Research Article

Data Fusion Algorithm in Subtitle Translation of English VR Video Course

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In recent years, VR technology has developed rapidly, and its application range has also developed from entertainment to education. The English video teaching made by VR technology can effectively improve students’ learning enthusiasm. VR technology will surely lead to the arrival of an era, and it will also be a tool that must be carried out in the future development of many industries. Since the first year of VR, subtitle translation has also tried to use VR technology, but it has not been able to give full play to the advantages of VR technology. However, the existing video subtitle translation technology is still in the exploratory stage. Due to the frequent problems in subtitle translation, the actual teaching effect is greatly reduced. And this has just become one of the prerequisites for the application of data fusion algorithms. The characteristics of video course subtitle translation are that the course video is the source text, which is restricted by the form of audio-visual text, the actual operation of subtitle translation, and the course content, in principle. Combined with the case, the first translation and the proofreading are compared and analyzed. With the use of data fusion algorithms, it can solve the problem of letter translation in English VR video teaching. In view of this situation, this article studies the characteristics and strategies of subtitle translation in English VR video course. This study is mainly divided into three parts. The first part is the research into the characteristics of existing video subtitle translation, which analyzes the advantages and disadvantages of existing video subtitle translation one by one. Through the research, this article believes that the main shortcomings of the existing technology are cultural differences and human work deficiencies, but they can be overcome and improved. In view of these problems, the second part of this article is to improve the problem of English letter translation in the actual application process through the use of data fusion algorithms. The third part of this article is the investigation and research, using the way of investigation to verify the specific effect of the improvement method in this article. Through the analysis of the survey data, we can see that the improved English VR video course has been widely praised by the students, which not only increases the learning enthusiasm, but also improves the learning effect.

1. Introduction

As the most emerging and popular technology at present, VR can greatly improve the fun and sense of substitution in the field of English translation, and then use information fusion to accurately verify the results. Information fusion is the use of computer technology to analyze and comprehensively process observational information from multiple sensors or multiple sources. Thereby, the process of processing the information needed for decision-making and estimating tasks can be derived. Wireless sensor networks, as a multidisciplinary fusion technology, have been widely used in medical monitoring, target tracking, environmental monitoring, and military reconnaissance in recent years. In large-scale wireless sensor network applications, a large number of sensor nodes are usually delivered randomly to the monitoring area by aircraft, which leads to the existence of massive data in the network. However, the storage capacity and energy of sensor nodes are limited, resulting in massive data not only a challenge to the life cycle of the network, but also aggravated the difficulty of competition for channel resources and reduced transmission efficiency. Another way of saying is that information fusion is data fusion. But its connotation is broader, more precise, more reasonable, and more general. Not only data, but also signals and knowledge are included. Due to habitual reasons, many
studies still use data fusion. The basic principle of information fusion is to make full use of sensor resources through the reasonable control and use of various sensors and manual observation information. The complementary and redundant information of various sensors in space and time is combined according to a certain optimization criterion or algorithm to produce a consistent interpretation and description of the observation object. The goal is to decompose the artificial observation information based on the detection information of each sensor. More effective information can be derived by optimizing the combination of information. To take advantage of new technologies, we must explore new forms and develop new methods. In this article, from a relatively novel perspective, the forms and techniques of traditional film and television creation will be boldly sorted out and updated. At the same time, it no longer only focuses on subtitle translation, but creatively integrates it with other industries and other art forms. While learning from the experience of other industries, it also actively seeks its own changes.

Audiovisual translation is a concept widely used in the field of film and television translation in Western academic circles. This concept is very broad, covering all translation forms (or multisymbol conversion) in any media production or postproduction, as well as the emerging media exposure research. In addition to subtitle translation and dubbing translation of films and TV plays, it also includes some media interpretation procedures; subtitle translation stage plays; special subtitle translation for deaf and dumb people, and patients with hearing and visual impairment; and film and television translation teaching, covering a wider range than “film and television translation research” in China. Some scholars believe that subtitle translation is the translation of the source language of spoken language into the target language of written language, which is a diagonal translation across two languages and two modes. Subtitle translation is not a simple conversion from oral to written, from hearing to hearing, or from vision to vision, but from oral to written, from auditory or visual to visual information. Therefore, in the process of translation, the translator should not only watch the subtitle text for translation, but also pay attention to other useful information on the screen or dubbing and background music, and try to present all the information to the audience completely. The subtitle translation of English VR video discussed in this article is similar to the subtitle translation of film and television works. Although there is no strict form of a script for English virtual video, directors, actors, and other organizations, the production and upload of virtual reality English teaching video in the process of shooting is actually equivalent to writing, directing, and performing a series of small films and TV plays. Therefore, the subtitle translation of English VR teaching video is similar to film subtitle translation in terms of text composition, characteristics, and limitations. But at the same time, it also inherits the advantages and disadvantages of the subtitle translation of movies and TV plays. In view of these problems, this article puts forward the relevant research into the characteristics and strategies of subtitle translation of English VR video course, hoping to improve the existing English VR video course subtitle translation deficiencies and improve the overall teaching level. In today’s information age, the concept of knowledge sharing is becoming more and more popular, and the translation and introduction of high-quality video courses in foreign universities are bound to be welcomed by domestic audiences. When translating video course subtitles, translators need to combine their characteristics and use corresponding strategies flexibly to avoid translation problems and present high-quality translations. In addition to this type of course video, this study also has reference value for the translation of subtitles for the operation guide videos of some commodities and software.

First of all, this article gives a general description of subtitle translation in video course and analyzes the characteristics of subtitle translation in the process of research. Through the study, this article argues that the current characteristics of subtitle translation mainly include the omission of grammatical elements, cultural differences, and nonstandard use of words. At the same time, this article also analyzes the advantages of subtitle translation. For example, comprehensibility can make it easier for most non-English majors to understand. In view of the shortcomings and shortcomings of subtitle translation, this article puts forward the corresponding countermeasures. In the third chapter, six subtitle translation strategies including omission translation strategy and sentence combination strategy are given in detail. These strategies can improve the shortcomings and shortcomings mentioned above, and maximize the quality of VR video English teaching. In order to further verify the effectiveness of this strategy, the corresponding experimental tests are carried out in the last part of this article. This experiment adopts the way of a questionnaire survey and analyzes the effectiveness of this method through the survey results. The content of the experiment mainly includes the students’ interest in the improved VR video teaching, their liking degree, and their preference for subtitle translation. According to the survey data, the subtitle translation strategy improved by this method can effectively improve students’ enthusiasm for English VR video learning and has a significant help to improve learning outcomes [1–3]. Common problems in subtitle translation can be divided into a misunderstanding of the original text and expression problems of the translated text. Among them, the comprehension errors caused by listening account for a large part of the comprehension errors of the original text, so these kinds of errors are called listening and comprehension errors. These problems are analyzed through specific examples in the project and corresponding countermeasures are put forward.

2. Features of Subtitle Translation

2.1. An Overview of Subtitle Translation in Video Course. Translated subtitles are generally divided into monolingual subtitles and bilingual subtitles; monolingual subtitles generally directly translate the source language voice into the target language text, while bilingual subtitles first transcribe the source language voice into source language subtitles, and
then translate into the target language. Subtitles are finally presented on the screen at the same time. This project is subtitled in both Chinese and English, and the source language is English. The original video does not have accurate English subtitles that have been proofread, and the English subtitles referred to during translation come from automatic speech recognition or the translator’s dictation, which is easy to introduce errors in listening comprehension.

Subtitle translation is a kind of language transcription way to translate the public audio-visual information such as movies and TV. It is the process of providing synchronous instructions for a conversation. Therefore, the target of subtitle translation is audio-visual text. The function of audiovisual texts can be summarized in five ways: (1) collecting and obtaining information through hearing and vision; (2) nonlinguistic elements occupy an important position in the audiovisual text; (3) linguistic elements and nonlinguistic elements are synchronized; (4) audiovisual information is reproducible; and (5) it can determine a series of dynamic image sequences, that is, recording materials. From the two dimensions of communication channels and information nature, the basic elements of audio-visual text are divided into four categories: auditory language elements (dialogue), auditory nonverbal elements (music and sound), visual nonverbal elements (images), and visual language elements (subtitles). Therefore, subtitles are only part of the whole audio-visual text. The common video course subtitle translation process is shown in Figure 1.

Subtitles are closely related to auditory language elements, because they are transcripts of dialogues, which can be intralingual, that is, dialogues are transcribed in the same language or interlingual, transcribed in another language, and the latter is subtitle translation. At the same time, subtitles are closely related to nonverbal elements such as images, music, and sound effects. Language elements and nonverbal elements complement and depend on each other. The logic between nonverbal elements needs language connection and some information that cannot be conveyed by language needs to be obtained from nonverbal elements. Only by combining the two, can the audio-visual text be fully conveyed. Therefore, for subtitle translation, the subtitle itself is not enough to constitute a complete text. The original video is the source text, and the video with subtitles in the target language is the final translation [4–6]. At present, automatic speech recognition technology cannot guarantee 100% correct transcription of subtitles and the most common mistake is the confusion of near-phonetic words. When translating or proofreading, the video voice shall prevail, and the source language subtitles obtained by transcribing shall be checked for errors. In the case of similar pronunciation, sometimes it can be judged whether there is an error by the meaning of the word. The subtitles are transcribed from the sound information, but the information contained in the picture cannot be ignored either. It can provide us with many clues to understand the original text. According to the overall principle of subtitle translation, the picture information can be combined to avoid errors in the original text.

2.2. Omission of Grammatical Elements. On the premise of not affecting the meaning of words, some function words or grammatical elements are often omitted. Video captioning producers often delete some elements for convenience, such as saving time or words. This omission is particularly prominent in the title; articles, personal pronouns, linking verbs, auxiliary verbs, and “and” are usually omitted in the title, and the preposition “on” is often omitted in subtitle translation.

2.3. Usage of Tense and Voice Is Special. There are only three tenses in most subtitle translation: the present tense, the future tense, and the doing tense. Tenses in texts are often handled flexibly according to the time-varying and order of news facts, and the rules of tense echo stipulated by traditional grammar have not been followed. In particular, in reporting disasters, wars, and casualties in conflicts, readers are eager to understand the facts, or in order to effectively capture the readers’ attention, video subtitle manufacturers tend to use passive voice [7, 8].

2.4. Time Limitation. First of all, the difference between subtitle translation and ordinary text translation lies in the characteristics of multimedia itself. The words on the screen flash by and the average stay time is less than 2 seconds. Different from the text of literary works, readers can read repeatedly for a long time without looking back. The
characteristic of translation is both a constraint and a convenience, because the translator must use the most readable, clear, and fluent expression, so that the audience can understand at a glance, rather than thinking. Therefore, subtitle translation does not need to pay attention to the depth of literature, but to more emphasis on popularity and intuition [9].

2.5. Space Limitation. A scholar once pointed out that in terms of space that there are more than two lines of subtitles on a video screen, usually with a maximum of 33 characters (sometimes up to 40 characters). In terms of time, subtitles should stay on the screen for no less than 2 seconds and no more than 7 seconds. Although the word order of subtitle translation is not completely consistent with the target language, just like dubbing and simultaneous translation, the time when subtitles appear and disappear has its own strict norms. Therefore, due to the influence of time limit, the subtitle is also limited by space. Therefore, the translation of subtitles should be as concise as possible, elegant, and popular for all ages [10, 11].

2.6. Cultural Differences. Generally speaking, film and television works are the embodiment of the mainstream culture of a country. By appreciating the film and television works and with the help of subtitles, the audience can understand the different life culture, national customs, and ideas and values of foreigners. But in cultural exchange, there are some cultural similarities and differences, so we want to use many different methods to reflect these differences and similarities in subtitle translation. We usually use the methods of foreignization and domestication. There are also comprehension problems that are not due to hearing problems, or simply due to cultural differences. Such problems are often caused not by inaccurate keywords, but by errors in the entire reasoning logic. Through the correct use of these methods, we can make different people and different cultures understand the meaning contained in the language. As shown in Figure 2, the cultural differences between China and foreign countries.

2.7. Comprehensibility. All kinds of videos have their own purposes, which also determine its language characteristics. The purpose of teaching video series is to promote the knowledge and skills that the audience does not know, and let the audience really learn what kind of video to watch. Even if the teaching content is abstract, fuzzy, and difficult to understand, a series of video teaching is often easy to understand, which is the so-called "simple and profound" truth. After the professor has a "deep" understanding and research on the teaching content, he should use a "simple" teaching method to convey this knowledge to the audience. This is the truly effective teaching method. It is reflected in the language that is easy to understand.

Although easy to understand is an important function in a series of teaching videos, it is not necessary for all common video subtitle translation. This requires the translator to analyze the video subtitle according to the specific situation. The purpose of subtitle translation is to express the real meaning of the original author. In a more rigorous academic teaching, accuracy should be the priority and not too popular [12, 13].

2.8. Speciality. The characteristics of the video teaching series are that the videos focus on a specific theme, such as musical instruments, martial arts, basketball, etc., and the specific teaching content is around these themes. Therefore, teaching video subtitles usually cover some terms and express specific areas, such as musical instrument teaching, music knowledge video series, martial arts teaching video series, martial arts sports, and so on. The difference is that other types of video majors may not be so obvious. For example, some movies and videos only tell the story content they want to express, while the subtitle content is not specific to the specific professional field [14].

2.9. Systematic. The characteristics of teaching video are very obvious, usually by a series of small video complete teaching system, such as the most basic 26 teaching forms in basketball teaching. For example, cooking, teaching China's eight major cuisines, cooking dishes must be diversified, not only can teach a dish is over, and every teaching video under the same teaching system has a great internal relationship. First of all, professors must have the same teaching philosophy, which leads to the high similarity between each video. For example, in the process of teaching cooking, raw materials may be introduced, knives cleaned, and dishes made and placed. Moreover, all the teaching links constitute a complete teaching system, so there must be some connection between each link. Whether it is gradual or should not be repeated, the beginning of teaching content is often repeated later [15].

3. Subtitle Translation Strategies

During the translation process of the project, the translator will use the English text program draft provided by the TV station as the basis of the original text and cooperate with the video materials provided by the TV station to carry out the translation work from English to Chinese. The final translation will be used to create video subtitles. Each final version of the translation in the translation project is a complete episode of program content. The format of the translation strictly complies with the requirements of subtitle production. The language of the translation is smooth, and the context also fits the program effect, which can be better watched by the audience.

3.1. Strategies of Popularizing Words. Combined with the purpose of subtitle translation, the purpose of subtitle translation is to serve the audience and meet the viewing needs of the audience. Most of the film and television works are provided for the audience to watch. Therefore, the language of subtitle must meet the education level of the
grand, lively, happy warm and romantic

interest to continue to watch [17]. Between the audience and the audience and enhance their understanding. It can reduce the distance between the original text and can reduce the difficulty for many audiences to understand the rare idioms in the source language, so the Chinese four-character case is adopted for translation. This translation seems elegant, but it is not very desirable in subtitle translation, especially the unfamiliar idiom “Concord.” The author believes that in a short period of time, it is difficult for many audiences to understand the rare idioms given in this article. Consider the audience’s approval. For example, you often use the word “standard” in nutrition, which means that the food meets the nutritional standard. In a scene, this popular life vocabulary can clearly convey the characteristics of the source language, so the translation can be simply displayed at the bottom of the screen without taking up too much screen space. On the other hand, listeners can avoid spending too much time on useless information. In addition, the translator also uses easy-to-understand words and sentence patterns to extract the meaning behind the original text, which makes the translation easier for the audience to understand and avoids the audience from spending time to guess the professor’s intention. Therefore, the translation of teaching video series subtitles should be concise and easy to understand, only in this way can we successfully achieve the teaching objectives [18, 19].

3.2. Information Compression Strategy. Due to the limitation of time, space, and audience’s understanding, long and complex expression is obviously not a wise choice, but should be expressed in a shorter and more direct way. Due to the limitation of time and space, translators often adopt the strategy of compression and deletion in translation. Compression is to reduce and simplify unimportant information and translate and present the main information to the audience. Deletion is directly ignored, not translated, mainly for some unnecessary or difficult for the audience to understand in a short period of time. Through compression and deletion, it adapts to the space-time characteristics of subtitle translation, ensures the conciseness and intelligibility of subtitles, and provides satisfactory subtitle works for the audience.

Many translators directly translate the original text without missing a word, resulting in lengthy repetition, occupying display time and screen space, affecting the effective time for the audience to obtain key information. For example, if some spoken words are not translated in compression, there will be short sentences and a large number of symbols on the subtitles, which will not only increase the audience’s reading pressure, but also affect the audience’s appreciation of the screen. In addition, common words like “good” often appear in spoken English, and often have no practical meaning in sentences [20, 21].

3.3. Strategies for Sentence Merging. Subtitle translation focuses on conciseness and presents acceptable translation to the audience in limited time and space. For the related sentences, we can adopt the strategy of merging to integrate translation, reduce unnecessary words, achieve the simplified effect of subtitle translation, and provide satisfactory translation for the audience in limited space and time.

In order to reduce time and space, sentence compression strategy should be adopted in subtitle translation. Translators often adopt relevant reduction strategies, mainly to simplify sentence structure. Generally speaking, English teaching videos have the same characteristics, that is, theme sharing. In this way, a subject can be used to guide the sentence in subtitle translation and other parts can be combined and compressed. Combined compression can make the sentence more compact and the content more concise, while the translation is relatively loose and lengthy, which increases the visual burden of the audience in the limited display time.

3.4. Strategy of Omission Translation. Omission is one of the commonly used techniques in video translation. The so-called omission in translation refers to the omission of redundant words in the translation without changing the meaning of the original text or replacing the miscellaneous language in the original with concise and clear language in the translation. By saving translation, we can reduce the length of subtitles the audience needs to watch and help the audience better understand the teaching content. In the process of translation, the author finds that there are three kinds of information that can be preserved: repeated information, information that can be supplemented by pictures, and some cultural information.
3.4.1. Delete Duplicate Parts. The repetition part refers to the content that the professor repeats carelessly in a short period of time. Deleting the repeated part will not affect the transmission of the original meaning, but it can greatly shorten the length of the translation.

3.4.2. Using Picture Information. In the process of subtitle translation, we cannot just look at the text materials and ignore the video image information. Because in the process of watching the subtitles, the audience will also guess the information on the combination of the pictures. In particular, teaching video series often contain various teaching actions and sometimes can effectively supplement the lack of information. In this case, the omission of translation will not lead to loss of information, sometimes even make the information more clear and accurate.

3.4.3. Omitting Some Cultural Factors. Cultural factors refer to cultural concepts with Chinese characteristics. For example, Hulusi is a musical instrument with a long history in China. For example, the teacher is a native Chinese, so many concepts in the interpretation process are full of Chinese characteristics. If these concepts are almost meaningless to the audience who do not understand Chinese culture, translation will make them confused and difficult to understand, and even cause them to misunderstand Chinese culture. If the omission of words does not affect the transmission of information, omission is the best choice.

3.5. Vocabulary-level Strategies. From the perspective of Skopos theory, this article makes a lexical comparison between dubbing strategies and subtitle translation strategies, focusing on the simultaneous translation strategies of subtitles, sounds, and pictures. Subtitles are usually based on the actor’s mouth-to-mouth actions on the screen. Therefore, in the choice of words, we should try to omit those redundant modal words, simplify some repeated adjectives or adverbs, and the person will also be omitted. In the process of word selection, the dubbing will translate the modal particles directly or in addition, so as to achieve the standard of oral type and fluency. In the comparison between dubbing and subtitles, the most obvious differences are reflected in the following three aspects: (1) personal pronouns, that is, the addition and subtraction of personal pronouns; (2) modal particles, such as “Oh, hey, ah, God,” etc.; and (3) logical conjunctions, such as but, so, because, for, etc.

3.6. Personal Pronoun Processing Strategies. Personal pronoun translation is one of the biggest differences between subtitle translation and dubbing translation. In dubbing books, personal pronouns are added and translated in many places. In some cases, the personal pronoun’s name will be restored, and if the person is speaking for the first time, the personal pronoun’s position or honorific title will be added. In an intralingual communication, name and address appear first, which make the audience familiar and conform to the pragmatic habits of Chinese people. At the same time, adding translators to the dubbing version does not violate the principle of faithfulness. In the dubbing book, the names of people close to each other are called directly. Although the sentence length of the target language has increased, it can be compensated by increasing the speed or reducing the amount of speech. Compared with subtitle translation, people’s translation is often done by subtracting (if the person mentioned in the previous conversation) or by not using the full name and omitting the description of the position.

English is mostly passive voice, using nonpersonal expression, while Chinese is mostly active voice, using personal, general, or implicit expression. Therefore, the repetition of person in Chinese does not arouse the disgust of the audience, but is more in line with the characteristics of Chinese and enhances the coherence of the language. Most of the personal translations in the dubbing version are literal translation. Some people appear twice or more in a scene. By reducing the translation, the subtitle is kept simple. From the perspective of coherence principle, the repetition of the same person mentioned in the subtitle will appear abrupt and may distract the audience attention. In addition, exceeding the limit of the number of words in the subtitle will violate the principle of coherence. When watching the film, the audience has a good understanding of the characters that have appeared. The appearance of repeated subtitles cannot help the audience to better understand the plot. It is likely to be counterproductive, making it impossible for the audience to quickly find the next subtitle. In addition, the use of punctuation marks is limited in subtitles, and repeated use of punctuation marks will lead to unnecessary misunderstanding. Since video subtitles are spoken in spoken language, and Chinese and English have different expression habits, special attention should be paid to colloquial expression and word order processing during translation. According to the principle of word count, concise language, and accuracy of subtitle translation, unnecessary interactive marks, filler words, and repeated expressions should be omitted according to the actual situation. In order to make the translation conform to the Chinese expression habits or make the meaning clearer, it is necessary to adjust the word order. At the same time, it is necessary to pay attention to whether the subtitles and pictures can maintain integrity after the word order is changed.

4. Survey Results and Analysis

In order to analyze the application effect of VR video in oral English teaching, this article takes students in class as an example to investigate their interest in learning, concentration in class, and their love degree of VR video and then analyzes the application effect of VR video in detail. Table 1 shows the degree of recognition of different age groups of the subjects of the questionnaire for English VR video courses.

The proportion of respondents’ educational level is shown in Table 2.

In this article, a questionnaire survey is used to investigate the students’ interest and preference for VR video
English teaching. For the survey of concentration, the classroom observation table is selected for analysis. In the design of the questionnaire, Cronbach reliability test was used as the reliability test method of the questionnaire, and the triangle reciprocal method was used to ensure the validity of the questionnaire. In this study, in addition to collecting data through questionnaire survey, we can also observe a problem in practice. Such questions can be collected in two ways to verify the authenticity and accuracy of each other.

4.1. A Survey of Translation Preference. According to the analysis of the survey results in Figure 3, different students have different preferences for subtitles due to their different expectations for subtitles. When translating English puns in the course lines described in the video, most of the respondents hope to reflect the purpose and communication of puns as much as possible. However, in the actual translation process, it is difficult to reflect different cultural characteristics and realize the cultural embodiment. The meaning expressed by puns can be translated. Then, the principle of “faithfulness” Skopos theory can be followed and tried to restore the meaning of the text by literal translation, without changing the intention of the original text, so that students can understand the courseware content.

The data source for the preference analysis of respondents with different expectations for subtitles is shown in Table 3.

4.2. Comparative Analysis of Learning Interest. A survey on students’ interest in learning was conducted. According to the results of the survey in Figure 4, after applying VR video to oral English teaching, students generally expressed higher interest in learning than in traditional oral English class. Before the application of VR video teaching method, only 21% of the students said that the oral class was very interesting, while 39% of the students said that the oral class was not very interesting. In addition to oral English class, students can also watch VR video to master oral English dialogue skills and stimulate their enthusiasm for learning.

Table 4 shows the improvement in students’ interest in learning after the application of VR video.

| Table 1: People of different age groups agree with English VR video courses. |
|---------------------------|-------------------|-------------------|
| Generation               | Understand ratio (%) | Approval ratio (%) |
| 8–18                     | 31                | 65                |
| 19–32                    | 45                | 80                |
| 33–45                    | 27                | 31                |

| Table 2: Percentage of respondents’ education level. |
|-------------|-------------|-------------|-------------|
| Education   | Junior high school | High school | University |
| Number of people | 72          | 41          | 87          |
| Percentage   | 36%         | 20.5%       | 43.5%       |

| Table 3: Expectations and actual values of respondents with different preferences. |
|-----------------|-----------------|-----------------|
| Premiere        | Expected value | Actual value    |
| Easy to understand | 67             | 34              |
| Integration     | 75              | 25              |
| In line with the character | 88            | 38              |
| Other           | 69              | 17              |

| Table 4: Improvement of students’ interest. |
|-----------------|-----------------|-----------------|
| Group           | Very funny      | Just so so      | No interest    |
| Before improvement | 31              | 30              | 10             |
| After improvement | 32              | 32              | 10             |
4.3. A Comparative Analysis of Love for Teaching Methods.
In order to understand students’ feelings and attitudes towards English VR video teaching, after integrating VR video into classroom teaching, this article conducted a questionnaire survey on students’ liking degree of English VR video. Through the comparison between before and after improvement, it can be found that students’ preference for VR video has been significantly improved after improvement.

It can be seen from Figure 5 that among the students surveyed, before the improvement, 25 students like the English VR video which is integrated into the classroom teaching very much, and seven students like English VR video in general, but they do not like it. After improvement, a total of 30 students in the class like English VR video, and they like it very much. Only two students like English VR video moderately and do not like it. It can be seen that after the improvement, the students’ liking degree of integrating English VR video into classroom teaching has been improved, which shows that the application effect of VR video in English classroom teaching is good.

The improvement in English virtual reality videos for students of different genders in the agreed age group is shown in Table 5.

4.4. A Comparative Analysis of Class Concentration. In order to understand the concentration of students’ attention in class, this article adopts the method of classroom observation to answer “how much attention do you think you have in class?” and the survey results are shown in Figure 6.

According to the survey results in Figure 6, students’ concentration in class is significantly increased in VR video application oral English teaching, and most students can keep it for more than 20 minutes, which is significantly higher than that before the improvement in VR video subtitle translation. Through the analysis of this paper, it is believed that English teaching based on VR technology is very helpful for students to learn English. The application of VR video teaching in oral English teaching is conducive to improving students’ interest in learning and classroom attention, so as to better improve students’ oral communication ability.

The improved learning efficiency of students of different genders in different age groups is shown in Table 6:

Since video subtitles are spoken in spoken language, and Chinese and English have different expression habits, special attention should be paid to colloquial expression and word order processing during translation. According to the principle of word count, concise language, and accuracy of subtitle translation, unnecessary interactive marks, filler words, and repeated expressions should be omitted according to the actual situation. In order to make the translation conform to the Chinese expression habits or make the meaning clearer, it is necessary to adjust the word
order. At the same time, it is necessary to pay attention to whether the subtitles and pictures can maintain integrity after the word order is changed.

5. Conclusions

Due to the use of data fusion technology, the network will generate fusion data that are longer, more important, and consume more energy than ordinary data. If the fused data and ordinary data have the same channel usage rights, more energy will be wasted, higher delay will be generated, and even the final decision will be affected. Based on this background, a dynamic backoff MAC protocol for wireless sensor network is proposed, and the protocol is improved for the use of data fusion technology. Using virtual reality technology to reform teaching methods is one of the main ways of modern education. English education is an important part of Chinese education. Online videos made with virtual reality technology can improve students’ learning enthusiasm. However, due to the backwardness of the existing video caption translation technology, the teaching quality cannot meet expectations. The existing subtitle translation technology has many shortcomings, including cultural differences, insufficient translator experience, and grammatical errors. Studying the characteristics and strategies of English virtual reality video caption translation can solve the problems in this field. In this research, this article cleverly uses data fusion technology to improve the quality of letter translation of English VR education videos through the use of data fusion and summary analysis, thereby improving the quality of English teaching. On the premise of ensuring the normal progress of students’ learning, combined with the realization of VR technology, students’ learning enthusiasm should be mobilized. In actual translation, many students hope to have a detailed understanding of cultural factors, but only if they are useful and interested. If the translator cannot grasp this well, the enthusiasm of the students will be weakened. Through investigation, this article believes that the combination of data fusion and English virtual reality video teaching can make the teaching process more accessible, greatly enhance the self-learning ability of learning, mobilize learning interest, and improve learning efficiency. To sum up, the article analyzes the characteristics of subtitle translation, the common errors of listening, and interpretation of the original text and the problems of translation expression and proposes corresponding countermeasures. Due to the limited number of case materials in this article, it is difficult to exhaust all the problems that may be encountered in the subtitle translation of video courses, so further studies of this kind are needed in the future.

Data Availability

This article does not cover data research. No data were used to support this study.

Conflicts of Interest

The author declares that there are no conflicts of interest.

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