

## Retraction

# Retracted: Analysis of Multimodal Teaching of College English under the Background of Artificial Intelligence

### Security and Communication Networks

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This article has been retracted by Hindawi following an investigation undertaken by the publisher [1]. This investigation has uncovered evidence of one or more of the following indicators of systematic manipulation of the publication process:

- (1) Discrepancies in scope
- (2) Discrepancies in the description of the research reported
- (3) Discrepancies between the availability of data and the research described
- (4) Inappropriate citations
- (5) Incoherent, meaningless and/or irrelevant content included in the article
- (6) Manipulated or compromised peer review

The presence of these indicators undermines our confidence in the integrity of the article's content and we cannot, therefore, vouch for its reliability. Please note that this notice is intended solely to alert readers that the content of this article is unreliable. We have not investigated whether authors were aware of or involved in the systematic manipulation of the publication process.

Wiley and Hindawi regrets that the usual quality checks did not identify these issues before publication and have since put additional measures in place to safeguard research integrity.

We wish to credit our own Research Integrity and Research Publishing teams and anonymous and named external researchers and research integrity experts for contributing to this investigation.

The corresponding author, as the representative of all authors, has been given the opportunity to register their agreement or disagreement to this retraction. We have kept a record of any response received.

### References

- [1] L. Niu, "Analysis of Multimodal Teaching of College English under the Background of Artificial Intelligence," *Security and Communication Networks*, vol. 2022, Article ID 3833106, 10 pages, 2022.

## Research Article

# Analysis of Multimodal Teaching of College English under the Background of Artificial Intelligence

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As the Internet drives the spread of digitalization and the further improvement of computing power, the traditional college English teaching mode can no longer adapt to the needs of teaching in the age of artificial intelligence. Single or lesser modality is gradually replaced by multimodality, an emerging teaching mode. The study of multimodal discourse is a new hot spot in language research and a key issue of concern for English classroom teaching reform. Based on the analysis of the practical application dilemmas of multimodality in college English teaching culture, context, content (meaning + form), and expression, this article proposes a path to innovate multimodal discourse teaching in college English classroom in the era of artificial intelligence. It includes familiarizing with multimode integrated platform for teaching tools and developing intercultural communication abilities. Multimode situational lectures with the help of modern information technology are developed. At the content level, we should adhere to the unity and coordination of the meaning and form of multimodal teaching. Use language and nonlanguage in a way that will enhance learning at the multimode media level. Additionally, AI enriches English teaching methods, changes the intelligence of English teachers, and improves the efficiency of English teaching. AI helps to create a more relevant and interactive English learning environment, improve many aspects of English teaching, including teaching evaluation, and effectively improve the face of college English teaching.

## 1. AI Technology Overview

Artificial intelligence (AI) is a technological science used to simulate, extend, and expand human intelligence based on big data technology, which has a significant impact on the way people communicate. It makes discourse communication no longer be limited to a single semantic construction and communication modality, but a comprehensive use of auditory, visual, tactile, verbal, image, sound, action, and other ways of multimodal communication. With the advent of the era of AI, the study of multimodal discourse has become a new hot spot in language research and a key issue of concern for English classroom teaching reform.

*1.1. History of Development.* The important core of AI is algorithm, which can directly promote the generation of AI [1, 2]. According to the historical development and research

process, AI has gone through different stages of development from its first generation to the present, as well as the process of algorithm update and development. AI began its phase of full development in the financial industry in the 1960s with the main study of logic [3, 4]. AI commonly used computers to perform intelligent logical reasoning, although this development goal was not achieved in the end. AI developed more slowly after the 1970s and entered a bottleneck period, with little investment made to develop it. In the 1990s, some experts began to work feverishly, and the enthusiasm for AI was rekindled. The intelligence level of computers has developed significantly. It was at this time that the desire to establish a sound computer expert system was realized, but there were relatively little research data available, no relevant experience to establish a scientifically valid computer system, the government stopped supporting research on artificial intelligence, and then the development of AI was again called off [5]. From 1993 to 2011, with the substantial

increase in computing power and data volume, AI technology again began to gain further optimization opportunities and continued to advance AI [6, 7]. The amount of data and computational power have increased dramatically since the development of artificial intelligence, effectively helping AI to use machines for learning and research, especially in the field of deep learning dominated by neural networks. The development of deep neural network-based technology has only gradually entered a period of rapid development [8].

*1.2. Technical Composition.* AI technology is specifically briefly described as follows.

*1.2.1. Big Data.* Big data can also be called massive information and mainly refers to the variety and richness of information resources that can have very strong judgment, keen observation, and precise use of process capability only when new data processing methods are carried out.

*1.2.2. Computer Vision.* Computer vision generally uses a camera and a computer to replace the human eye to identify and track the target to be processed in real time and then make scientific measurements to make some specific graphic processing, so that the processing can be completed more easily and accurately than using the human eye to observe the image.

*1.2.3. Speech Recognition.* Speech recognition refers to the whole process of recognition, analysis, and understanding by machines, and the clear conversion of speech signals into specific words or relevant commands, which is a new high technology and generally includes three main aspects, namely, information extraction technology, pattern matching principles, and relevant training patterns [9]. Speech recognition requires human and computer to cooperate with each other, focusing on solving the hearing problem of robots, so that robots can clearly hear what people say. The most advanced technology in the development of artificial intelligence up to now is speech recognition.

*1.2.4. Natural Language Processing.* Natural language processing in general can be divided into two aspects: one is natural language understanding, and the other is natural language production, which can realize the language communication between human and computer, which needs to let the computer understand some specific meaning of natural language well and use the language text to accurately express the meaning and thought and emotion of the language [10, 11]. Natural language processing is a more important development goal that can be better integrated into computer science in the field of AI development.

*1.2.5. Machine Learning.* Machine learning needs to make the machine have a strong learning ability like human. Studying how the computer simulates to accomplish the

learning behavior of the machine, to get more knowledge and expertise of learning, reintegrating the existing knowledge, and then continuously optimizing and improving the performance of various uses of the machine is the most important part of artificial intelligence.

## **2. Research Framework of Multimodal Discourse Analysis Theory**

Multimodal discourse analysis theory can be traced back to the French sociologist Barthes' image rhetoric. British linguist Halliday extended the social sign of language to multiple modalities such as image, action, and sound for language research [12, 13]. In the 1990s, multimodal discourse analysis emerged, and American and Dutch scholars argued that multimodality is including language, technology, image, color, music, action, gesture, body language, and facial expression from multidimensional interaction and cognitive framework, respectively [14]. Chinese scholars investigated the relationship between multimodality and foreign language teaching earlier, and expounded the theoretical basis, teaching design, functional classification, application fields, and development prospects of the relationship between multimodality and foreign language teaching. This represents the latest research results at this stage in China. Scholars agree that with the in-depth development of big data, artificial intelligence, Internet of things, cloud computing, mobile Internet, and block chain, multimodal research and application will become the focus of linguistics, and at the same time, multimodal research will have an important role in promoting the development of AI [15, 16]. The difficulty lies in the need for AI to consider the synergistic operation of different modalities in its design and further optimize the language of AI to make it capable of expressing emotion and attitude in interpersonal communication.

The root cause of multimodal discourse is the development of technology, especially the application of computers [17, 18]. The basic "food" for AI is massive amounts of data, and the backbone is computing power, with the total amount of global data reaching 44 ZB in 2020 and the number of connected devices reaching about 50 billion worldwide [19]. The computing power of the world's supercomputers has increased by a factor of 100. The integration of various advanced yet complex instructions and rules is enabling deep knowledge that is driving AI to reach the same level as humans in some areas [20]. Examples include image testing, sound recognition, and reading comprehension, and are the context in which multimodality is arising. Although AI is a very mature concept, almost all developments in the field have been realized in the last 20 years. Therefore, researchers are all contemporary scholars in recent years, with Halliday, a famous British linguist, founding systemic functional linguistics, and Martin, a famous Australian linguist, founding language evaluation theory and positive discourse analysis theory. On this basis, Chinese scholar Zhang Delu first proposed a multimodal discourse theory in 2009, whose comprehensive theoretical framework mainly consists of a system of four levels: culture,

context, content (meaning+form), and expression, and their sub-categories (see Figure 1). The current development of AI is very rapid, which puts forward higher requirements for multimodality in English teaching, and this theoretical framework has positive guiding significance for us to study multimodal teaching in English classroom.

### 3. Evaluation Criteria of Multimodal Discourse and Practical Application Dilemma

AI is not only the replacement of humans by trained machines to do a specific job, but also a more precise definition of machines with self-awareness and autonomy to find solutions, i.e., autonomous learning + setting overall goals. In the era of AI, multimodality is standardized in the linguistic community.

#### 3.1. Criteria for Evaluating Multimodal Discourse

**3.1.1. Number of Modality Criterion.** Discourse that uses two or more modalities at the same time is a commonly accepted criterion in the current linguistic community. Typically, modalities are visual, auditory, tactile, olfactory, and gustatory modalities. Discourse in one modality is called “monomial discourse,” such as listening to the radio in the auditory modality or reading a book in the visual modality [21]. A “bimodal discourse” is a discourse that uses both modalities at the same time, e.g., a PowerPoint lesson in which the visual and auditory modalities are used simultaneously. A discourse that uses two or more modalities at the same time is called a “multimodal discourse,” e.g., a television and telephone system that can acquire sound, text, data, and images at the same time.

**3.1.2. Symbolic System Standard.** A modality contains two or more symbolic systems. For example, radio involves only auditory modality but contains background music; comic strip involves only visual modality but contains text and pictures.

**3.2. The Dilemma of Practical Application of Multimodality in College English Classroom.** In real life, education, art, diplomacy, cultural communication, etc., can use multimodality or multiple symbolic resources to solve practical problems. In university English classroom, the discourse study and teaching of language symbols alone can no longer meet the cognitive needs of students. There are some dilemmas in the practical application.

**3.2.1. At the Cultural Level, the Concept Is Old-Fashioned and Lacks a Systematic Multimodal Teaching Concept.** With the development of information technology, the application of AI has gradually penetrated various fields, and the way of communication between people has undergone a radical change. In some fields, the generation of multimedia and network has promoted the study of multimodal discourse, and the main modality of communication has shifted from

language to image or other modalities. The reason why multimodal teaching is not fully popular in current English language teaching is that there is insufficient application of the specific cross-cultural practices of multimodal modes of teaching. The cultural dimension, which determines communicative traditions, communicative forms, and communicative techniques, is the key dimension that makes multimodal communication possible [22]. The cultural context contains both ideology and genre. Ideology is the sum of ideas, thoughts, values, and other elements of understanding and perception of things, while genre is the communicative procedure or structural potential of ideological realization. In English teaching, many teachers cannot keep up with the speed of development of information society, are not willing to accept new things, have old teaching concepts and ideas, and lack systematic multimodal teaching concepts. Single or fewer modalities make the whole classroom atmosphere depressing and not active enough, teachers struggle to teach, and students learn tediously. Generally, the following formula can be used to predict the mathematical relationship between teaching concept and teaching effect. Based on the above calculation formula, Figure 2 shows the histogram of the relationship between teaching effectiveness and teaching diversification coefficient (taking two group A and group B as the calculation objects, in order to make the data more reliable). As can be seen from the figure, with the diversification of teaching modes, the effectiveness of teaching is more remarkable, and students are more interested in learning.

$$\begin{aligned} E &= a\chi^\theta + b, \\ \chi &= \beta\eta, \end{aligned} \quad (1)$$

where  $E$  is the teaching effectiveness;  $\theta$  represents the diversity index of teaching mode;  $a$  and  $b$  represent the coefficient related to teaching effect;  $\chi$  is the value of teaching model;  $\eta$  is the classroom student activity; and  $\beta$  represents the diversified teaching guidance.

In addition, language is both a carrier of culture and ideology and a medium of communication. With the success of the industrial revolution, there is a tendency for Western culture to be sanctified [23]. In the past, teaching has focused too much on the explicit ideology of political education and neglected the implicit role of “curriculum ideology” in English education. As for Western culture, the majority of young students have a weak judgment and a tendency to absorb it all without discriminating. Therefore, the teaching of “curriculum thinking and politics” in college English is of great significance to the establishment of moral education, especially the enhancement of cultural confidence.

**3.2.2. Contextual Level, Ignoring the Creation, and Lack of Actual Communication Opportunities.** The five skills of listening, speaking, reading, writing, and translating in college English are limited by the contextual factors including the scope of discourse, tone of discourse, and manner of discourse. In the traditional English classroom teaching mode, teachers ignore the creation of contexts and students lack

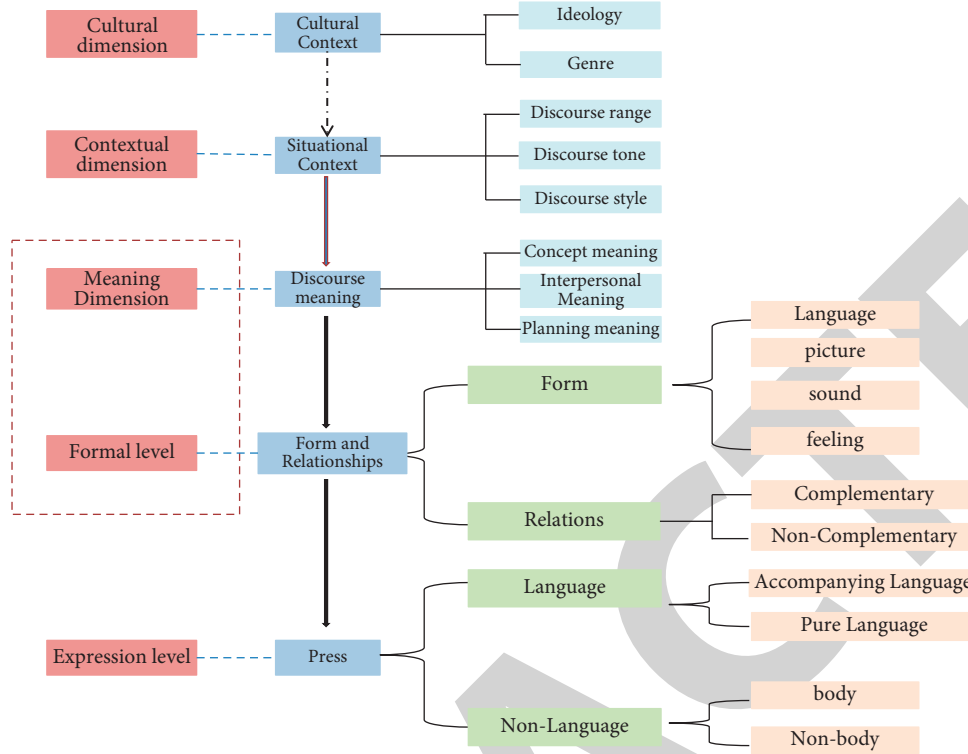


FIGURE 1: A framework for multimodal discourse analysis.

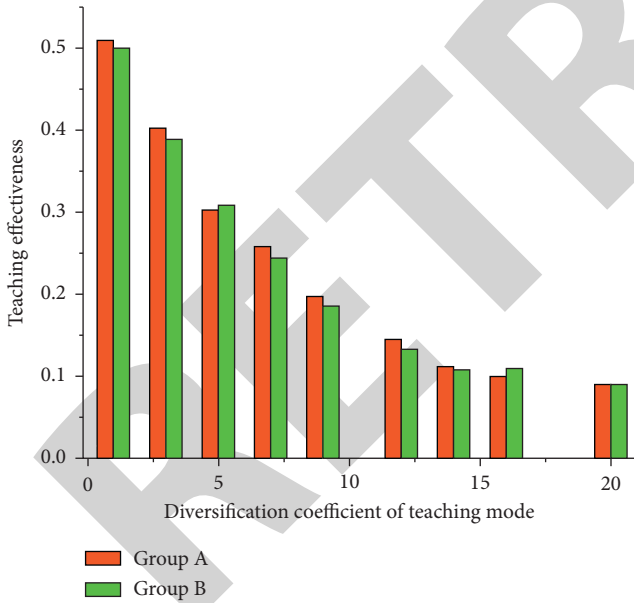


FIGURE 2: Histogram of the relationship between teaching effectiveness and diversification of teaching modes.

communicative opportunities. In the era of “Internet +” artificial intelligence, educational technology has been fully developed and expanded, teaching methods and teaching means have been gradually innovated, foreign language education has been upgraded to a four-dimensional model of “language + curriculum + technology + people,” and their mutual cooperation has formed a four-dimensional ecological network of foreign language education. Their mutual

cooperation forms a four-dimensional ecological network of foreign language education. So, the relationship between the effectiveness of foreign language teaching and AI under the four-dimensional model can be described by the following formula. Figure 3 shows a scatter diagram of the relationship between foreign language teaching achievement index and the degree of AI under the four-dimensional model. As can be seen from the figure, with the popularization and wide application of a four-dimensional model of “language + curriculum + technology + people,” their mutual cooperation has formed a four-dimensional AI in teaching scenes, the effectiveness of foreign language teaching has increased linearly. In particular, the full extension in time and space has a profound impact on foreign language education, even a subversive revolution. In the era of artificial intelligence, English teaching of listening, speaking, reading, writing, and translation can be simulated in realistic contexts, and the application of multimodal technology can produce multidimensional reorganization of teaching time, space, audience, and resources. For example, “online + offline” and “catechism + microlesson + flipped classroom” can realize the creation of cross-time and space contexts, which are the products of the deep integration of technology and curriculum, and are also the development direction and basic picture of language teaching in the future.

$$W_x = \frac{\epsilon_x + \epsilon_y}{2} + \sqrt{\left(\frac{\epsilon_x - \epsilon_y}{2}\right)^2 + \epsilon_x \epsilon_y},$$

$$W_y = \frac{\epsilon_x + \epsilon_y}{2} - \sqrt{\left(\frac{\epsilon_x - \epsilon_y}{2}\right)^2 + \epsilon_x \epsilon_y},$$

(2)

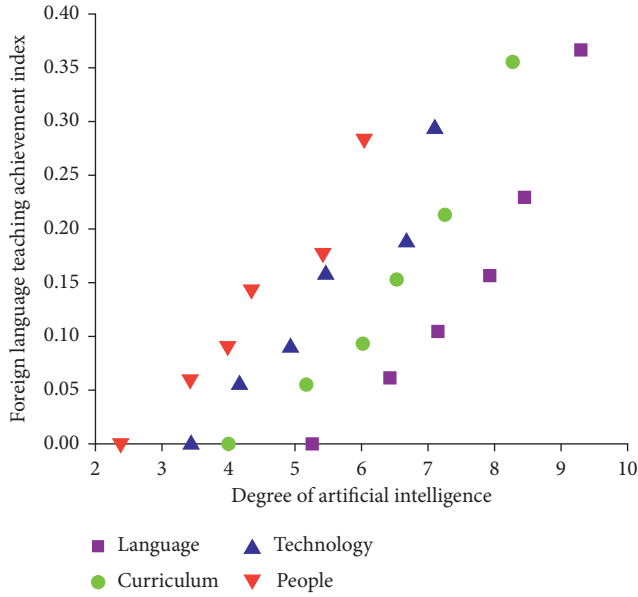


FIGURE 3: A scatter diagram of the relationship between foreign language teaching achievement index and the degree of AI.

where  $W$  is the teaching effect index under the four modes of foreign language teaching;  $\varepsilon$  represents the degree of artificial intelligence; and  $x$  and  $y$  represent the corresponding values under teaching methods and teaching scenes.

**3.2.3. Content Level (Meaning Level and Form Level), Discourse Meaning Determination, and Form System Selection and Relationship Synergy.** The content level consists of “discourse meaning” and “forms and relations.” The “meaning of discourse” can be divided into conceptual, interpersonal, and schematic aspects, which are governed by the context of the situation. “Form and relationship” consists of “form” (linguistic, graphical, acoustic, sensory) and “relationship” (complementary, noncomplementary). In English language teaching, the conceptual, interpersonal, and discursive meanings need to be determined, but there is also a focus on the multifaceted communication of information. The formal features of the different modalities are interrelated and together reflect the meaning of the discourse. Multimedia education: A more engaging and convenient environment for learning English is provided through CDs, multimedia teaching materials, and online resources, which also make it easier for teachers to plan and deliver lessons [24]. However, each modality, such as visual grammar, auditory grammar, and tactile grammar, has its own formal system; i.e., the visual and auditory grammars are not definite in fixed language grammar, but have considerable subjectivity. It is difficult to achieve coordination, union, and complementarity between the various modalities.

**3.2.4. Expression Level and Effective Use of Verbal and Nonverbal.** Language and nonlanguage are both important means of communication. Language is divided into “companion language” and “pure language,” while nonlanguage is divided into “physical” and “nonphysical.” The term “pure language” refers to sounds and words. The traditional linguistic forms and main media for meaning transmission are sound symbols and written symbols. The term “companion language” refers to sound, tone, type, and layout. “Nonverbal” refers to “body” and “nonbody.” The “body” includes movement, analogy, face, and body. The “nonphysical” includes PPT, audio, Internet tools, and laboratory and simultaneous interpretation room environments.

The main basis for teaching English is “pure language.” With the development of information network technology and the upgrading of artificial intelligence, the “companion language” will play an auxiliary, supplementary, and reinforcing role in the transmission of language meaning through the size, tone, pitch, accent, intonation, sound frequency, sound and font size, shape, color, and spatial layout of the voice [25]. However, some teachers rely too much on multimedia courseware, spend more time preparing it in class, and then read from the text on the PPT in class, or simply play videos without writing on the blackboard. This is a lack of interaction between teachers and students, and teaching resources are not fully utilized. Students’ knowledge and skills are simply mastered, lacking active thinking, and teaching objectives are not achieved. The mathematical relation between degree of interaction between teachers and students and teaching resources can be expressed by the following equations. Figure 4 illustrates the histogram of the relationship between the utilization of teaching resources and the degree of interaction between teachers and students in four dimensions, based on the following equations. In addition, the multimedia courseware used by some teachers is too informative, the interaction and alternate switching between various resources is too frequent, and some require cell phones to operate at the same time. The pace is fast, and the forms are diverse, dazzling, and hurried. Focusing only on the surface form distracts attention and leads to the teaching content not being deep enough to achieve the expected effect.

$$\gamma = \frac{T}{G},$$

$$E = \frac{A - A_1}{A} \times 100\%, \quad (3)$$

$$H = E\gamma + a,$$

where  $\gamma$  is the degree of interaction between teachers and students;  $T$  represents the quality of teachers;  $G$  is the support of classes;  $A$  and  $A_1$  represent the total teaching resources and the resources not fully mobilized, respectively; and  $H$  is the utilization degree of teaching resources.

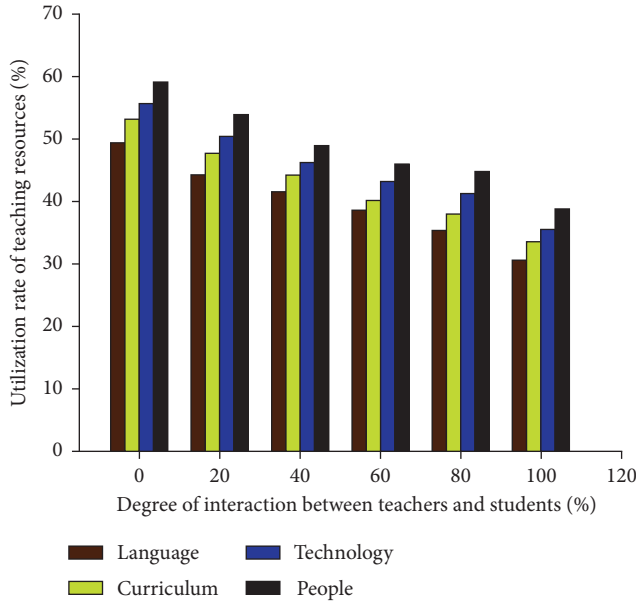


FIGURE 4: Histogram of the relationship between the utilization of teaching resources and the degree of interaction between teachers and students in four dimensions.

## 4. The Innovation Path of Multimodal Discourse Teaching in College English in the Era of Artificial Intelligence

### 4.1. Develop Cross-Cultural Communication Abilities and be Familiar with the Resources Available on Educational Platforms for Multimodal Integration

4.1.1. *Be Proficient in Using the Multi-Functional Intelligent Teaching Platform and Advanced Teaching Tools.* Simply using Rain Classroom, MicroAssist, and Learning Pass in the classroom will enable multimodal interaction and focus on real-time classroom feedback, and the pop-up function enables instructors to comprehend rapidly the degree of student mastery. Additionally, you can review topics you have already covered with ease because there is a dedicated area for classroom resources. And the rain classroom buddy shake function can also liven up the atmosphere in the classroom question answering. At the same time, college English involves various aspects of science and technology, moral and emotional, cultural knowledge, and social hotspots, which require teachers to adapt to intelligent software tools as soon as possible [26]. For example, in the same lecture on the greenhouse effect, although the teachers could explain in a carefully prepared way in class through a beautiful PPT and a neat blackboard in class, they still used the traditional blackboard to teach, so the students needed to spend a few minutes to understand. Students can grasp at a glance if you employ more sophisticated intelligent classroom technology and 3D software model illustration coupled with motion demonstration. With the use of cutting-edge teaching tools, even pupils with limited English skills will instantly understand the concepts.

4.1.2. *Develop Intercultural Communication Skills.* The specific components of intercultural communicative competence are four parts: knowledge, ability, attitude, and literacy. In intercultural English teaching, the way to achieve the knowledge goal, ability goal, and emotional goal can be applied to multimodal theory. For example, through a reasonable combination of PPT, language lectures, body movements, facial expressions, English video songs, discussion and Q&A, classroom interaction, microclasses, flipped classroom, etc., the use of sound, text, language, colors, images, movements, expressions, and other modalities can be realized, emphasizing that students learn by “doing,” which is conducive to stimulate students’ interest in learning. It trains both verbal and nonverbal communication skills and communication strategies.

4.1.3. *Focusing on the Construction of English Course Philosophy and Politics.* The “curriculum thinking and politics” of university English is responsible for the historical responsibility of “what kind of people to train and for whom to train,” which is the fundamental requirement of implementing Xi Jinping’s socialist thought with Chinese characteristics in the new era. It is an important embodiment of cultivating national cultural confidence (CNCC), telling the Chinese story (TCS), spreading the Chinese voice (SCV), and explaining the Chinese characteristics (ECC). The mathematical relation between the teaching effectiveness in political English and number of political English teaching courses can be expressed by the following equations. On basis of the equations, Figure 5 shows the spatial histogram of the teaching effectiveness of political English teaching in the above four aspects. It can be seen from the picture that political English teaching has an important impact on teaching effectiveness.

$$\psi_i = \frac{T_i l_i}{G}, \quad (4)$$

$$\psi = \sum \psi_i = \sum \frac{T_i l_i}{G},$$

where  $\psi$  is the teaching effectiveness in political English;  $T$  represents number of political English teaching;  $l$  is the effective class length;  $G$  represents the AI improvement coefficient.

4.2. *Develop Multimodal Contextual Teaching Methods with the Help of Modern Information Technology.* Context is the environment in which language lives and develops. Because of the established teaching methods in the past, English instruction in China cannot realize the immersive language environment in Europe and America, and it makes it challenging for children to judge if certain linguistic forms are appropriate. More attention is paid to language ability, language knowledge, and language skills, while cultural awareness, thinking quality, and learning ability in English learning are neglected. With the development of AI and 5G, it has become possible for teachers to learn English through multimodal teaching and human-computer dialogue to

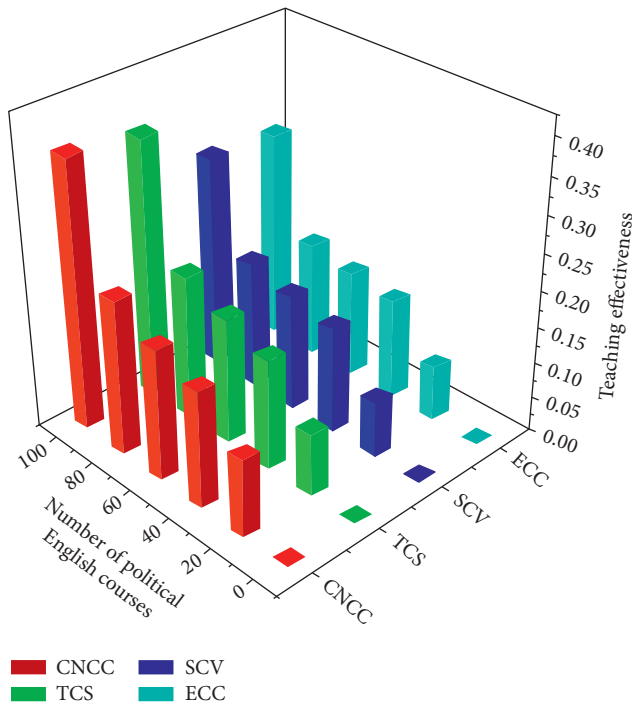


FIGURE 5: The spatial histogram of the teaching effectiveness and number of political English teaching courses.

create authentic contexts. University English teaching can be based on online teaching resources such as the China University MU platform, WeChat public number MOLS-Net, KU Xunfei E Hearing, Mobile Virtual Lab Mlabs, and National Virtual Simulation Experimental Teaching Sharing Platform to realize the teaching empowerment throughout the teaching, learning, examination, evaluation, and management process. With the aid of computer, virtual simulation, and network technology, among other things, it can realize the university English teaching and foreign universities to share educational resources, teaching interaction with foreign teachers and students, and realize the closed context teaching of foreign teachers, excluding outside interference within a certain period of time, so that students' listening, speaking, reading, and writing are fully and systematically cultivated. It is a cutting-edge teaching strategy that combines situational teaching with interactive teaching to pique students' attention and boost engagement in the classroom.

The virtual simulation laboratory of Guangdong University of Foreign Studies is the one with the highest construction standard and specification among similar institutions in China at present. The environment construction of the lab emphasizes teacher-student interaction and group learning, and teaching equipment such as equipment installation, lighting design, acoustic design, teaching tables and chairs, and handwriting boards is designed and arranged around this theme. Figure 6 shows the equipment frame diagram of virtual simulation experiment. For example, the introduction of airplanes through the VR lab, which used to be only flat, can now present the airport and the airplane in three dimensions, even in the

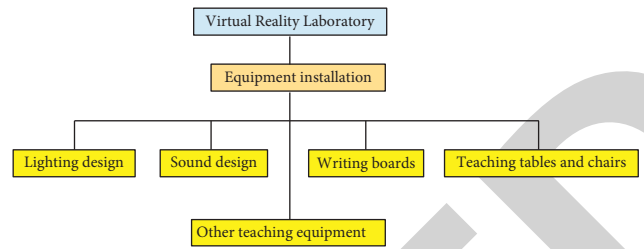


FIGURE 6: The equipment frame diagram of virtual simulation experiment.

cabin of the airplane. The teacher's class situation can also be instantly and directly transformed into a three-dimensional online course and sent to the cloud platform, thus making it easier for more students to watch it at any time. At the same time, the teacher's class scenario and content can be collected and processed in the background to split and summarize several knowledge points taught by the teacher in the classroom into a micro-course so that students do not have to attend the complete class in order to comprehend the key points they need to learn.

4.3. Content Level Adheres to the Unified Synergy of Multimodal Teaching Meaning and Form. Multimodal teaching content refers to the process of teachers' condensation of teaching materials, using multimedia platform to combine language, images, and sounds to form effective meaning maximization, and instructing students to use these forms of expression for collaborative cooperation and communicative communication. In the process of constructing multimodal teaching meaning, teachers need to do their best in and out of the classroom to explore the meaning and the synergy of forms.

4.3.1. Interpreting Meaning. Students' understanding of the meaning level of English includes vocabulary, syntax, grammar, cultural background, historical customs, and other perceptions. In the teaching process, teachers should introduce the unique meaning or multiple meanings of English vocabulary, grammar, and sentence patterns in different contexts by condensing the teaching materials [27]. Through visual, auditory, and tactile senses, students are enabled to master the basic knowledge of language, consolidate the basic language skills, and develop core literacies such as language ability, cultural awareness, thinking quality, and learning ability in the subject of English.

4.3.2. Tap the Value of English Teaching in the Course of Civic Education. At present, there are problems such as unclear concept, insufficient attention, and rigid way in the English curriculum of university. To be guided by the thought of socialism with Chinese characteristics in the new era, the elements of curriculum thinking and politics should be spring-loaded and silently integrated into English teaching, and the construction of curriculum thinking and politics should be comprehensively promoted. Develop young



students' faith in national culture, as well as better construct Chinese values and promote the Chinese voice while studying and understanding the language. For example, the BBC documentaries "Chinese New Year 2016" and "The Story of China 2016" guide students to correctly understand and systematically study Chinese culture, and realize the relationship between university English teaching and "curriculum thinking and politics." The purpose is to realize the organic integration of university English teaching and "Curriculum Civics," and to realize the purpose of establishing moral education.

*4.3.3. Targeted Condensation of the Teaching Style of Famous Teachers Drives and Promotes the Improvement of the Overall Level of All Teachers.* A notable teacher's style of teaching is a type of instruction in which the instructor develops distinctive teaching skills and approaches by condensing teaching materials and exploring teaching values in long-term practical activities.

The unity of teaching content and form often has the leading role of unique style and obvious effect. In the process of building multimodal teaching forms, the focus is on guiding practical applications and cultivating students' forward-looking awareness and macroscopic vision. For example, when it comes to foreign holidays, you can live interact or show videos in the virtual classroom to experience the festive scenes abroad. As we all know, the explanation of holidays in English cannot be separated from food, so we can introduce multimodal language information interpretation in visual and taste senses by directly participating in the production of food. For example, teachers try to broaden the teaching content and help students form hotel English thinking, understand the culture of hotel activities through multimodal presentation forms such as school-enterprise cooperation application cases and virtual hotel activity scenes, and train the ability to apply hotel English in a specific linguistic and cultural environment. The relationship between hotel English ability and multimodal language information can be described by the following formula. Figure 7 shows the relationship between the two from the aspects of teaching, culture, thought, and activity. As can be seen from the figure, with the increase of multimodal language information, the ability to apply hotel English also increases.

$$R_{\min} = \frac{\alpha_1 - \alpha_4}{2},$$

$$R_{\max} = \frac{\alpha_1 + \alpha_2 + \alpha_3 + \alpha_4}{4},$$

$$R = \frac{1}{4} \sqrt{(\alpha_1 - \alpha_2)^2 + (\alpha_2 - \alpha_3)^2 + (\alpha_3 - \alpha_4)^2 + (\alpha_4 - \alpha_1)^2}, \quad (5)$$

where  $R$  is the hotel English ability;  $\alpha$  represents multimodal language information; and numbers represent the aspects of teaching, culture, thought, and activity, successively.

*4.4. Language and Nonlanguage Skills Used Well to Enhance the Multimodal Media-Level Learning Experience.* In the new round of technological revolution and industrial change with digitalization, networking, and intelligence as the core features, AI and machine learning technologies are fast evolving and affecting how people live, learn, and work, as well as how they are taught and educated. The conventional "pure language" and "nonverbal body language" in the English classroom can no longer fulfill the criteria for teaching, and "accompanying language" and "nonbody language" are needed instead. AI, the Internet of Things, and other technologies are being implemented in depth, and English education has to reform the talent training standards in order to keep up with the times.

*4.4.1. Extend the Space with the Help of Platform.* In the teaching activities of English, learning materials can be uploaded to social media platforms such as WeChat public number, Weibo, and Tik Tok for display, or even open a special platform for live webcasting. This can enhance the students' sense of situation and strengthen the interactive effect of communication of English knowledge.

*4.4.2. Expanding the Multimodal Structure at the Modal Level and Broadening the Teaching Time.* Transforming from real classroom teaching to online virtual teaching, more English activities are carried out through intelligent communicative devices, while creating more opportunities for students to communicate and interact in the social network environment.

*4.4.3. Optimize the Language of AI to Achieve a True "Student-Centered" Transformation.* Traditional education is based on the idea that the teacher is the subject and the student is the object. The creation of modern electronic computers is the simulation of the human brain thinking function and is the simulation of the information process of the human brain thinking. These two aspects together constitute the language of artificial intelligence. It takes the form of structural simulation, which involves the building of "human-like" devices modeled after the human brain, and functional simulation, which involves the simulation of the human brain's functioning activities. In many cases, the application of AI to English translation activities in universities and the teaching of situational simulations with attitudes, emotions, and other interpersonal skills will replace the teacher's knowledge of the students. This will inevitably change the way teachers think and teach, achieving a "student-centered, teacher-led" teaching transformation. Figure 8 shows the thinking map of scenario simulation teaching under artificial intelligence.

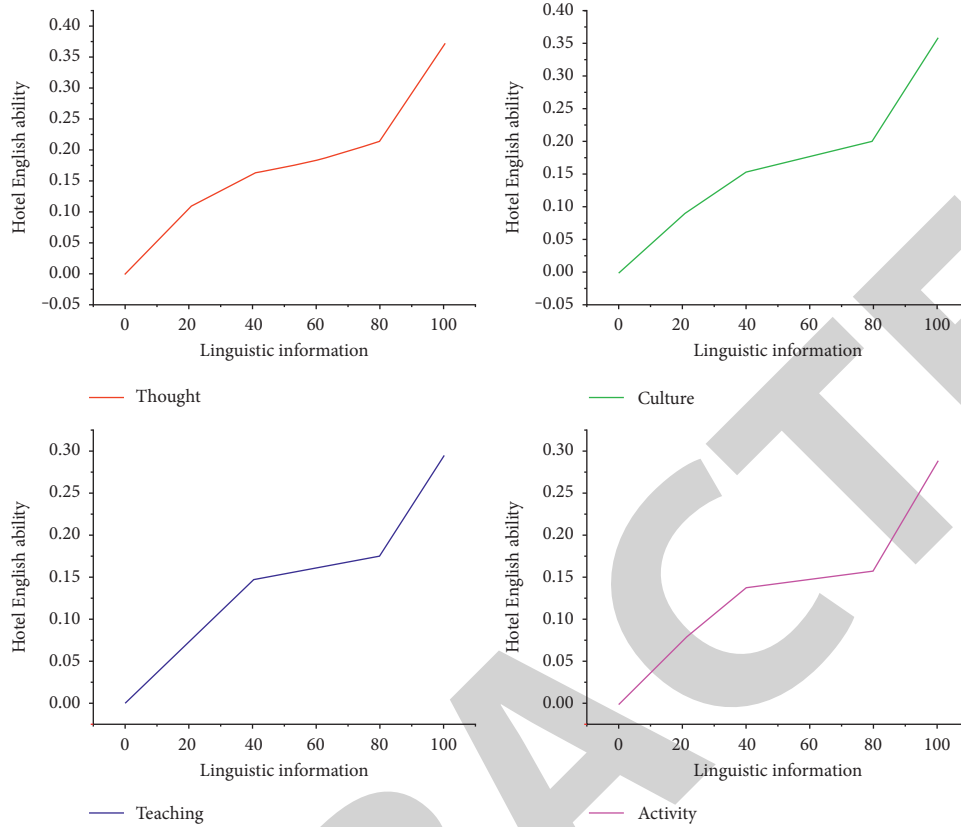


FIGURE 7: The relationship between hotel English ability and multimodal language information.

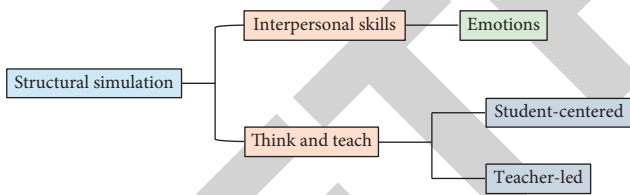


FIGURE 8: The thinking map of scenario simulation teaching under artificial intelligence.

### 5. Conclusion

The effectiveness of AI in college English multimodal teaching is affected by many factors, such as users, learning system, and external environmental conditions; the effect produced in practical application has been tested in practice and has a good development prospect, but at the same time, it still needs to be improved to overcome the shortcomings of the system. In view of the problems existing in “multimode college English teaching based on artificial intelligence,” based on in-depth investigation and analysis, we draw the following conclusions and suggestions:

- (1) At the level of technological development, open up new plates, expand the audience of online education students, and provide learners with learning content in line with their cognitive rules and levels. At the

level of learning experience, we should ensure the accuracy and relevance of learning content and improve the autonomy of learning mode.

- (2) AI enriches English teaching methods, changes the intelligence of English teachers, and improves the efficiency of English teaching. AI helps to create a more relevant and interactive English learning environment, improve many aspects of English teaching, including teaching evaluation, and effectively improve the face of college English teaching.
- (3) In the long run, the combination of AI and teaching will be closer and closer. There is still much room for improvement in resource development, process experience, and result feedback, which will promote more positive changes in college English teaching in the future.

### Data Availability

The experimental data used to support the findings of this study are available from the corresponding author upon request.

### Conflicts of Interest

The authors declare that they have no conflicts of interest regarding this work.

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