

# Effects of Bilingual Videos in National Innovation Project in College English Listening Teaching Under the Influences of Multi-modal Theory

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**Abstract:** Multi-modal discourse refers to the phenomenon of using multiple senses such as auditory, visual, and tactile senses to communicate through multiple means and symbolic resources such as language, images, sounds, and actions. This paper reviews the theory of multi-modal discourse and studies the application of multi-modal discourse in English teaching at home and abroad, and conducts an empirical study of a new university English listening teaching mode in a multi-modal context by using comparative analysis method, taking Y University as an example. Secondly, through comparative analysis, one control group and four experimental groups were set up, the relevant materials of this experiment are all from the impression Yue platform, and video, audio, Chinese subtitles and English subtitles were used as variables, and through analyzing the experimental results, it was found that the reasonable use of multi-modal combinations can significantly improve students' listening comprehension, and the use of audio-visual combinations and English subtitles is more beneficial to students' listening. The experimental results showed that the use of multi-modal combinations can significantly improve students' listening comprehension, and the use of audio-visual combinations and English subtitles is more beneficial to students' listening comprehension.

**Keywords:** Multi-modal, Listening comprehension, Empirical study, Subtitles.

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## 1. Introduction

### 1.1. Background of the Research

The rapid development of network information technology has led to significant changes in the concept of education, and the primary task of the new era is to cultivate comprehensive development of complex talents. The traditional education model affects the cultivation of creative thinking and the improvement of students' learning motivation. The goal of the rapid development of education in China today is to promote the modernization of education by network information technology. Because of the integration function of multimedia, the expansion function of teaching information, the interactive function of teaching process, the subjectivity function of students' status, the diversification function of teaching methods and the virtualization function of teaching scenarios, the use of computer network expands the teaching content and opens the teaching environment, and its development and application are gradually moving from the edge to the center of education reform.

The rapid development of information technology over the last few decades has changed our traditional ways of communication and has influenced and changed the way languages are taught. Kalantzis [6] pointed that the diversity of ways of communicating information and the multi-modality of expressions of meaning require school authorities and educators to reexamine traditional ways of teaching and learning in order to adapt to the changing needs of today's world and to prepare students for society. In recent decades, in order to meet this new challenge, many countries around the world have set up projects to study students' learning styles and teaching styles in the new context and advocate teaching reforms. In the foreign language teaching

environment, it has become an urgent task of education to strengthen the cultivation of students' multi-modal literacy skills, to help them fully understand the potential and limitations of various symbolic modalities in communication and the relationship between them, and to understand the role and use of various symbols in mass communication in order to meet the challenges of cultural pluralism and diversity of information exchange in the world. Students as learners need to understand and grasp the significance of multi-modal literacy, and researchers and teachers should consider the significance of multi-modal teaching models and the application of multi-modal teaching concepts in the field of foreign language teaching in order to meet the current learning and future development needs of students. In view of this, language educators and researchers should address the problems of foreign language teaching in China in a multi-modal environment, fully consider the impact of information technology on language teaching, and seek solutions in a multi-modal teaching model.

In a Multi-modal environment, multiple teaching modes are implemented. In the computer network-based English general skills course, especially listening and speaking skills training, students use the computer teaching software system for personalized independent learning, and teachers regularly provide online guidance and answer questions. Under the new teaching model, two hours of listening and speaking lessons per week are completed independently in the computer room with teachers' guidance. The teacher monitors the students' learning situation through the online learning system at any time, thus students could learn independently under the guidance and assistance of the teacher.

The multimedia network platform provides a large amount of language learning materials for teachers and students. Multi-modal options provide multiple channels of expression

for communicating and deepening understanding and memory. In the college English classroom, Multi-modal combinations of verbal and non-verbal language, such as text with pictures or animation or sound, work synergistically with multiple senses to improve teaching effectiveness. Sometimes language cannot convey all the meanings, and language communication is inseparable from context, so Multi-modal choices can provide more contextual information. If the text to be taught is a story or a drama, the teacher can use PPT to show vivid images, which can stimulate the students' sensory system and attract their attention. The use of multi-modality allows for a comprehensive expression of emotions, since words are sometimes limited to conceptual meanings, and in most cases the interpersonal meaning of communication is hidden behind the words. Therefore, the PPT images in the lesson make the learners feel like they are there, and deepen the meaning from conceptual to interpersonal meaning.

This mode of teaching involves the collaboration of media within the modality, such as the textbook and the multimedia courseware: the courseware shows the key information in images and different fonts, and the textbook supplements it with specific information. The teacher intersperses question-and-answer exercises, and the use of the auditory modality requires the visual modality to accompany it, so that the teacher can judge whether the students understand the material they are learning based on their responses. Therefore, more than two modalities are used in this teaching mode, and they complement each other to deliver information more quickly, clearly and comprehensively, changing the single modality in which the teacher mainly teaches and the students passively learn. The new teaching mode is adapted to modern information technology, so that English teaching is not restricted by time and place, and reflects the main position of students and the interactivity of learning.

## 1.2. Significance and Purpose of the Research

Systemic functional linguistics provides the theoretical basis for the analysis and study of multi-modal discourse. Multi-modal discourse can be studied on a number of levels, cultural, situational, discourse meaning, grammar, form and media. From a media perspective, a variety of different non-verbal media, especially modern technological media, offer a wide range of new options for discourse communication. They can be used to achieve meaning in discourse through different modalities. In modern technology, the choice of modality in the framework of multi-modal discourse communication can be made from three perspectives. 1) to provide teaching situations and facilities for foreign language teaching; 2) to provide auxiliary conditions for foreign language teaching; 3) to provide multi-modal discourse communication with multiple channels of discourse meaning expression and to improve teaching efficiency.

Although multi-modality has been studied for a long time, there are many studies on it. However, the question of what modalities and media are most effective in expressing a given discourse is a topic that requires further careful study. For example, these studies have rarely analyzed the extent to which different multi-modal combinations affect listening comprehension, nor have they focused specifically on the specific utility of different modalities in listening instruction. How to combine multiple media and multiple modalities for analytical interpretation in discourse analysis is a problem that modern linguistic research, especially discourse analysis research should pay particular attention to addressing. In this

study, some English majors from Y University are chosen as the subjects. In this paper, the author will analyse the role of modern multimedia technologies in foreign language teaching and learning, and explore the extent to which multi-modal combinations (e.g. videos, images, etc.) have an impact on students' listening comprehension and their advantages and disadvantages, and whether they are conducive to improving students' listening and speaking skills.

The theoretical framework proposed in this paper has certain guiding significance for the correct understanding of the meaning of multi-modal literacy, and at the same time, it has great insight for the development of students' multi-modal literacy and the establishment of a targeted teaching mode for cultivating multi-modal literacy.

## 1.3. Structure of the Thesis

Teaching listening is a difficult task in college English teaching. Throughout the prevalent pedagogies in various periods, the importance of listening teaching has been gradually increased. This paper will analyze it from the following aspects. Firstly, the necessity of the study is discussed from the relevant research background. Next, multi-modal theory, listening instruction, and some other concepts will be introduced. Then, the author will describe the research question, the research objectives and the research process, and discuss and analyze the research results, and finally draw conclusions about the significance of the study.

## 2. Literature Review

### 2.1. Concepts Related to Multi-modal Theory

#### 1. Visual on Symbols

Just as the grammar of language determines how words form clauses, sentences, and parts of speech, the visual grammar depicts people, places, and objects as visual statements of varying degrees of complexity, and visual images are part of social culture, each with its own graphic semantics. Images have the functions of "reproducing meaning", "interacting with meaning", and "constituting meaning". The function of "reproducing meaning", "interacting meaning" and "constituting meaning"

#### 2. Views on Multi-modal Discourse

Multi-modal discourse as a discourse perspective that considers all communicative modalities as resources for meaning production. He argues that modern discourse meaning consists of multiple modalities, all of which are transformed into symbolic resources through social use, and that all discourse is multi-modal. The role of diagrams in discourse and refers to them as "non-textual materials". He points out that a reasonable understanding of the role of diagrams in the discourse is not only a matter of the text, but also of the text. He points out that its proper use can improve the effectiveness of reading. Ganapathy [4]

#### 3. Views on Non-verbal Communication

In social communication, a large part of the transmission of discourse meaning is accomplished by non-verbal factors, which are responsible for the function of social communication. In multi-modal discourse analysis theory, some accompanying linguistic features (e.g., sound level, tone, intonation, speed, etc.) and physical features (e.g., gestures, body gestures, facial expressions, movements, etc.) are as important as verbal signs in communication. Argyle identifies five major functions of nonverbal communication:

expressing emotions, expressing interpersonal attitudes, simplifying communication, showing the speaker's personality, and expressing customs. Nagy [8]

### **2.1.1. Introduction to the Multi-modal Theory**

Multi-modal discourse is a modern communicative process that is mediated through the mobilization of multiple factors such as visual, auditory and tactile, and symbolic resources such as text, images and sound. Multi-modal discourse analysis can be divided into five parts. 1) linguistic components, such as vocabulary, metaphor, structure, mood, etc.; 2) visual components, such as color, perspective, vector, foreground, background, etc.; 3) auditory components, such as voice, music, sound effects, etc.; 4) gestural components, such as behavior, feeling, body control, emotion, movement, etc.; 5) spatial components. Such as ecological space, geometric space, architectural space, etc. These five components together serve as the transmission medium of modern information and become the objects of modern human literacy. Cultural communication is undergoing a transformation process from static to dynamic, from flat to three-dimensional, from simple to complex.

### **2.1.2. Function of Multi-modal Theory**

Multi-modal education can construct interesting, or realistic or imaginative teaching contexts, and can organize multi-modal activities such as free inquiry, cooperative performance, group discussion, etc. that students like. These multi-modal activities are like fermenters, which can brew students' interest in learning. These multi-modal activities are like fermenters that brew students' interest in learning. In such a relaxed atmosphere, students' English proficiency development is strongly promoted. Multi-modality is the opposite of uni-modality. Uni-modal teaching has limited effect on students' English learning, while multi-modal teaching allows students to press the information through multiple channels and process, trans-code, and transform the information in multiple ways, which can play a significant role in improving students' English ability. Nagy [8]

## **2.2. Listening Teaching**

Foreign language listening teaching is a recurring and progressive process guided by learners' cognition of the meaning of the language topic, consisting of cultural acquisition, audible imitation, formal memory, social communication application and other integrated learning activities, the completion of this acquisition process, if carried out with the full use of modern multimedia networks and other communication technologies, will enable learners to feel a more personalized language expansion experience, from comprehensible input. The process of language skill transfer can be facilitated by the use of modern communication technologies such as multimedia networks. In this process of language skill transfer, "seeing" and "hearing" are two important links and factors, which are one of the basic ways to transfer language knowledge. Ganapathy [4]

The traditional audio-visual teaching relies too much on the old and outdated "listening" textbooks. This kind of teaching material only takes care of students' uni-modal and unidirectional reception and input, which is difficult to mobilize student' enthusiasm and initiative. Listening teaching should not be a mere training of listening skills, but should be integrated into the overall framework of language learning, and a good listening class should use the best teaching methods to improve attention and maximize

language acquisition. Malhotra [7] With the rapid progress of network information technology, information transmission and storage tools continue to improve to intelligent and humanized, students' knowledge level is increasing, foreign language teaching mode is also changing rapidly, the traditional listening lesson can no longer meet the learning needs of students, and the new teaching lesson integrating audio-visual and speech modalities have become a development trend.

## **2.3. Related Research**

### **2.3.1. Studies Abroad**

Mode is the abstract language symbol system. Media is the physical tool to express information. For example, the five senses of sight, hearing, touch, smell and taste are the 'five modes', while the eyes, ears, hands, nose and tongue are the media. The use of each mode is achieved through the corresponding media. Multi-modal, also known as multi-symbol, refers to various symbolic resources that can be used to construct meaning, including spoken language, written language, images, diagrams, spaces, and other symbolic resources. Ganapathy [4] Multi-modal application is a phenomenon of communication through language, image, sound, action and other means and symbolic resources. Multi-modal is one of the major features of various texts in modern society. In the digital information age, these different modes play the same role in the level of meaning reproduction.

Multi-modal discourse analysis and the application of multi-modal discourse in teaching have been one of the hot research topics in Europe and America in recent decades. Debra Coffey is one of the earliest researchers in multi-modal discourse analysis. He published his paper *Rhetoric of the Image* in 1977, discussing the interaction between images and language in expressive meaning. Malhotra [7] pioneered the application of multi-modes in language teaching. They believed that the main task of language teaching was to cultivate students' multi-literacy and multi-modal meaning. Since then, the research results on multi-modal and language teaching have been increasing. Hung [5] examines the relationship between modes and media and the phenomenon of the regular expression of meaning by multiple modes. Including visual images, color grammar, newspaper layout design and the role of different media, they put forward the multi-modal context of the cultivation of literacy design and application principles. Ganapathy [4] studied the complementarity of different symbols in multi-modal discourse and the synergy of multi-modal discourse in the second language classroom teaching. Nagy [8] studied the influence of multi-modality on second language learners and proposed the principles and methods of course design for computer-aided instruction. Many scholars also pay attention to the research on the use of PPT presentations in the classroom. Fisher [3] raised some issues with the use of PowerPoint in ESL classrooms. Nouri and Shahid [9] empirically explored the correlation between PowerPoint in teaching theoretical knowledge and students' learning attitudes and memory. Foreign researchers Nagy [8] found through the experiment that the group using native language dubbing and second language subtitling had the highest score of listening comprehension, followed by the group using second language dubbing and second language subtitling. The mode of second language dubbing and native language subtitling did not help the listening comprehension of the subjects. Baltova's [1] experiment on the French listening learning of non-French majors in Canada showed

that the second language subtitles of videos in listening teaching were the most helpful for students to recall the content of listening materials. Weinberg [12] took the French listening course as an example, analyzed the technical problems encountered in the multi-modal listening teaching and investigated the students' satisfaction with the multi-modal listening teaching, finding that students were interested in and willing to accept the new teaching mode. Teo and Zhu [11] proved through experiments that multi-modal combination can help students understand corpus, and that second language subtitles are more beneficial to students' listening learning than native language subtitles. Romero and Arévalo [10] studied the role of multi-modes in listening teaching and found that multi-modes could better promote students' understanding of listening materials, but different modes played different roles.

In general, Multi-modal discourse analysis and Multi-modal discourse have been studied more deeply and extensively in the field of Multi-modal discourse analysis abroad. The main areas of research are language interaction in the expressive sense, language teaching tasks, and the improvement of language proficiency, etc. A number of scholars have also conducted PowerPoint presentations on the theory of Multi-modal discourse analysis, thus showing us the effectiveness of Multi-modal discourse analysis in real teaching situations.

### 2.3.2. Research at Home

The research in China is still at a preliminary stage, especially the research on the application of information technology in foreign language teaching has been in the exploratory stage. The first to study the relationship between multi-modality and foreign language teaching were Yiguo Gu and Zhuanglin Hu. Gu [14] distinguishes between the concepts of multimedia learning and multi-modal learning, and constructs a model for analyzing the two types of learning. Hu [10] discusses the difference between multi-modal semiotics and multimedia semiotics, introduces computational semiotics, which has both media and modal characteristics, and points out that as humanity enters a new century of multi-mobilization in social semiotics, the cultivation of multi-modal literacy should be given. He also points out that in the new century of multi-modality in social semiotics, the development of multi-modal literacy should be given attention. Li [21] uses systemic functional linguistic theory to study multi-modal discourse theory. Hu [15] discusses the implications of multi-modality for teaching reform in China. Zhang [25] establishes a comprehensive framework for multi-modal discourse analysis based on systemic functional linguistic theory. As a kind of multi-modal discourse, PPT has a great influence on foreign language teaching and Chinese students' learning of foreign languages, and its in-depth study can provide theoretical and practical support for foreign language teaching in China, promote the process of foreign language teaching reform and enrich the multi-modal discourse analysis. The study of multi-modal discourse analysis will enrich the theory of multi-modal discourse analysis and thus promote the study of social semiotics.

Zhang and Wang [27] explores a comprehensive theoretical framework for multi-modal discourse analysis. In China, Zhang [25] experimentally investigated the effects of meta-cognitive strategies and multi-modal interaction on listening ability. Zeng [24] explored the application of multi-modal discourse analysis theory in university English listening

teaching and found that listening teaching methods based on multi-modal discourse analysis theory were more effective and that such teaching methods had different teaching effects on different levels of students, especially for high level students' listening performance. Fan Ling [13] conducted an empirical study on the effect of input text modality selection on listening comprehension and found that modal differences in input text had different degrees of effect on listening comprehension for students at different levels. Sun [23] conducted an empirical study on the effectiveness of a multi-modal independent listening instruction model and found that the model was effective in improving students' listening and multiple literacy skills. Li and Yin [18] reviewed the status of research on multi-modal discourse at home and abroad, analyzed the theoretical framework of multi-modal discourse, and conducted an empirical study on a new teaching model of college English in a multi-modal context, proposing a new teaching model.

Zhang Delu [25] explores an integrated theoretical framework for multi-modal discourse analysis, emphasizing that a large part of discourse meaning is expressed by nonverbal factors. This framework consists of a system of five main levels (Martin, 1992): (1) the cultural level, which includes ideology as the main form of existence of culture and genre or genre structure latent as the choice latent of discourse mode. (2) The contextual dimension, which includes the contextual constructions consisting of the scope, tone, and manner of discourse. (3) Meaning level, including the meaning of the discourse consisting of several parts and the conceptual meaning, interpersonal meaning and schematic meaning. (4) Formal level, the different formal systems for realizing meaning, including lexical-grammatical systems of language, visual ideographic forms and visual grammatical systems, auditory ideographic forms and auditory grammatical systems, tactile ideographic forms and tactile grammatical systems, etc. and the relationship between the grammars of each modality, divided into complementary and non-complementary ones. (5) The media level, which is the material form of the final expression of discourse, includes two categories: linguistic and non-linguistic. Language includes both pure language and companion language; non-language includes both physical and non-physical. Physicality includes factors such as facial expressions, gestures and movements; non-physicality includes instrumentalities such as PPT, labs, online platforms, audio, etc. Multi-modal discourse theory emphasizes that the realization of discourse meaning is carried out in Multi-modal forms, and the forms of Multi-modal discourse are mainly presented through four aspects: language, image, sound and contact.

## 3. Research Methodology

### 3.1. Questions of the Research

In a multi-modal environment, multiple modes of teaching and learning are implemented alongside each other. In computer-based English courses, especially in listening and speaking skills, students use a computer-based teaching software system for personalized independent learning, achieving a student-centred model in which students are guided and assisted by the teacher. The following issues are addressed in this teaching model.

The purpose of this study is to explore the following specific issues in the teaching of multi-modal English majors.

- (1) Whether it can improve students' English listening ability?
- (2) Whether it can improve students' oral English ability?
- (3) Whether it can improve students' intercultural academic communication ability?
- (4) What are the advantages and disadvantages of video/images in listening teaching?
- (5) Does multi-modal teaching help English majors improve their comprehension of listening materials?
- (6) Whether the bilingual video about Yue cultural have an impact on the improvement of college students' English listening ability?

### 3.2. Research Participants

The author randomly selected 100 senior English-major students from Y University, and assigned them with a TEM-4 Listening test. Then, 35 students with the same grade were selected as research participants to carry out the experiment of multi-modal theory.

### 3.3. Research Methods

In this experiment, the author used listening comprehension tests to investigate the effect of the combination of multiple modalities on students' listening comprehension.

### 3.4. Research Procedure

The author adopts the comparative experimental method of multi-modal theory. The listening material is a short video from Impression Yue platform, and it talks about Shaoxing Rice Wine and is approximately 4 minutes in length(427 words).

The variables in this experiment were the different ways of

playing the listening material:

Control group : To play the video clip only.

Experimental group 1: To play the audio clip only.

Experimental group 2: To play the video and audio clip without subtitles.

Experimental group 3: To play the audio and video clip with Chinese subtitles.

Experimental group 4: To play the audio and video clip with English subtitles.

To determine the effect of each variable on students' listening comprehension ability, students' English listening summaries were used as the material for analysis.

In the experiment, the teacher played the listening material in different ways to five groups of subjects. Each group was tested at the same time.

### 3.5. Data Collection and Data Analysis

The Listening Comprehension Test was distributed in the form of paper, too. The experimental data were analyzed based on the number of semantic units in the English summaries written by the students. When counting the number of semantic units, if students write only words, phrases or old sentences related to semantic units in their summaries, they are counted. Even if the grammar was not accurate, the information of the semantic unit was considered to be understood and counted as semantic units. The number of students in each group who wrote each semantic unit was used as the group's individual semantic unit score.

## 4. Results and Discussion

### 4.1. Results and Discussion of Listening Comprehension Test

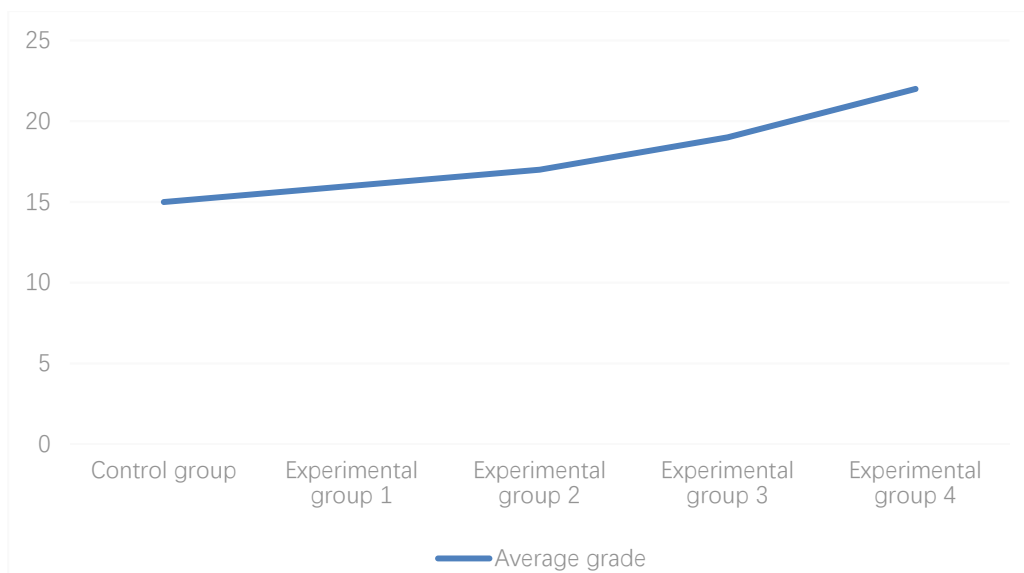


Figure 1. Results of Listening Comprehension Test

The results of this study show that multi-modal listening instruction can promote English learners' listening ability; visual information plays a positive role as long as it corresponds to auditory information: English subtitles are more favorable than Chinese subtitles to improve learners' listening comprehension because the latter produces more semantic comprehension interference.

### 4.2. Problems in Listening Teaching

The effect of multi-modal on hearing comprehension is in the following aspects. First, the cultural background knowledge of the study participants differed significantly. For example, this experimental study found that Chinese students had difficulty understanding semantic information units

involving Western culture, especially when listening to semantic units containing terms such as names of people and places, and they could only take good notes by relying on English subtitles. Second, the English proficiency of the study participants differed.

### 4.3. Suggestions

The subjects in the above two studies were senior English majors with a certain listening foundation. Therefore, when designing the English listening teaching program, teachers should take into account the areas covered by the teaching content (discourse range), including the content and genre of the course they are teaching; fully understand the students' situation and their relationship with them (discourse tone), and understand the basic characteristics of their own lessons and students, including their existing knowledge structure, interests, and ability structure, etc. (Zhang, 2009).

In order to effectively comprehend a second language discourse, learners must always be in a dynamic cognitive process. In this process, students continuously form immediate hypotheses based on their prior knowledge and test them. As shown in this experiment, visual modality facilitates students' cognition when it provides background knowledge that directly corresponds to auditory information, thus improving their listening comprehension. However, visual information that does not correspond to auditory information creates a cognitive negative phase and distracts students' attention. Receiving different information at the same time can produce too high a cognitive cost and prevent students from processing the information effectively. In English major listening instruction, teachers must master the synergistic, reinforcing, or complementary relationships among modalities to improve the quality of instruction. If different modalities are contradictory, irrelevant, or not connected to each other, it may reduce the effectiveness of teaching. In this sense, modality selection should be based on the principle of increasing positive effects (Zhang, 2009).

In addition, negative native language transfer affects students' processing and output of listening materials at the phonological, lexical and grammatical levels. In the listening teaching, teachers should not only focus on students' basic listening skills training, but also let students enhance their basic English knowledge. At the same time, teachers should cultivate students' ability to compare and analyze English and Chinese, enhance students' cross-cultural awareness, and improve students' cross-cultural communication skills. In order to minimize the negative transfer effect of the mother tongue.

It has been shown that when students receive information through multiple channels at the same time, they often do not know which type of information to choose for processing and output due to the large amount of information. Therefore, teachers should teach students to receive and process information through various modalities. Therefore, teachers should teach students to receive and process information through various modalities, cultivate students' multiple reading and writing skills, and improve their learning effectiveness.

## 5. Conclusion

### 5.1. Major Findings of the Research

The results of this study show that multi-modal listening

instruction can promote English learners' listening ability; visual information has a positive effect as long as it corresponds to auditory information: English subtitles are more beneficial than Chinese subtitles in improving learners' listening comprehension because the latter produces more semantic comprehension interference.

In order to further explore the effect of multi-modality on listening teaching, multi-modal experiments are conducted for different listening levels.

### 5.2. Pedagogical Implications of Using Multi-modal Theory

The theory of multi-modal education actually indicates the direction of teaching operation, teachers can integrate communication modes such as spoken and written language and body language, final image, video, music and other communication modes, and make them interconnected, dependent and coordinated to build a flexible and holistic teaching situation. It can help students master the English language more quickly and deeply, and improve their English learning effectiveness.

#### 5.2.1. Create a Vivid Memory Situation to Improve Students' English Word Memorization Efficiency

The theory of multi-modal education takes into account the laws of language acquisition and the characteristics of the language to come up with a multi-modal approach to education. In this educational model, students can acquire learning information in a way that is more consistent with the laws of memory, for example, it can place vocabulary information or grammar information in special contexts and situations, and show the raw content through audio or animation, so that students can quickly master vocabulary and grammar in this appropriate memory context.<sup>2</sup> Because multi-modality provides a more consistent way of outputting information, it eliminates the problem of students' memory.

#### 5.2.2. Provide Rich Language Materials to Promote the Development of Students' English Expression Ability

Language sensitivity is an important element in the development of students' English ability. Without language sensitivity, students will have various biases in listening to and using English which will affect the improvement of students' listening, reading, and writing skills. Under the multi-modal education model, the use of various audio-visual tools such as English radio, English newspapers, and English programs provides students with rich language materials and a standardized language environment, which exposes students to standardized examples of English usage in an invisible way. At the same time, the use of various teaching modes such as role-play and implication will provide students with a language practice environment, which will promote students' language sensitivity and facilitate the development of their English ability.

#### 5.2.3. Create a Relaxed Learning Atmosphere and Improve Students' English Learning Efficiency

Multi-modal education can construct interesting, real or imaginative teaching situations that students like, and can organize multi-modal activities such as free inquiry, cooperative performance, group discussion, etc. These multi-modal activities are like fermenting vessels that can brew students' learning interests. These multi-modal activities are like fermenting vessels that can brew students' interest in

learning. In such a relaxed atmosphere, it can strongly promote the development of students' English ability. Multi-modal and uni-modal teaching are relative, as uni-modal teaching has limited effect on students' English learning, while multi-modal teaching can expose students to information through multiple channels and allow students to process, trans-code and transform information in multiple ways, which can play a significant role in improving students' English ability.

### 5.3. Limitations of the Research

The limitations of this study are that the analysis is based on a limited sample and the target population is senior English-major students who have some basic listening skills. What's more, before the experiment, the author conducted a listening test on the students. The test was carried out only once, which could not fully represent the students' listening performance.

In the future, comparative experiments on multi-modal applications for students with different listening levels can be carried out to further explore the influence and effect of multi-modality on stem listening teaching.

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