem to a large extent.

3.6 The difference between Chinese and Western thinking behind language

The "Sapir Whorf hypothesis" of linguistics in the last century holds that the habituation form of language restricts the mode of thinking, so the real world is largely built on the linguistic habits of a group. There is a systematic relationship between the grammatical category of a language spoken by a person and the way of understanding the world and its behavior. Therefore, the linguistic reasons behind the phenomenon of subtitle use can also be explained by "Sapir Whorf hypothesis". Chinese characters, as the product of the long-term influence of Chinese thinking mode belonging to ideogram, also have the characteristics of pictographs. So Chinese characters can directly express meaning through the shape causing the image thinking of the Chinese people is relatively developed. English is a kind of phonogram which first needs to know the elements of pronunciation and create

corresponding phonetic symbols that have no direct relationship with meaning to express meaning indirectly, which requires outstanding analysis and generalization ability. Therefore, Westerners are good at abstract thinking. On the whole, people's way of thinking will affect the text cognition and the way of text eye movement recognition which will lead to differences in subtitle reading. As an image and intuitive text carrier, subtitles are more helpful and targeted to Chinese audiences with stronger image thinking.

4. Analysis of the reasons for using subtitle from the perspective of Communication Science

From the perspective of communication, the subject of information transmission can be divided into sender and receiver. As an information carrier of mass media, the process of watching subtitles is the process of information transmission. The subtitles themselves are the sender of information, while the audience is the receiver of information. Therefore, if we want to know other reasons for the use of open captioning in China, we should also analyze the sender and receiver of information, namely, the subtitle and the audience.

4.1 The superiority of subtitle itself

4.1.1. Break the language barrier

China has a vast territory and a large number of ethnic minorities. Although China has implemented the Chinese Language Promotion Policy, the penetration rate of Mandarin is only close to 80%. Meanwhile, dialects and ethnic minority languages in different regions differ greatly in pronunciation, which brings many difficulties to the voice transmission of TV media. Subtitling the video can help the audience who can't say Mandarin but can read Chinese characters understand and get familiar with the content of the video, so as to achieve better communication effect and solve the problem caused by a character's slurred or misspoken words.

4.1.2. Enrich the picture

Studies show that aesthetic fatigue will occur when watching the same picture for more than 5 seconds. Although most videos will constantly switch scenes, sometimes some videos will only focus on several scenes or even one scene, which is easy to make the audience's attention gradually separated from the video content. With constantly changing subtitles, the video will be more dynamic and interesting, enriching the picture and attracting attention. In addition, although video sound can make up for the deficiency of picture, it cannot produce enough visual stimulation and is often "fleeting", while subtitles play the adhesive effect of the integration of sound and picture.

4.1.3. Increase information content

When watching an episode without subtitles, viewers may be confused by the fact that they cannot understand some of the words spoken by the characters. Watching the subtitles at the bottom of the screen while listening to the dialogue can play a role in understanding and memorizing, especially in the occurrence of homonyms, rare words, technical terms and so on. Because the audience obtains information through the dual channels of hearing and vision, the three-dimensional information with pictures, sounds and words can instantly bring the effect of "seeing is believing" to the audience.

4.1.4. Show social care

On the one hand, subtitles are conducive to the hearing impaired and foreign people who are learning Chinese to watch videos. On the other hand, they also enhance the selectivity and convenience of watching videos. No matter in quiet or noisy places, audiences can be free from time and space constraints. When the sound of the video is turned off or the sound is not clear, watching the subtitles to help understand the content of the video is not only convenient for oneself, but also does not affect others, showing a strong sense of care.

4.1.5. Auxiliary role of beautification

Subtitle has become a kind of text medium as the auxiliary of TV art language. Its unique expression mode can not only express the abstract meaning of the text, but also use the features of the font appearance to convey the mood of the work. The planned and purposeful display of audio content in the form of subtitle can make the structure of program content more reasonable and scientific by giving full play to its functions of emphasis, reminder, supplement or explanation. In addition, subtitle adopts the simultaneous display of picture and text elements, which can not only achieve intuitive and vivid viewing effect visually, but also make the picture and content coherent and complete, adding artistic beauty.

4.2 The audiences themselves

4.2.1. Usage Habits

The resurgence of subtitle popularity at the end of last century is related to the popularity of Hong Kong and Taiwan dramas at that time. For example, the cantonese used in Hong Kong dramas is incomprehensible to mainland audiences, but subtitles can help mainland audiences understand the dramas. In addition, in the 1980s and 1990s, almost all of the works used live recording, with poor radio conditions and high ambient noise, so it was hard to hear what the actors said, while subtitles could play a prompt role. For a long time, the mainland has been the cultural input source of Hollywood, Japan, South Korea, Hong Kong and Taiwan, thus Chinese people have gradually developed the habit of watching subtitle, which has been transplanted into domestic films and TV dramas, promoting the further development and prosperity of subtitle culture.

4.2.2. Physiological causes

"The activation of the inferior frontal gyrus and the left middle frontal gyrus, which is related to phonology, is used to store visual information of a Chinese character for a short time to accumulate semantic and phonological information of the character before processing it to a certain extent," one study said.^[6] Take the pictophic characters that are common in Chinese characters, the words that express both shape and sound, focus on visual images while cleverly integrate the characteristics of the left and right hemispheres for hearing and visual sensitivity respectively on the basis of image thinking. And through the left and right structure, it not only integrates shape and sound, but also coordinates the functions of the left and right hemispheres of the brain, so as to achieve the overall recognition of pictophonetic characters, appropriately reflecting the characteristics of the Chinese people's overall thinking. However, Chinese reading adopts a mode of "accumulation", that is, only when the information of the whole word has been accumulated to a certain extent which means when the visual processing is usually completed, enough information can be obtained to extract the sound and meaning information. This also explains that although Chinese character symbols activate the phonetic and semantic information of the character when reading Chinese, there is a considerable accumulation of skilled Chinese readers who will use glyphs to connect semantics directly, without resorting to phonetic information. This is because the phonetic information of the Chinese writing system is unreliable, which also explains the necessity of the existence of visual symbols like subtitles, and also proves the phenomenon that Chinese native speakers have faster information processing speed mentioned above.

4.2.3. Psychological reasons

In 1976, British psychologists Harry McGurk and John MacDonald proposed the famous "McGurk effect". They found an interesting phenomenon: in a video prepared for the subjects, a syllable "ga" was dubbed with "ba," but the subjects reported hearing it as "da." In this way, the audio-visual information works together to create a third, entirely new sound, a process known as the "McGurk effect". It means that mouth shape, as a kind of visual information, will affect people's cognition and judgment of auditory information in the process of audience's speech perception, resulting in "mishearing". When this effect is applied to the use of subtitle, some audiences will feel that they

cannot hear clearly or mishear the dialogues of characters in the play as long as they do not read the subtitle. Therefore, no matter what the characters say, subtitles have the "ultimate power of interpretation", which may also result in some people's reliance on subtitles.

5. The prospect of using subtitle in China in the future

At present, Closed Caption has many advantages that Open Caption does not have. For example, the producer can modify the subtitle at any time in the later stage, and the user can also customize the subtitle style. In addition, when the video bit rate is low and the picture quality is poor, the picture quality of Closed Caption will not be affected since it exists independently. And Closed Caption can always be clearly visible, which also facilitates the creation of secondary videos and the utilization of materials. But the most important, is the audience can choose to turn on or off the subtitles by themselves. In foreign countries, the people who choose to turn on the subtitles are mostly the disabled, and the subtitles presented usually show the name of the speaker, background sound, special effects sound and other effective auxiliary information, which is committed to providing the best viewing experience for the audience. This is also the original intention of the invention of Closed Caption. In China, although subtitles were widely used in films and TV dramas in the late 1990s, most of them were only Open Caption. The standard GY/T 270-2013 has standardized requirements for Closed Caption, but this requirement has not been enforced in China. At the same time, as a text-based TV signal, the production cost of Closed Caption is relatively high, which requires investment in TV line construction to realize digital signal transmission. Hence, China has been implementing the subtitling system of "Open Caption throughout". That is not likely to change now or for some time to come.

However, Bilibili, a video platform in China, began to use Closed Caption in 2018. Although it is only for its own use at present, and there are still many flaws and deficiencies, this is undoubtedly a brave attempt and major breakthrough for Chinese video platforms. Perhaps in the future, the use of Closed Caption will be more and more widely in China, to meet the development of the era and the trend of history, and to truly meet the needs of more audiences from the perspective of universal applicability.

Television is one of the bastions of the national lingua franca. As the most intuitive text symbol of TV language, subtitles clearly reflect the context and new changes of Chinese language development and predict the new trend of Chinese language development to a certain extent. As the carrier of Chinese culture with a long history, Chinese characters are delicate components that enable Chinese people to feel the meaning of the context suggested by them. Therefore, Chinese characters can often arouse people's experience beyond language symbols. With the continuous development of China's spiritual civilization, the cultural industry related to Chinese characters will be increasingly prosperous.

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