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Retraction

Retracted: Analysis of Multimedia Combination-Assisted English Teaching Mode Based on Computer Platform

Advances in Multimedia

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This article has been retracted by Hindawi, as publisher, following an investigation undertaken by the publisher [1]. This investigation has uncovered evidence of systematic manipulation of the publication and peer-review process. We cannot, therefore, vouch for the reliability or integrity of this article.

Please note that this notice is intended solely to alert readers that the peer-review process of this article has been compromised.

Wiley and Hindawi regret 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 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] Y. Zhang and N. Li, "Analysis of Multimedia Combination-Assisted English Teaching Mode Based on Computer Platform," *Advances in Multimedia*, vol. 2022, Article ID 3034928, 10 pages, 2022.

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Research Article

Analysis of Multimedia Combination-Assisted English Teaching Mode Based on Computer Platform

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English is an important international language. Whether it is international economic or international political communication, it is inseparable from English. English teaching is mainly to impart the basic knowledge of English as well as the knowledge of audiovisual knowledge. However, the traditional English teaching mode often ignores the expression of English emotion and the background of English. The traditional English teaching mode often uses textbooks and other forms to impart knowledge, which can no longer meet the English teaching in today's era. Computer-aided systems have become an important technology in the field of teaching today. Multimedia technology can also show English knowledge to students in the form of video or audio. This will increase students' interest in learning English. This research will use computer platform and multimedia technology to build a new English teaching platform. It also uses the ConvLSTM algorithm and the CF algorithm to implement the active recommendation function of English knowledge. The research results show that multimedia technology can achieve the purpose of collecting video and audio information in the process of English teaching. The CF algorithm has a specific high similarity index in recommending English knowledge. The ConvLSTM method can also better predict the characteristics of English grammar and English emotion in the English teaching process. This can also show that the multimedia-assisted English teaching mode has a certain use value for different English teaching scenarios.

1. Introduction

English has become an important language for international communication. English is also a relatively common language of communication in most international communications. Although most people in the world use Chinese as their mother tongue, English is used more widely, which has led to English becoming the official language of international political and economic communication [1, 2]. This also has an important relationship with English-speaking international influence and economic strength. Therefore, China has carried out research on English teaching many years ago. The ultimate goal of English teaching is to achieve more fluent English communication. For English teaching, most people will use traditional textbooks and PPT for teaching. It first learns the alphabet and grammar of English. This is the basis of English language communication [3, 4]. Only by mastering the basic grammar of English, will you be more accurately familiar with English sentences so as to communicate in English and read in English. The English alphabet and grammar are equivalent to Chinese pinyin, and its importance is self-evident. English vocabulary is the basis and focus of learning; it requires long-term memory and learning, which easily makes more students lose interest in learning English. At the same time, English learning will include more complex grammar and sentence patterns, which also require long-term memory and review. In short, English is also a process that requires long-term memory and continuous learning. The traditional book teaching mode is often difficult to stimulate students' learning emotions. English is not like the study of mathematics; the study of number sequence contains certain logical relationships, which can also stimulate students' interest and sense of achievement. English is difficult to achieve this. English is

also a language subject with historical characteristics. It is not only used for international communication. The evolution and development of English are also closely related to the historical changes of English-speaking countries [5, 6]. Therefore, the background of English is also important in the process of English learning, and the communication habits of English may be different from those of English, which is also a difficulty in learning. The traditional English teaching mode only exercises and learns English vocabulary and grammar repeatedly, and the English test process only tests the relevant grammar of English. This also limits students' learning of English emotional expression and English background. Video often contains rich emotional expression and language background, and audio also contains rich emotional expression. With the advancement of science and technology, it is also possible to integrate video and audio technology into the English teaching process. This study considers the application of computer platform and multimedia assistive technology to the English teaching process. It will show the emotional expression of English and the background of English to students and teachers, which will also enrich the interest of English teaching courses. This teaching method is a way for students to receive knowledge faster. The integration of computer platform and multimedia technology into English teaching courses can solve the defects of traditional English teaching process, which is also a new teaching mode that caters to the development of the times.

This research mainly uses computer platform and multimedia technology to design a new type of English teaching platform, which will improve students' learning interest and learning efficiency. Through the above research, it can be found that the learning of English is important for both middle school students and college students. However, most of the English teaching focuses on English grammar and sentence patterns, which ignores the English expressions of emotion and English background in the process of English communication. In international communication, if English communicators cannot understand English emotions and English background well, it is easy to cause certain misunderstandings [7, 8]. At the same time, the traditional English teaching mode is based on books, which will limit the teaching and learning of English. This also reduces the efficiency of students learning English. Generally speaking, the way of video or audio will be more able to arouse the interest and attention of learners. Computer-aided systems have also been successfully applied in the study of other disciplines. For English teaching, it needs this relatively new teaching method, because English teaching and learning itself is a more boring subject [9, 10]. If the computer platform and multimedia technology can be applied to the English teaching process, it will display English knowledge in the form of video or audio and pictures, which will enrich the English teaching mode and allow teachers to prepare more types of study materials. At the same time, English videos often contain emotional expressions in English communication and the communication background in English. This can better solve a function that the traditional teaching mode cannot achieve. In short, the integration of artificial intelligence into the English teaching curriculum will realize an intelligent teaching curriculum, which is also a relatively novel teaching method.

Computer-aided technology has been used in the teaching of many disciplines, and it has also demonstrated the advantages of computer-aided technology. The computer-aided system can directly display the content of English teaching to students or teachers. It can display video or audio, which is an advantage over the textbook method. This also provides opportunities for the use of multimedia technology. Multimedia technology can collect pictures, images, video, audio, and other information in the process of English teaching [11, 12]. The use of these forms can improve the interest of English learning, which can also change the tediousness of traditional English teaching materials. Multimedia technology will include cameras and recording equipment. At the same time, this study also considers the active recommendation function of relevant knowledge in the English teaching process. It is a full combination of computer platforms and multimedia assistive technologies. The implementation of the active recommendation function mainly relies on the collaborative filtering algorithm and the ConvLSTM method. Collaborative filtering algorithm can rely on the similarity between users or research objects to achieve the recommendation of corresponding features [13, 14]. The basis of this feature recommendation is mainly to use the distance relationship between the data. The ConvLSTM method can extract relevant features in the English teaching process. This research will realize a new English teaching plan with the help of computer platform and multimedia-assisted technology. ConvLSTM will be used to extract spatiotemporal features in English teaching, and CF algorithm will be used to realize the active recommendation function of English teaching.

This research realizes a new English teaching mode by using computer platform and multimedia-assisted technology. Multimedia technology will collect relevant characteristic information in the English teaching process. The computer platform will display English knowledge to students and teachers. At the same time, this study uses the CF algorithm to realize the active recommendation function of English knowledge. The ConvLSTM algorithm will predict English grammar as well as English emotion and student behavior characteristics in the English teaching process. This research will study the value of multimedia and artificial intelligence technology for English teaching from five different perspectives. The significance of English teaching and the related significance of multimedia technology and computer platform are introduced in Section 1. The relevant research status of English teaching is introduced in Section 2. Section 3 describes the design of computer platforms and multimedia assistive technologies in English teaching. It also introduces the application of ConvLSTM and CF algorithms in English teaching. Section 4 mainly analyzes the ConvLSTM algorithm and CF algorithm in predicting English grammar and English sentiment in English teaching. Section 5 summarizes the significance and value of multimedia assistive technology and artificial intelligence technology for English teaching.

2. Related Work

English is an important international language, which plays an important role in international politics and economy. For China, English teaching is a part of improving English ability, and it can improve the audio-visual content of English. However, the traditional English teaching method still uses textbooks and PPT teaching methods, which limits the interaction of English classrooms and students' interest in learning. For English teaching, many researchers have done a lot of research to improve the interest and interactivity of English teaching classrooms. Huang and Ji [15] has recognized College English as an effective and important course, and it is an important subject for students of all majors. However, Chinese college English classrooms still adopt the cramming teaching mode based on books, which limits the efficiency of English teaching and the interactivity of English classrooms. It is difficult to increase students' interest in learning English. This research uses the big data method as the basis to design a college English teaching plan. At the same time, the English teaching plan of this college also adopts the method of cloud computing. The results of the study show that big data and cloud computing methods can improve the quality of college English classrooms. Li [16] also found that English language learning is also an important part of Chinese education, because English is an important language for opening international communication patterns. It also believes that the traditional English teaching model is no longer suitable for the era of advanced technology. The traditional teaching model will limit today's international and economic exchanges. The traditional oral English teaching mode has ignored important factors such as English emotion and environment. This study uses interactive multimedia technology and computer technology to study oral language learning in English teaching. This oral English teaching and learning can improve classroom interaction and interest. It tested this model with an actual sample of middle school students, and the results showed that interactive multimedia technology is suitable for teaching tasks in spoken English. Wang, Hu, and Lei [17] mainly study the online teaching mode of English teaching, which is based on the MOOC method. However, this traditional online English teaching mode has the defect of poor interactivity. This study uses Gaussian mutation genetic algorithm and neural network algorithm to study the online teaching mode of college English. It mainly utilizes the actual existing English teaching data. The research results show that this method can improve the interactivity and motivation of English online teaching. At the same time, this study also puts forward the evaluation indicators of English online teaching. In general, this method has high promotion value in English teaching. Zhou [18] mainly explores the teaching mode of English. He believes that the teaching mode of English can be divided into classroom teaching and independent teaching mode. It uses the method of cloud computing and computer fusion to explore the English teaching mode. This platform allows teachers to upload relevant English resources and homework, which breaks through the time and space limitations of English teaching. This research fully reflects the advantages of the integration of English teaching and cloud computing. This approach allows students to easily integrate into the teaching environment. Taken together, this approach can improve students' ability to interpret the English language and receive it. Han [19] studies and analyzes the instability existing in the automatic evaluation system of English online teaching. This research mainly explores how the automatic evaluation system of English teaching can better adapt to the theoretical and practical content of English teaching. This research uses supervised learning algorithm and deep learning algorithm to build an online English teaching evaluation platform. It also established a teacher and student evaluation system. The research results show that this system improves the effect of online English teaching, and this model has better performance. Wang and Zeng [20] believed that English vocabulary is an important basic knowledge of English teaching and English learning. However, learning English vocabulary is relatively boring and boring. At the current stage, there is a corpus of English vocabulary learning, which will improve students' interest in learning English, and this method also has high authenticity and practicability. This study examines the corpus that exists in the English teaching process. The research results show that this corpus-assisted platform can improve students' interest and efficiency in learning English vocabulary. This method can well guide teachers and students to learn English vocabulary, which can also improve the efficiency and interaction of students in learning English vocabulary. This research uses CF algorithm and ConvLSTM algorithm to identify relevant features in the English teaching process, and it can realize the recommendation of English knowledge. These recommended knowledge will be displayed to students or teachers through multimedia technology and computer platforms.

3. The Computer and Multimedia Technology-Assisted English Teaching Method and Program Design

3.1. The Importance of Multimedia Technology and Computer Platform for English Teaching. English teaching is an important means for students to learn basic knowledge of English grammar and sentence patterns. However, the traditional teaching mode has limited the efficiency of English teaching. This research mainly uses computer platform and multimedia combination technology to study the efficiency and feasibility of English teaching [21]. Computers can show English knowledge to students, which is more vivid than traditional teachers' methods. The way of teaching on the computer platform can improve students' interest and interactivity in learning English. Multimedia technology mainly displays English teaching content to students in the form of video or audio. Compared with the traditional English teaching mode of textbooks, this can attract students' interest and willpower more. English subjects contain a lot of boring grammar knowledge, which requires a combination of visual or auditory teaching. Multimedia technology can also effectively display the knowledge of English background,

emotion, and context in English teaching, which is an advantage that does not exist in the traditional English teaching mode. In short, for English teaching, computer systems and multimedia technology are a more efficient and interactive teaching mode.

3.2. Design Scheme of Application of Computer Platform and Multimedia Technology in English Teaching. The main goal of this research is to design an English teaching platform that utilizes a combination of computer platforms and multimedia. The multimedia technology used in this research mainly includes video capture system, video playback system, and audio playback system. The computer platform is mainly used to display the content that multimedia technology needs to display. For English teaching, multimedia technology is a medium of dissemination of English knowledge. The computer platform can display English knowledge to students more intuitively. This well realizes the organic integration of computer platform and multimedia technology. At the same time, in order to realize the intelligence of multimedia technology and computer technology, this research considers artificial intelligence technology. Artificial intelligence technology will assist computer and multimedia technology to achieve active recommendation of English teaching content. Figure 1 shows the design scheme of computer and multimedia technology in the application of English teaching. This research uses the ConvLSTM method in artificial intelligence technology and the collaborative filtering algorithm to realize the active recommendation of English teaching content. First, the platform's multimedia technology will use cameras and audio equipment to collect English teaching content and students' classroom performance, and these data will be used as input data. It will go through the ConvLSTM algorithm followed by the collaborative filtering algorithm in turn. The computer platform will display the actively recommended English knowledge to students and teachers. In this intelligent system of English teaching, multimedia technology is mainly responsible for collecting English teaching content and classroom information. The computer platform is mainly responsible for recommending relevant recommended content to students in the classroom. This realizes the interest and interactivity of English teaching content.

Collaborative filtering (CF) algorithm is mainly used in the field of e-commerce. The function of the CF algorithm is to implement feature recommendation. In the English teaching system, it can make active recommendations according to the needs of students and teachers. This method will combine students' needs or interest in English learning. It can recommend relevant product information to users according to users' habits, which is also an efficient recommendation method. Collaborative filtering algorithms mainly include algorithms based on user habits and algorithms based on object utilization. The collaborative filtering algorithm based on user habits mainly recommends products or video information with the same nature or the same characteristics to users according to the user's habits, which is more specific and targeted. Object-based collaborative filtering algorithms recommend products or videos to users with the same characteristics based on their similarity in utilization. Regardless of the type of collaborative filtering algorithm, it recommends based on similar features. Figure 2 shows how the collaborative filtering algorithm works. This study adopts the item-based CF algorithm in the CF algorithm. It recommends items based on the user's needs for items. According to the characteristics of English teaching, this research chooses the object-based collaborative filtering algorithm to realize the active recommendation technology of English teaching content.

3.3. Application of ConvLSTM Method in English Teaching. In this research, it will extract English emotion and student behavior information in English teaching process. These two features will contain more temporal features. It is difficult for traditional convolutional neural networks to extract the temporal features of research objects. This research will use the ConvLSTM method to extract the temporal and spatial information of English teaching-related features. The three characteristics in the English teaching process not only contain spatial characteristics but also contain strong temporal characteristics. If only CNN and LSTM methods can be used, it will result in lower prediction errors in predicting the three characteristics of English teaching. The ConvLSTM method can extract the characteristics of these two properties of English teaching very well. Figure 3 shows how the ConvLSTM algorithm works. This algorithm is a combination of a convolutional neural network and a long short-term memory neural network. It has two functions of extracting temporal and spatial features. It will transfer the extracted temporal features about student behavior features and English emotional features to the CF algorithm, which is further displayed to students or teachers through a computer platform.

This study adopts an object-based CF algorithm. The similarity is used to evaluate the performance of the CF algorithm. The calculation of the similarity of the CF algorithm is often calculated by distance. It needs to calculate the distance relationship between different data in the dataset. Equation (1) shows how the Jaccard similarity coefficient is calculated.

$$J(A,B) = \frac{|A \cap B|}{|A \cup B|}. \tag{1}$$

Among the methods of distance calculation, the cosine of the included angle is a common method. Equation (2) shows the distance method for calculating the cosine of the included angle in the CF algorithm. Equation (2) shows the form of an n-dimensional sample. Equation (3) is an extension of Equation (2), which has a wider range of applications.

$$\cos\theta = \frac{a \bullet b}{|a||b|}, \tag{2}$$

$$\cos\theta = \frac{\sum_{k=1}^{n} x_{1k} x_{2k}}{\sqrt{\sum_{k=1}^{n} x_{1k}{}^2} \sqrt{\sum_{k=1}^{n} x_{2k}{}^2}}. \tag{3}$$

Equation (4) introduces the correlation similarity calculation method in the CF algorithm. This is mainly to calculate

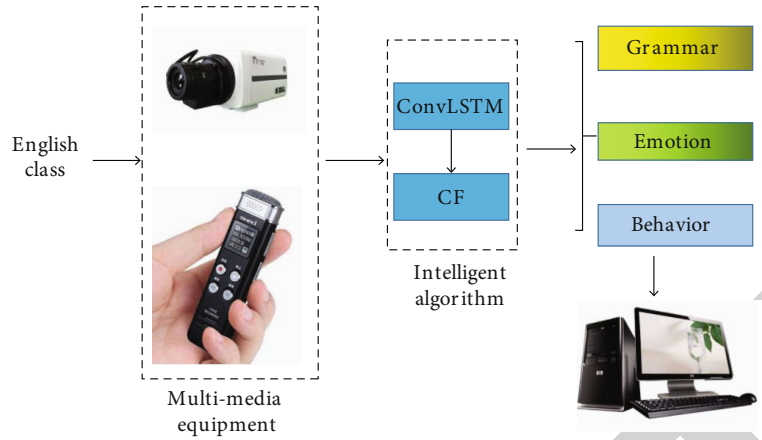

Figure 1: Design scheme of application of computer platform and multimedia technology in English teaching.

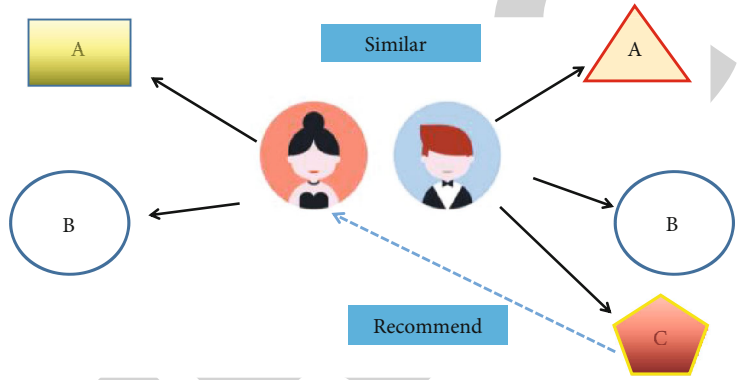

Figure 2: The principle of CF algorithm.

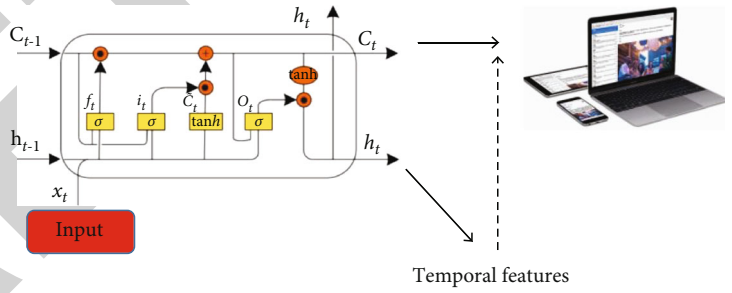

Figure 3: The working principle of the ConvLSTM.

the correlation between the two datasets. Equation (5) represents calculating the adjusted cosine similarity.

$$sim(i,j) = \frac{\sum_{u\in U}(R_{u,i}-R_i)(R_{u,j}-R_j)}{\sqrt{\sum_{u\in U}(R_{u,i}-R_i)^2}\sqrt{\sum_{u\in U}(R_{u,j}-R_j)^2}}, \quad (4)$$

$$sim(i,j) = \frac{\sum_{u\in U}(R_{u,i}-R_u)(R_{u,j}-R_u)}{\sqrt{\sum_{u\in U}(R_{u,i}-R_u)^2}\sqrt{\sum_{u\in U}(R_{u,j}-R_u)^2}}. \quad (5)$$

For the ConvLSTM algorithm, it has a relatively similar calculation method and structure to the LSTM algorithm. It also has four door configurations. Equation (6) shows the calculation criteria for the input gate. The input gate will not only input the current input information but also selectively input the historical information.

$$f_t = \sigma\left(w_f \bullet [h_{t-1}, P_t] + b_f\right). \quad (6)$$

Equations (7) and (8) introduce the calculation criteria for the forget gate of the ConvLSTM method. It will be

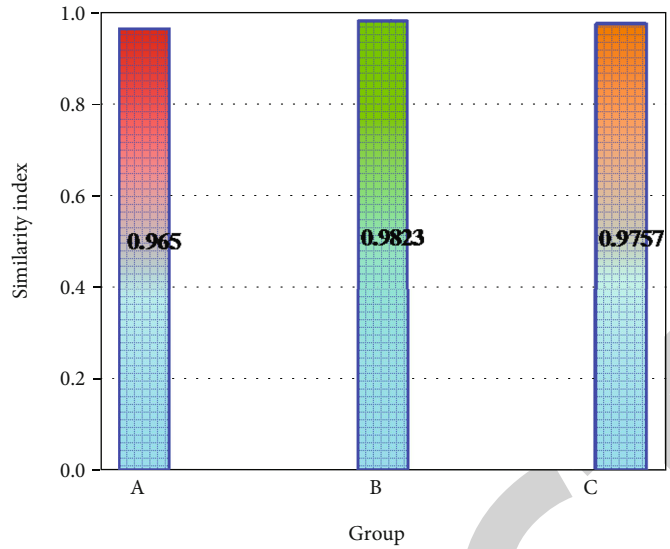

Figure 4: Similarity index of three characteristics of English teaching.

responsible for forgetting part of the historical information. This is also a way to reduce the amount of parameter computation.

$$i_t = \sigma(\omega_i \bullet [h_{i-1}, P_t] + b_i), \tag{7}$$

$$\tilde{C}_t = \tanh\left(w_c \bullet [h_{t-1}, P_t] + b_c\right). \tag{8}$$

Equation (9) shows the calculation guidelines for the refresh gate. It will give different weights to the state information at two different times, which is mainly based on the importance of the features.

$$\vec{C}_t = f_t \times \vec{C}_{t-1} + i_t \times \vec{C}_t. \tag{9}$$

Equations (10) and (11) show the calculation criteria for the output gate of the ConvLSTM method. It will enter current state information. The output gate is also connected to the forget gate of the next layer of the neural network.

$$O_t = \sigma\left(w_o \bullet \left[\vec{h}_{t-1}, P_t\right] + b_o\right), \tag{10}$$

$$\vec{h}_t = O_t \times \tanh\left(\vec{C}_t\right). \tag{11}$$

4. Result Analysis and Discussion

This research uses computer platform and multimedia technology and artificial intelligence method to design an English teaching plan. Computer platforms and multimedia technology will be used to collect and display relevant features of English teaching, including English grammar and English videos. Compared with traditional English teaching methods, the English teaching platform based on computer technology and multimedia technology is more interactive and interesting, and it can also reflect the emotion and background information of English teaching. However, both the ConvLSTM method and the collaborative filtering algorithm require a large amount of English feature data to learn. This step will realize the active recommendation technology of English teaching. The datasets used by the ConvLSTM method and the collaborative filtering algorithm are derived from English feature data from many universities in Shanghai. Shanghai is a big international city with more frequent international economic and political exchanges. Here, we will involve more characteristics of the English teaching process. This guarantees the extensiveness of the dataset. These feature data will be divided into three features: English grammar, English sentiment, and student behavior. The ConvLSTM algorithm and the CF algorithm mainly extract these three features in the English teaching process. When the data of the relevant characteristics of English teaching is provided, it can carry out the learning and prediction tasks of the algorithm. In this system, multimedia technology will also collect data on the characteristics of English teaching.

In this English teaching system, the accuracy and feasibility of the ConvLSTM algorithm and the CF algorithm are the keys to success. Of course, the characteristic data of English teaching collected by multimedia technology is also the key to success. Therefore, multimedia technology and intelligent algorithms are two important factors that affect the English teaching system. The accuracy of multimedia technology mainly depends on the accuracy of the camera and audio equipment. Therefore, this section mainly discusses the accuracy of the ConvLSTM method and the CF algorithm in predicting the characteristics of English teaching. First, it studies the similarity index of the CF algorithm. If the similarity index exceeds 0.9, this already shows that the CF algorithm has a better performance in the active recommendation of English teaching features. Figure 4 shows the similarity index of the three characteristics of English teaching. It can be seen that the similarity index of the three English teaching characteristics is more than 0.9, which has shown that the similarity index adopted in this study is feasible. The smallest similarity index has also reached 0.965.

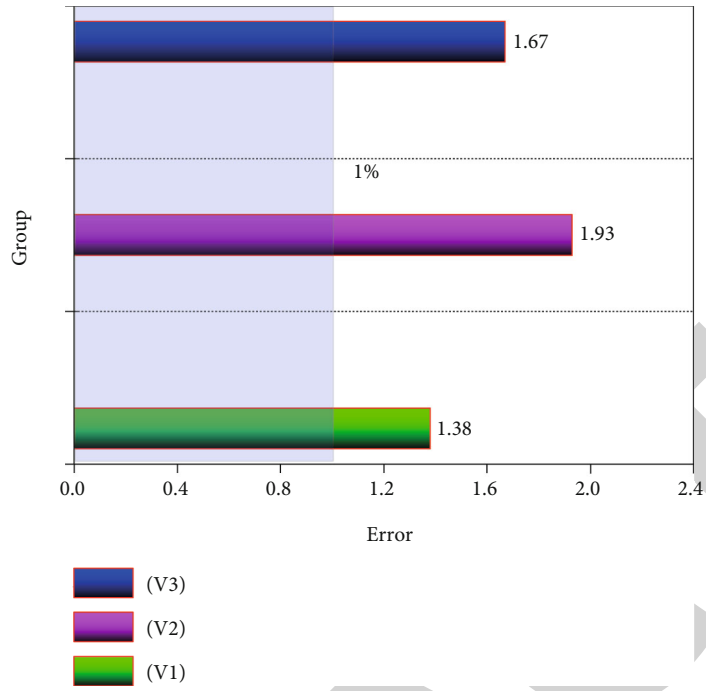

Figure 5: The prediction error distribution of three characteristics of English teaching by using the ConvLSTM method.

However, the largest similarity index has also reached 0.9823. Through the above analysis, it can be seen that the data set of English teaching characteristics collected by multimedia technology is credible. Moreover, the CF algorithm has high reliability in the prediction of English teaching characteristics.

The artificial intelligence method used in this study includes two algorithms, ConvLSTM and CF. The ConvLSTM algorithm is mainly used to analyze the prediction performance of English teaching features. Figure 5 shows the prediction error distributions for three features of English teaching. V1 represents the prediction error of English grammar features of English grammar. V2 represents the prediction error of English emotional expression features. V3 represents the prediction error distribution of student behavior characteristics. In Figure 5, the blue areas represent the three characteristics of English teaching for data with an error margin of less than 1%. In general, most studies will consider 5% as a reasonable margin of error. It can be seen from Figure 5 that the prediction errors of the three English teaching characteristics are all within 2%. This shows that the ConvLSTM algorithm has good performance in predicting the grammar, English emotion and student behavior information of English teaching. At the same time, it can also show that the three characteristic information of English teaching collected by multimedia technology is accurate. As can be seen from Figure 5, the largest prediction error is 1.93%. This part of the prediction error is derived from the prediction of English emotional expression features. English emotional expression is a feature with relatively strong subjective performance, and different groups of people will have different emotional expressions for the same English teaching knowledge. This leads to a relatively large fluctuation in the emotional characteristics of English teaching.

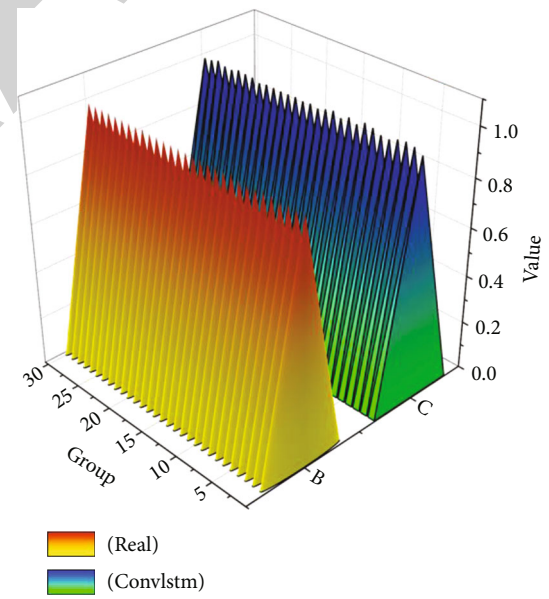

Figure 6: Predicted value and actual value distribution of English grammar teaching characteristics in English teaching.

The average prediction error shows an average value of all English teaching feature values, which cannot reflect the fluctuation of English teaching features. In order to more accurately demonstrate the accuracy of the ConvLSTM algorithm and the CF algorithm, this study separately analyzes the prediction performance of English grammar, English sentiment, and student behavior information. Figure 6 shows the distribution of predicted and actual values for

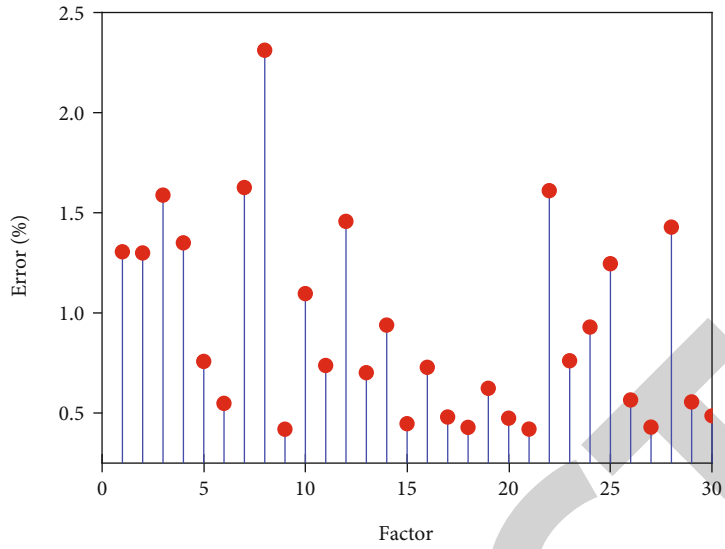

Figure 7: The scatter plot distribution of prediction error of student behavior characteristics in English teaching.

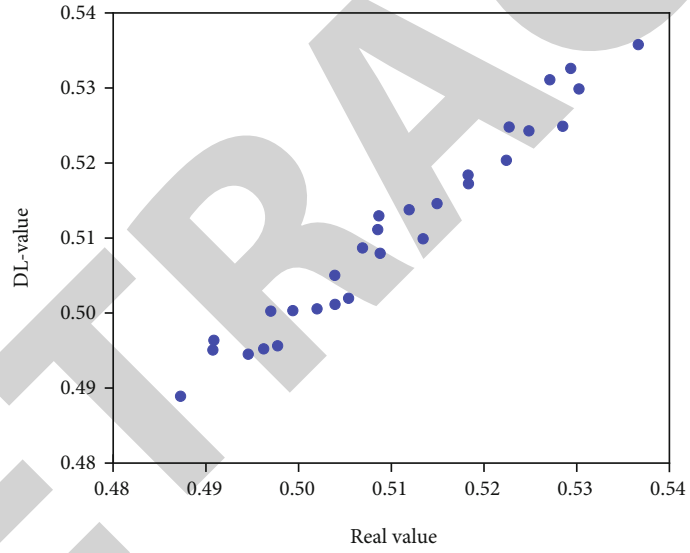

Figure 8: Linear correlation coefficient distribution of English sentiment features.

English grammar. In Figure 6, yellow represents the actual data of the English grammar feature value and green represents the predicted data of the English grammar feature value. If the predicted value of English grammar is in good agreement with the actual value, it can also indicate that the multimedia technology has collected the teacher's courseware content well. It can also be seen from Figure 6 that the predicted value of the English grammar feature has a high degree of agreement with the actual value, whether it is the fluctuation of the data value or the size of the data value for the feature of English grammar. This has demonstrated the feasibility of the ConvLSTM algorithm in predicting the English grammar features of English teaching.

Multimedia platforms also collect information on student behavior, which is also a part of the characteristics that affect the English teaching curriculum. Student behavior information reflects the interaction and interest of English teaching. For the English teaching mode assisted by multimedia platforms and computer platforms, student behavior information is the biggest feature that distinguishes it from the traditional English teaching mode. For the traditional English teaching mode, it rarely considers the impact of student behavior information on English teaching. This study explores the influence of students' behavioral information characteristics on English teaching. Figure 7 shows the prediction error distribution of the information features of student behavior in English teaching. The error of students' behavior characteristics in the process of English teaching can reflect the changes and influence of different students' behavior characteristics. The average error only reflects the overall forecast. Overall, the ConvLTSM method can accurately predict student behavior information because the

prediction error of student behavior information is mostly within 2% for 30 different test sets. Only one dataset has a prediction error of more than 2%. In addition, half of the students' behavioral characteristics have prediction errors within 1%. This is enough to illustrate the feasibility of the ConvLSTM method in predicting the behavioral characteristics of students in English teaching, and it also illustrates the accuracy of the information collected by multimedia technology. There are two main reasons for the large fluctuation of student behavior information. The first may be that the amount of data collected is relatively small. The second reason may be the lower duration of the multimedia technology's collection of students' behavioral characteristics.

English emotional expression is also an important feature in English teaching. For traditional English teaching, English emotional expression is also a part that is easy to ignore. However, multimedia technology can be captured by audio equipment, which in turn can be converted by related algorithms. Figure 8 shows the linear correlation of English emotional expression features in English teaching. For the study of the linear correlation in the English teaching process, the linear function refers to the function $y = x$. The closer the predicted data is to $y = x$, the closer the predicted value of the English teaching feature is to the actual value. For linear correlation, the value needs to exceed 0.9, which can demonstrate the effectiveness and accuracy of the ConvLSTM algorithm. The blue dots represent the linear correlation data points of the English affective features in English teaching. All data points have been distributed on both sides of the linear function, which proves the feasibility and accuracy of the ConvLSTM algorithm in predicting English emotional features. At the same time, this also proves the accuracy of the dataset collected by multimedia technology. The linear correlation coefficient of English emotional features has exceeded 0.96, which has met the needs of English teaching.

5. Conclusions

English has become an important and widely used language for international communication. Therefore, English teaching is also a more important task. In the traditional English teaching mode, English knowledge is taught in the form of textbooks and PPT. However, with the advancement of science and technology and the needs of international communication, the traditional English teaching mode can no longer meet the needs of today's English teaching. At the same time, English also contains important knowledge such as emotion and English background, which cannot be achieved by traditional English teaching methods. Computer-aided systems have played an important role in teaching, and multimedia technology can also teach English knowledge in the form of video or audio. Video and audio will enhance English learners' interest and interactivity. At the same time, in order to further highlight the interactive nature of the English teaching system, it needs to consider the active recommendation method. The ConvLSTM method and CF method used in this study can efficiently extract the grammar and emotional features in the English teaching process, and it can also realize the active recommendation function of English teaching.

This research realizes a new English teaching mode by using computer platform and multimedia-assisted technology. At the same time, it also uses the ConvLSTM method and the CF algorithm in the artificial intelligence method to predict the English grammar characteristics, English emotional characteristics, and student behavior characteristics in the English teaching mode. CF will implement active recommendation technology for English teaching system. First, this research analyzes the data mining ability of CF algorithm for three characteristics in English teaching system. The three similarity indexes of the CF algorithm all meet the needs of English teaching, and the largest correlation index exceeds 0.9823. This also shows the accuracy of the feature data of English teaching extracted by multimedia technology. Then, it uses the ConvLSTM algorithm to predict three features in English teaching. In general, the ConvLSTM algorithm also meets the needs of the prediction accuracy of the English teaching system. ConvLSTM has a low prediction error when predicting the three characteristics of English teaching, the lowest error is only 1.38%, and the largest prediction error is only 1.93%. It can be seen that computer platforms and multimedia technology can not only improve the quality of English teaching, but also improve students' interaction. Artificial intelligence algorithms also have high practical value in English teaching under multimedia assistance. The ConvLSTM method and the CF method used in this study have a higher running speed once the training is completed. In the actual English teaching classroom, multimedia technology will automatically identify the teacher's teaching content and student behavior, and it can predict and recommend English grammar and emotion based on these data.

Data Availability

The datasets used during the current study are available from the corresponding author on reasonable request.

Conflicts of Interest

The authors declare that they have no conflict of interest.

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