Model Optimization of Computer-Aided English Teaching in Local Area Networks

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Abstract. Computer-aided English teaching in local area networks (LANs) is a foreign language teaching mode formed by connecting and controlling texts, graphics, animation, videos, audios and other multimedia with the application of computer and information technologies, which is a product of the combination of computer networks and the field of education. Although the previous computer-aided model has somewhat improved the effect of English teaching, it has ignored the integrity, openness and continuity of the classroom, and has separated the organic connection between students, curriculum, classrooms, environment and other factors, which eventually led to the ecological imbalance of English teaching. Therefore, it has important significance to put forward the model optimization of computer-aided English teaching in LANs. Based on the summarizations and analyses of previous literatures, this paper elaborated the development background, current status and future challenges of computer-aided technology in LANs, expounded the research status and significance of English teaching mode optimization, proposed the curriculum construction optimization of computer-aided English teaching in LANs including strategic optimization and structural optimization, analyzed the classroom practice optimization of computer-aided English teaching in LANs including the teaching system optimization and practice system optimization, and discussed the educational psychology and realization paths of the model optimization of computer-aided English teaching in LANs. These analyses concludes that the optimized computer-aided English teaching mode in LANs can greatly improve the teaching efficiency of English courses, and has a significant role in enhancing the connection and communication between learners and teachers, which is a teaching mode meeting the current development requirements of quality education. The study results of this paper provide a reference for further researches on the model optimization of computer-aided English teaching in LANs.

1 INTRODUCTION

Computer-aided English teaching is an English teaching system that connects and controls texts, graphics, images, animations, videos and audios with the help of computer networks, which is an organic combination or interaction between LAN technology and education field. The computer-aided teaching in LANs can make advantages of computer network to vividly present originally monotonous and boring classroom knowledge in the form of multimedia. It greatly enhances the students' sense of participation in classroom, and further improves the quality of English teaching, making this method based on communication and discussion possible [1]. Agarwal and Chakraborty [2] pointed out that computer-aided teaching has the characteristics of science, advancement, vividness, and intuitiveness, which makes the teaching develop in the direction of openness, diversity and creativity. Pandey et al. [3] believed that this teaching model is in LANs is connected to the Internet through a server, which embodies the principles of meeting the basic hardware requirements for Internet English teaching, and is still relatively limited in the cultivation of speaking and writing. Therefore, computer-aided teaching model has become a worldwide educational research field and the development trend of future teaching.

Although the previous computer-aided model has somewhat improved the effect of English teaching, it has ignored the integrity, openness, and continuity of the classroom, and has separated the organic connection and interaction between curriculum, teachers, students, environment and other factors, which eventually led to the problem of ecological imbalance in English teaching and vitality loss in original classroom. The objective utilitarianism, content one-sidedness, process linearization, evaluation simplification, and the non-harmonious relationship between teaching subjects are all the examples [4]. Eftekhari et al. [5] suggested that many English teachers completely rely on computer-aided language teaching and become the broadcasters of a prepared courseware, and their teaching ideas are also deeply affected by multimedia courseware. Students hence lack an open learning environment, resulting in their lacking necessary opportunities for communication and English practice. Songbatumis [6] concluded that many teachers actually do not make full use of the convenience of the LANs, which leads to the fact that media teaching has become a new type of duck-filling teaching but ignoring the students' ability to accept. Considering the above problems, it has great significance to optimize the previous computer-aided English teaching mode in LANs.

Based on the summarizations and analyses of previous literatures, this paper elaborated the development background, current status and future challenges of computer-aided technology in LANs, expounded the research status and significance of English teaching mode optimization, proposed the curriculum construction optimization of computer-aided English teaching in LANs including strategic optimization and structural optimization, analyzed the classroom practice optimization of computer-aided English teaching in LANs including the teaching system optimization and practice system optimization, and discussed the educational psychology and realization paths of the model optimization of computer-aided English teaching in LANs. The study results of this paper provide a reference for further researches on the model optimization of computer-aided English teaching in LANs. The detailed chapter arrangement is as follows: Section 2 proposes the curriculum construction optimization of computer-aided English teaching in LANs; Section 3 analyzes the classroom practice optimization of computer-aided English teaching in LANs; Section 4 discusses the educational psychology and realization paths of the model optimization of computer-aided English teaching in LANs; Section 5 is conclusion.

2 CURRICULUM OPTIMIZATION OF COMPUTER-AIDED ENGLISH TEACHING IN LANS

2.1 Curriculum Strategy Optimization

Single-computer includes the mastery of foreign language knowledge, the ability to communicate in foreign languages, which consists of a computer and corresponding teaching software. If two or more machines are interconnected with a network card, the basic hardware requirements for English teaching in LANs can be met. If each machine in LANs is connected to the Internet through a server, it will meet the basic hardware requirements for Internet English teaching. Akhtar et al. [7] suggested that task-based English teaching in a conventional English laboratory depends on a tape recorder to evaluate and analyze tasks, which inevitably creates a false and artificial atmosphere, therefore, the design and selection of tasks is particularly important. In view of the characteristics of English teaching in LANs, the optimized model integrates the above two evaluation systems to obtain a more intuitive comparison, using the speed of speech to judge fluency. After watching and reading the full text, students can adopt some of the sentences or topics, or think of other sentences and topics, and the dialogue can be fully developed. Figure 1 shows the model optimization framework of computer-aided English teaching in LANs.
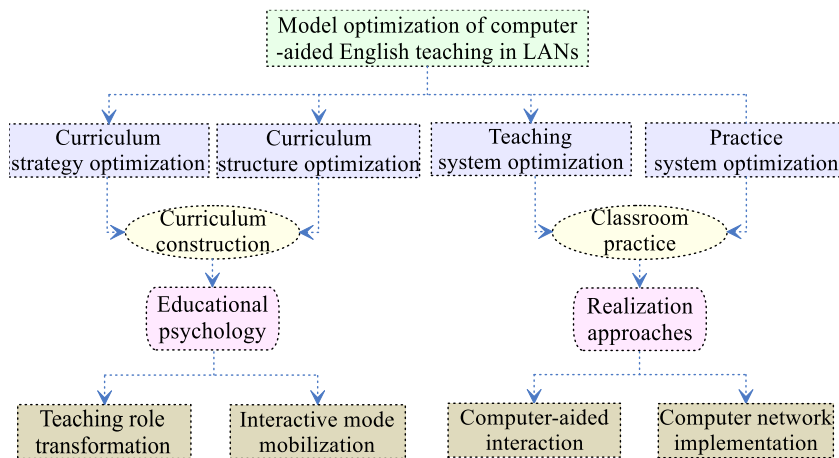
Figure 1: Model optimization framework of computer-aided English teaching in LANs.

As a teaching method, computer-aided in LANs undoubtedly has great potential in listening and reading, but it is still relatively limited in the cultivation of speaking and writing, especially communicative skills. The responsibility for solving these problems naturally falls on the foreign language teachers, which can be said that computers and teachers have their own advantages in foreign language teaching. They should learn from each other's strengths and make use of their strengths in mechanical drills and active communicative activity organization. With computer equipment, teachers can control the classroom more easily and convey information to students more easily. The scope of assessment includes the mastery of foreign language knowledge, the ability to communicate in foreign languages, the performance in foreign language classrooms, the completion of homework and attendance, and other attitudes and interests related to foreign language learning. Students can study this content by themselves at any time, but they must take the online test within the specified time period. The test results will be in the computer recorded on the above as the basis for the student's performance and the teacher's targeted teaching plan.

A lot of practices have proved that the proper and reasonable use of computer-aided English teaching can indeed bring a qualitative leap in English classrooms. However, this optimized model includes the performance in foreign language classrooms, the completion of homework and

attendance, and other attitudes and interests related to English teaching. In fact, multimedia is only an auxiliary facility for teachers' teaching activities, and it should be in a dominant position, and should not be overwhelming; whether computer multimedia should be used to assist teaching depends on the needs of English classroom teaching. The optimized model emphasizes the need for specific analysis of specific issues, and adopts different teaching methods for different teaching contents. This kind of human-computer interaction form can not only eliminate the shortcomings of traditional classroom teaching, but also make up for the shortcomings of online teaching. It can absorb the shortcomings of the two and overcome the limitations of the two, thereby achieving complementary advantages, enriching teaching resources, highlighting the interest of English learning, and achieving a multiplier effect with half the effort.

2.2 Curriculum Structure Optimization

When designing a teaching plan, teachers can use media technologies such as teaching courseware and animation production to organically integrate relevant audio background materials, pictures, and movie clips, and present them to students in a more intuitive and vivid form, which not only allows students acquire more knowledge content and master more learning methods in limited classroom learning. The computer-aided English teaching mode in LANs uses various multimedia forms such as text, speech, animation, and Internet forums to express the teaching content. For example, students can focus on learning vocabulary, grammar, text structure or choose to repeatedly train listening and pronunciation according to their own situation. This kind of human-computer interaction form can not only eliminate the shortcomings of traditional classroom teaching, but also promote the continuous improvement of their comprehensive language skills. Figure 2 shows the Factor analysis for model optimization of computer-aided English teaching in LANs. The optimized model is based on the implementation of summative evaluation, and actively adopts formative evaluation to comprehensively evaluate the corresponding results.
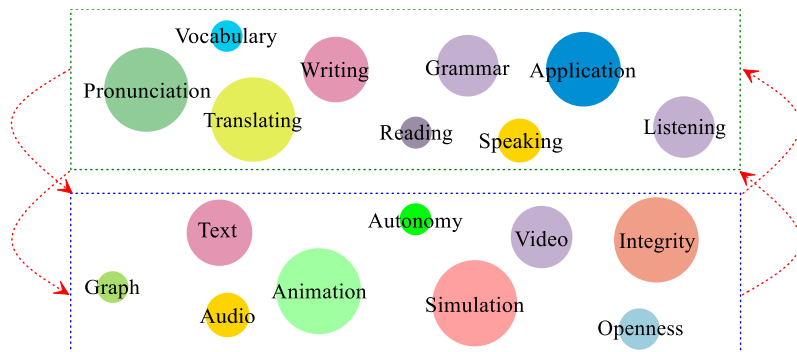
Figure 2: Factor analysis for model optimization of computer-aided English teaching in LANs.

The language education concept emphasizes the integration and development of teacher-student relationship, and pays attention to the communication or connection between corresponding participants. Therefore, in order to promote the computer-aided English teaching mode in LANs, effective and reasonable measures are taken to increase the evaluation methods or approaches is very important. Schools can independently establish or cooperate to establish a complete and effective computer network communication platform according to their own development conditions to enhance the teaching platform or corresponding parameters [8]. The use of network environment to carry out college English teaching can fully mobilize the studying passion, help teachers guide learning plans, and improve their feedback of language knowledge. On the other hand, it is necessary to ensure the close connection and unity between the computer and the

English teaching content in LANs, and use the network environment to extend the English planning content, broaden the students' English learning horizons, and enhance the interests in English learning.

The construction of the computer-aided English teaching model in LANs can not only effectively play the role of all factors of researches, promote the smooth mastery of the entire language process, but also lead teachers to gain more details about new research, and to develop and reflect on classroom teaching from ecological viewpoints such as connection and harmony. The computer-aided English teaching mode in LANs uses various multimedia forms such as text, speech, animation, and Internet forums to express the teaching content. For example, students can focus on learning vocabulary, grammar, text structure or choose to repeatedly train listening and pronunciation according to their own situation. Regarding the practice of scene dialogue, students can choose to watch cartoons or conduct voice communication through online forums to enhance their language ability. Learner self-evaluation mainly allows students to make a reflective evaluation of them after each completion of a learning task, check for deficiencies, and strive for progress. Teacher evaluation, learner self-evaluation and learner mutual evaluation can be used for different activities respectively, and the listed results are included in the evaluation of the final course assessment total score.
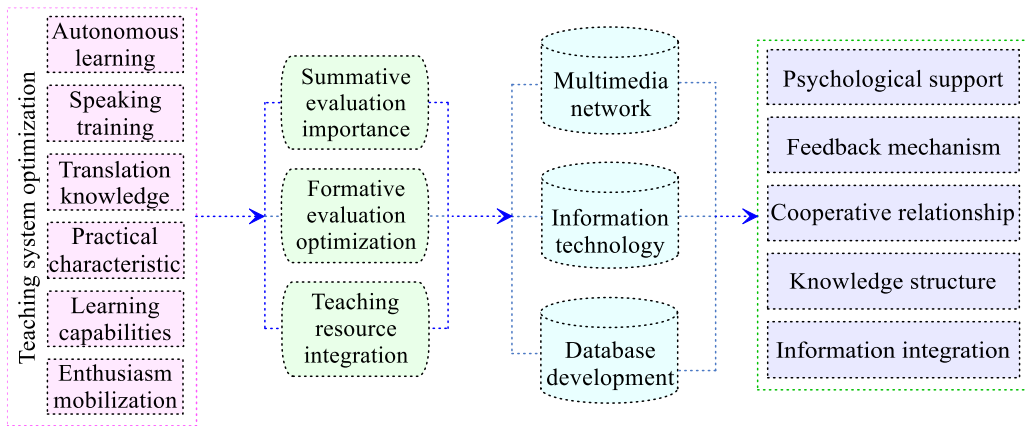
3   CLASSROOM PRACTICE OPTIMIZATION OF COMPUTER-AIDED ENGLISH TEACHING IN LANS

3.1   Teaching System Optimization

Computer-aided English teaching in LANs emphasizes individualized teaching and autonomous learning, and makes full use of the computer's ability to repeatedly and individually perform listening and speaking training, and teachers can teach reading, and writing. Behavioral teaching theory believes that one of the necessary conditions for language learning is stimulus response, which helps students to improve their enthusiasm for learning and thus master language knowledge. In this process, teachers can also establish a network autonomous learning platform in the multimedia network classroom according to the research contents or significance. The optimized models use the LANs, libraries and online teaching platforms to achieve independent learning, exercise collaborative learning capabilities, learn what they like according to their own interests, and gain more knowledge through communication with teachers (Figure 3). The optimized teaching model is not only teaching methods, but also important factors that change traditional teaching models and even teaching ideas. Teachers should continuously improve their mastery of modern educational technology, inherit the existing advantages of computer-aided teaching, give full play to modern educational technology, and strive to provide students, thereby turning traditional teaching into computer-aided foreign language teaching.

As a guide for students' learning, teachers can use computer networks to systematically introduce learning content, progress, assignments, time arrangements, and teaching goals to students, and provide different learning methods for different learning content. When the optimized model affirms the importance of summative evaluation, it pays more attention to the role of formative evaluation in comprehensively testing student learning effects and conducting reflective teaching. The optimized teaching mode the Internet to integrate English learning resources into an English learning resource library in a digital way for students to learn English outside of class. Students can choose to study independently to consolidate their learning results; they can also visit major English learning websites to master the latest English vocabulary and expressions, and understand the latest cultural and social developments in English-speaking countries (Figure 4). This teaching method requires clear learning tasks, and the content must be authentic. In the multimedia classroom, students can talk to the teacher or any of their classmates individually, and the teacher can also give targeted guidance to the students. The course should glean more information about the collection and sorting of multimedia network resources in

teaching, and rely on LANs and database development tools to build a teaching resource library related to English teaching content.

**Figure 3:** Classroom practice optimization of computer-aided English teaching in LANs.
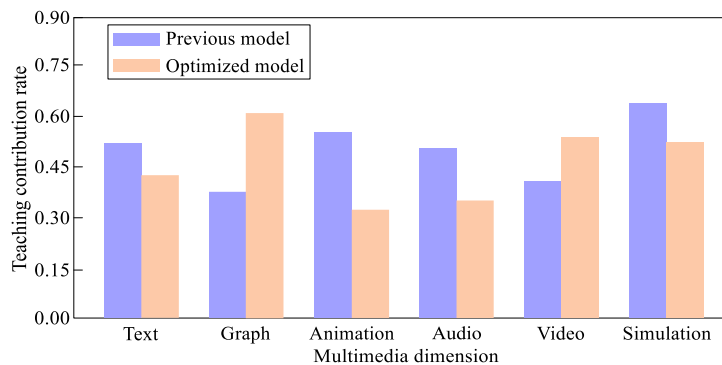
Figure 4: Teaching contribution rates of main multimedia dimensions in previous model and optimized model.

In the optimization model of computer-aided English teaching in LANs, the role of the teacher is not only to manage and judge the learning of students, but also to assist students in learning, negotiators, participants and psychological supporters of classroom activities, and more importantly, student partners in the learning process. In this way, the optimized model will form a good two-way interactive feedback mechanism that is not restricted by time, place and other conditions, and establish a new type of cooperative relationship. In the optimized teaching model, the role of students has also changed [9]. In classroom teaching activities, students become the protagonist, the important information and active creation. Students should take the initiative to explore phenomena, and then discover the structure of things or knowledge, build their own new knowledge and skills, form and develop new cognitive structures, and finally convert them into useful information output. At the same time, they must also collaborate with others to learn, communicate and question each other about the problems in learning, and understand each other's ideas. This process coincides with the teaching goals of the teaching model under the computer network environment, reflecting the requirements of individual self-development and collaboration ability training.

3.2 Practice System Optimization

The English teaching mode under the computer and network-assisted environment must not only have the corresponding hardware conditions. On this basis, the optimized method definitely should build an optimized teaching model adapted to it; at this time, multimedia computers are not only teaching methods, but also important factors that change traditional teaching models and even teaching ideas. Students are exposed to a large amount of language information through online learning, that is, knowledge input; effective output of this information is what teachers need to pay attention to under the optimized model. Teachers use classroom face-to-face teaching to create an environment that is as realistic as possible, reproduce part of the content scene, and give students more opportunity to have more roles in their activities, hence further stimulate should also need more details in learning and form a virtuous circle. Pre-class training can enable students to have an overall understanding of online classrooms and online courses, which take advantages of the learning efficiency of students' independent application. This change in teaching mode is not only a change in teaching methods triggered by modern technology, but more importantly, it has triggered a change in teaching concepts.

The optimization model of computer-aided English teaching in LANs can improve their enthusiasm for learning and thus master language knowledge instead of passive acceptance, which greatly mobilizes students' learning enthusiasm and breaks the limitations of original approaches. Teachers should continuously improve their mastery of modern educational technology, inherit the existing advantages of computer-aided teaching, give full play to modern educational technology, and strive to provide students with a good learning environment, thereby turning traditional teaching into computer-aided foreign language teaching. The teaching of intensive reading courses, is designed to cultivate students' reading ability, is difficult and has a large amount of information. The traditional chalk and blackboard-style teaching often made students feel boring, but now a large amount of information is presented in some vivid and diverse ways due to the introduction of multimedia. Learning enthusiasm, creativity make the improved model modern educational technology and a good learning environment, thus greatly improving the efficiency of students' learning and making classroom teaching effect is significantly improved (Figure 5).
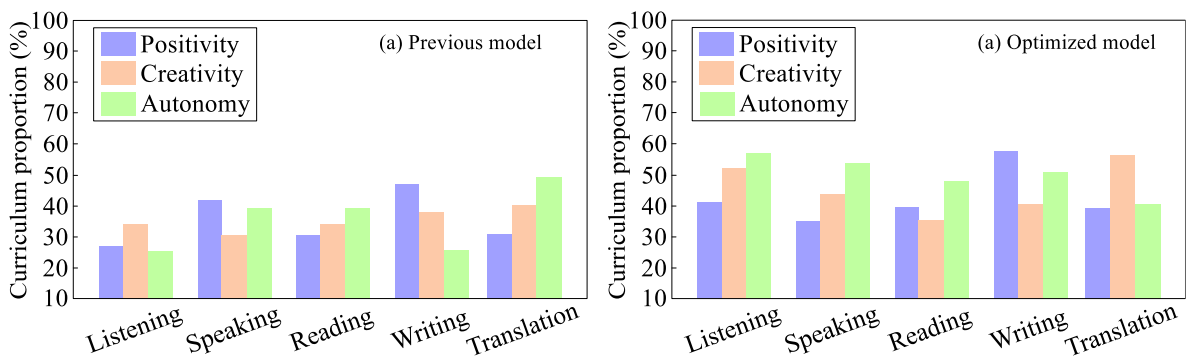
Figure 5: Comparison of positivity, creativity, and autonomy of five main curriculums in previous (a) and optimized model of computer-aided English teaching in LANs.

As computer network resources become more abundant, teaching resources also need to be constantly updated. Therefore, teachers should use computer networks to develop and provide teaching resources for students, and design specific teaching tasks to support meaningful knowledge construction. This will not only achieve complementary advantages in learning resources, separate learning content, and flexible learning methods, but also promote students' individualization and autonomy [10]. Computer-aided teaching in LANs highlights the auxiliary function, which is, assisting teachers to improve the teaching effect, which is mainly limited to the

specific teaching methods and methods, while the curriculum integration has become an integral part of the entire curriculum system, rather than an optional auxiliary tool. Behavioral teaching theory believes that one of the necessary conditions for language learning is stimulus response, which helps students to improve their enthusiasm for learning and thus master language knowledge. The models give full play to modern educational technology, and strive to provide students with a good learning environment, thereby turning traditional teaching into computer-aided foreign language teaching.

4   DISCUSSIONS

4.1   Educational Psychology of Computer-Aided English Teaching in LANs

The optimized mode of computer-aided English teaching in LANs integrates animation, sound and other materials in the teaching materials are displayed to students in the form of cartoons, which vividly present the language materials in the teaching materials, and enhance the students' sense of vision, hearing and other sensory effects. As computer network resources become more abundant, teaching resources also need to be constantly updated. Therefore, teachers should use computer networks to develop and provide teaching resources for students, and design specific teaching tasks to support meaningful knowledge construction. At this time, multimedia computers are not only teaching methods, but also important factors that change traditional teaching models and even teaching ideas. This can be based on the situation in the teaching and research section or related English course teachers through collective preparation of lessons to form a consistent teaching idea, and then jointly produce suitable teaching courseware (Figure 6). They study and use the supporting English teaching software together, exchange experience, and achieve resource sharing, which is difficult and has a large amount of information.
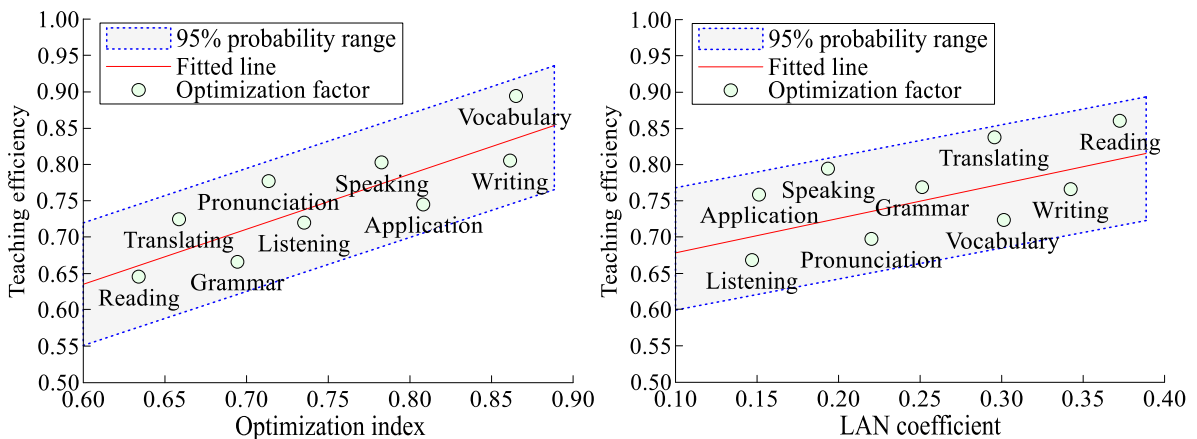
Figure 6: Relationships between teaching efficiency and optimization index and LAN coefficient of different optimization factors.

Computer-aided teaching has brought a series of changes to teaching, so how to maximize the promotion of teachers' teaching activities. In the classroom mode, some teachers believe that the larger the amount of knowledge contained in the courseware, the better, and the more forms the learner arouses the learner's interest in learning, the easier it is to master the knowledge, but in this case, the teaching information is extremely easy to transfer. Because of interference, the key to the application of the multimedia computer network is to order courseware at any time without being restricted by time and space, and to choose the listening materials that suit them for practice. Multimedia computer is a kind of two-way media, which can not only provide information,

but also receive information input by students, and make corresponding responses to realize interactive teaching. Increasing knowledge is conducive to improving listening skills, improving listening skills and acquiring more knowledge, which is a complementary process, and also helps listening practitioners imitate the correct pronunciation, intonation, and master the correct continuous reading, weak reading and assimilation.

Constructivism promotes learner-centered various activates during these processes, which reflects the main role of students' cognition, and the leading role of teachers cannot be ignored. Teachers can use computers in teaching to bring students a more authentic language environment for communication and learning. In the multimedia classroom, students can talk to the teacher or any of their classmates individually, and the teacher can also give targeted guidance to the students. Behavioral teaching theory believes that one of the necessary conditions for language learning is stimulus response, which helps students to improve their enthusiasm for learning and thus master language knowledge. At this time, multimedia computers are not only teaching methods, but also important factors that change traditional teaching models and even teaching ideas. Teachers should continuously improve their mastery of modern educational technology, inherit the existing advantages of computer-aided teaching, give full play to modern educational technology, and strive to provide students with a good learning environment, thereby turning traditional teaching into computer-aided foreign language teaching.

4.2 Realization Paths for Mode Optimization of Computer-Aided English Teaching in LANs

The multimedia network system integrates multimedia technology, and audio and video information, which provides teachers and students to implement constructivist teaching and learning together in the best environment for comprehensive training in listening, speaking, reading, writing, and translation, which can meet the requirements of different levels. The multimedia model based on the LANs represents the inevitable trend of multimedia-assisted foreign language teaching applications [11]. The combination of multimedia hypertext characteristics and network characteristics can cultivate students' information acquisition and information processing abilities, which is bound to enable students to develop their creative thinking and innovation abilities. In order to reduce this limitation, a hybrid teaching model can be adopted, so that the previous literatures, original research papers, or preceding models can complement each other to a certain extent, so as to not only is significant to the optimization processes, but also fully give more directions to the learning processes (Figure 7). The purpose of the role finally to use this new teaching concept to optimize the learning process and learning effect, and cultivate foreign language talents.
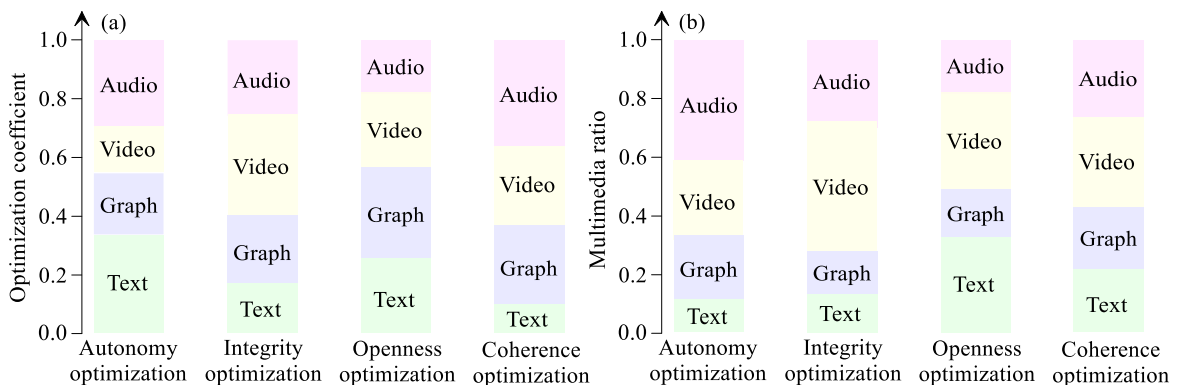
Figure 7: Optimization coefficient (a) and multimedia ratio (b) of audio, video, graph, and text in autonomy, integrity, openness, and coherent optimizations.

Computer assistance is to cultivate students' information acquisition and information processing abilities of English teaching mode, and its auxiliary role is mainly realized through the network, application software, management system and other computer-specific functions. LAN-supported project teaching can enable students to devote themselves to difficult tasks or problem-solving activities related to their future careers; guide students to analyze actual communication content and meaning structure, and conduct targeted language teaching. Students effectively process information in cooperative activities to help them improve their project activities to a high-quality creative practice level and complete a project with certain social application value. The context should promote provide students with an ideal environment for learning to use various technologies, expanding their abilities and preparing them for society. Since the projects that can be completed in teaching are very limited, if the projects used for teaching are multi-argued, they can best reflect the qualities and skills required by the students in the learning process. The gold content of the project is naturally higher, but in this way, students His autonomy, creativity, and his own needs will inevitably be affected. How to balance the two needs to be further explored.

Teachers use multimedia to teach rich content, but students can't keep up with the teacher's teaching process, and students' notes are not comprehensive and can't make up for the missing knowledge points. The notes and knowledge points missed in class can be consulted at any time. In the computer-aided teaching mode, teachers play more as organizers and managers of the students' learning process, helping students coordinate the relationship between network computers and traditional models, and motivating students to grasp the main points in their courses. The optimized model in LANs is an indispensable part of education, in which training design and teaching research ability is a part reason of computer-aided teaching methods in the network age. Although this teaching model has many disadvantages as the above mentioned, this optimized method is not a nearly perfect teaching method. The rapid implementation of computer-aided teaching methods will inevitably ignore the shortcomings. Some regions have not combined the teaching strength and technical characteristics of the region and the school.

5   CONCLUSIONS

This paper proposed the curriculum construction optimization of computer-aided English teaching in LANs including strategic optimization and structural optimization, analyzed the classroom practice optimization of computer-aided English teaching in LANs including the teaching system optimization and practice system optimization, and discussed the educational psychology and realization paths of the model optimization of computer-aided English teaching in LANs. When designing a teaching plan, teachers can use media technologies such as teaching courseware and animation production to organically integrate relevant audio background materials, pictures, and movie clips, and present them to students in a more intuitive and vivid form, which not only allows students acquire more knowledge content and master more learning methods in limited classroom learning, but also can fully provide students with more change to improvement. The optimized method is that the teacher dominates the classroom, and transmits knowledge to students through the use, analysis and interpretation of the textbook. On this basis, it is particularly important to establish an optimized teaching model adapted to it, to improve the management and monitoring mechanism of network teaching, and to guide students to explore autonomous learning strategies. Students are exposed to a large amount of language information through online learning, that is, knowledge input; effective output of this information is what teachers need to pay attention to under the optimized model. The analyses concludes that the optimized computer-aided English teaching mode in LANs can greatly improve the teaching efficiency of English courses, and has a significant role in enhancing the efficiency or result of each courses, which is a teaching mode meeting the current development requirements of quality education.

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