Research Article

Application Value of Multimedia Artificial Intelligence Technology in English Teaching Practice

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Since the 1980s, with the continuous deepening of penetration of reform and liberalization, there has been scientific and technological development. In such an environment, the traditional teaching model of colleges and universities posed new challenges and put forward higher requirements for English teaching practice. To enhance the performance of English instruction, this article applies a multiple media technique to start English education practice; firstly, through the study of the current English teaching mode, it analyzes the specific needs of teachers and students and designs the functions to meet their specific needs. Secondly, combined with multimedia technology and network technology, a multimedia English practice teaching platform was designed and implemented. In this way, the overall educational efficiency has been increased by nearly 30%, and the acceptance of the model by students has been increased by 35%. Finally, this paper constructs a small multimedia piano practice teaching platform for testing and proves the practicability and usefulness of multimedia synthesis technology in English education practice through comparison with traditional English teaching effects. Experiments show that the adoption of multimedia artificial smart technology in English education has a remarkable impact on enhancing the result of English teaching, can stimulate students' learning enthusiasm, and realize the reform of English teaching.

1. Introduction

The 21st century is an age of information with the rapid expansion of knowledge and economy. Countries all over the world regard education informationization as a major measure to promote educational reform and development. The development of information technology has caused tremendous changes in people's life and learning methods. Especially, the development of modern educational technology represented by multimedia technology altered students' approaches to learning, changing students' status from passive to initiative [1–4]. Learners can select their own learning methods and learning content through the use of computer software. Multimedia is a carrier of information storage and transmission that integrates multiple media forms, including image, text, video, sound, and other media information. Students can use multimedia technology to receive information during the learning process and get more information and broad knowledge. Therefore, multimedia technology has been widely used in the teaching of various subjects.

At present, English education in my country is developing vigorously, but in many colleges and universities, there are still deficiencies in English education and teaching. It is primarily embodied in the following areas [5–7].

Firstly, the teaching mode is inconsistent with the needs of personnel training. Many schools copy existing teaching models and teaching content. Some teachers are not clear about the goal of personnel training.

Secondly, the teaching methods are too old and single. In the course of education, teachers generally use traditional approaches to teaching, that is, single indoctrination and collective teaching. One is to neglect the cultivation of students' interest, creativity, and imagination. The other is not to teach according to the material and to take into account the actual situation of all students and individual students. There are great problems in the situation of students' uneven foundations, thus failing to achieve the best learning effect.

Thirdly, there is a lack of communication and interaction between teachers and students in the classroom. On the one

hand, the faculty is the master of the classes, and students are passively accepted. On the other hand, extracurricular learning for most English learners in the classroom is almost isolated from the outside world, resulting in the shortage of discussion and dialogue among pupils and staff, which makes it difficult for students to elaborate and deduce their ideas from multiple perspectives.

Fourthly, the teaching evaluation system is not comprehensive enough, too one-sided, and single.

With the evolution of website technology and media skills, network multimedia teaching, as an efficient modern teaching method, has become a trend of social teaching development. It will be used to the maximum extent in the field of education; it can also make up for the shortcomings of English teaching practice.

Among them, multimedia technology [8–11] is a kind of comprehensive treatment and administration of media materials such as textures, figures, graphs, videos, cartoons, and sound by using a computer, which allows interacting with users in time through many senses. It is called multimedia computer technology. In the computer industry, media has two meanings: a vehicle for spreading the message, such as verbal, writing, graphics, video, and audio; another is a vehicle for storage of news, such as ROM, RAM, tape, disk, CD-ROM, VCD, and web page. Multimedia is a new technology appearing in recent years. It is developing and perfecting rapidly.

Multimedia technology covers a wide range of areas, including the following technologies.

Audio technology [12, 13]: voice is an essential ingredient of a multimedia message and is an integral part of the medium for conveying ideas, sensations, and moods. Whatever the purpose of its application, the rational use of sound can make the multimedia application system more colorful. In the multimedia system, audio can be used as input or output. Input can make natural language or voice command, and output can make voice or music, which involves audio processing technology, mainly including audio sampling, compression, synthesis, and processing. Audio information is widely used in multimedia technology.

Video technology [14, 15]: vision is an important way for human beings to perceive the outside world. In multimedia technology, the acquisition and processing of video information play an important role. The video processing technology is the core technology of multimedia applications at present and in the future. Video technology is widely used, such as radio and television applications, communication applications, and computer applications such as video production, video database, and animation production.

Image and image compression technology [16–18]: it includes image processing, image, graphics dynamic generation, and image compression technology.

The introduction of multimedia technology to realize network multimedia teaching plays a very good role in English practice teaching. By analyzing the traditional English practice teaching mode, this paper designs a multimedia piano practice teaching platform to meet the relevant functions of students and teachers and combines multimedia technology and network technology. In addition, by

comparing with the traditional English practice teaching mode, this paper illustrates the value of using multimedia technology in piano practice teaching.

2. The Application Value of Multimedia Technology in English Teaching

2.1. The Value of Multimedia Application. The emergence of multimedia-assisted teaching technology has brought better implementation conditions for the creation of situations in junior high school English classrooms. Its application in English teaching helps teachers create a good language communication environment in the classroom more conveniently and quickly. At the same time, in multimedia-assisted situational teaching, students can more intuitively experience the social culture of English-speaking countries and can quickly understand the differences in social culture, values, and lifestyles between China and the West as described in the textbook, thereby realizing foreign language teaching, that is, *the unity of “instrumentality” and “humanity.”*

“Instrumentality” and “humanity” to achieve “unification” must grasp three key links: one is to interpret the text accurately and in depth, the second is to design the teaching process carefully, and the third is to implement teaching flexibly.

Interpreting the text accurately and in depth and accurately grasping “what to teach” in reading teaching is the prerequisite for a good reading class. It requires teachers to study the text step by step from the three perspectives of appreciative reading for ordinary readers, student learning, and teacher teaching and grasp its language characteristics and humanistic connotations.

In the first step, the teacher must first read the textbook as a general reader, “get in,” “concentrate on the text,” “write the text to enter the emotion,” and have an emotional resonance with the author.

The second step is to “jump” out of personal reading, read the article from the perspective of students’ learning, and draw a circle of training points in the text that can develop students’ language, for example, words and sentences that need to be understood, language that needs to be accumulated, learning methods that need to be acquired, and writing methods that need to be guessed.

The third step is to determine the teaching objectives of the text from the perspective of a teacher teaching, according to the requirements of the course standard period and the requirements of the textbook unit, which is to combine the characteristics of the text and the hints of thinking exercises from the many points we have just discovered, to filter and find standardize the focus of the teaching language training in this course, and to accurately grasp the humanistic education content contained in the language.

The teacher presents the information and knowledge needed in class in the form of multimedia, so that the teaching content is displayed in front of the students in a more intuitive and vivid form, which is conducive to the understanding, memory, and mastery of the students. Teachers and students share online learning resources

through a network platform and complete teaching activities through a brand-new teaching method for teachers and students. With multimedia assistance, English teaching can be more humanized in the actual implementation process, and it can also be easier for students to learn and improve their self-confidence in learning. It can also enable students to learn on their own initiative. This method breaks through the traditional teaching space, enabling students to learn independently on the Internet anytime and anywhere. Multimedia can support students' cooperative learning and provide an environment for discussion, communication, and information sharing for participants in the learning process, which is conducive to students' interpersonal and emotional communication. Through the application of multimedia technology, students will not passively accept the teacher's teaching content in daily learning life, but it can mobilize students' interest in learning and change from passive learning to active learning of related knowledge.

2.2. Theoretical Basis of Multimedia Technology Application

2.2.1. Humanistic Learning Theory. The humanistic learning theory represented by Maslow and Rogers came into being in the late 1950s and early 1960s [19–21]. Its core concepts are paying attention to the self-realization of human values, affirming the infinite potential of human beings, attaching importance to individual differences, emphasizing the role of emotion and interest in learning, etc.

Firstly, humanism emphasizes learner-centered. From the basic standpoint of human nature, humanism holds that students are born with the ability to be good and upward. In education, students should fully believe that they have the ability and responsibility to educate themselves and manage themselves. Humanism believes that learners have the ability to choose their own learning direction, discover learning resources, and evaluate their learning effects. Humanism believes that learning is a process of self-selection and self-guidance. Teachers' responsibility is to help students give full play to their autonomy and creativity and to create conditions and provide help for learners to give full play to their autonomy.

Secondly, humanism pays attention to the exertion of human's inner potential. Humanism advocates the theory of natural human nature, respects human value and subjective initiative, affirms that human beings have infinite potential, attaches importance to promoting self-realization by stimulating human potential, and holds that learning is the process of exerting human potential and realizing human value and teaching should conform to the actual needs of students' human development. The task of teaching is to create a situation conducive to the full play of students' learning potential so that students' learning potential can be fully developed. Humanism holds that the learning process should be a pleasant one.

Thirdly, humanism respects learners' individual differences and attaches importance to personality cultivation. Humanism emphasizes respecting everyone, respecting and accepting individual differences among students, respecting

and accepting each student's learning goals, learning styles, and learning methods, and paying more attention to personality.

Fourthly, humanism attaches importance to the value of interest and emotion in learning. The aim of education is not only to teach students knowledge and cultivate certain skills but also to promote the all-round development of students' knowledge, emotion, and intention in accordance with their emotional needs, so as to give full play to the function of whole-person education.

2.2.2. Constructivist Theory. Constructivism can also be called structuralism. It was proposed by J. Piaget, a Swiss psychologist [22, 23]. Through assimilation and accommodation, a child's productive framework is constantly refined and enhanced through a circle of "equilibrium-unevenness-new equalities" [24, 25]. This is Piaget's basic view on structuralism [26, 27].

On the foundation of Piaget's mentioned theory, Kohlberg further researched the nature of cognitive architecture and the circumstances of cognitive structure for development, while Steinberg and Katz emphasized the key function of independent motivation in the process of cognitive building and put forth a serious inquiry on how to bring personal motivation into play in the middle of the cognitive processing. Vygotsky's "culture-history development theory" focuses on the social, cultural, and historical background of participants in the learning process. On this basis, the Vygotsky school of study, led by Vygotsky, studied in depth the significant role of "activity" and "social interaction" in the evolution of the higher psychological functions of humans. The research has enriched and completed the theory of structuralism and created opportunities for its practical utilization in the processes of teaching.

3. Design of a Multimedia English Practice Teaching Platform

3.1. Requirement Analysis. The multimedia teaching proposed scheme in this article is a close connection between the Internet and language teaching activities. Besides the system administrators, users are teachers and students. While highlighting our own style and characteristics, we should also add the current popular elements to attract the eyes of teachers and students through rich and diverse content and a simple user-friendly interface. With this platform, we can provide users with teaching resources to reach the objective of supplementary education. The teaching and management of the network teaching system are mainly carried out through three main lines: the system administrator, teacher, and student. The specific content of the multimedia-assisted English teaching model design is as follows:

- (1) Through investigation and research, the current situation of English teaching is analyzed, the students' favorite teaching methods are investigated, first-hand information is mastered, and effective

teaching programs are designed according to the actual situation

- (2) The theories and methods of multimedia-assisted English classroom teaching are researched
- (3) The best time and role of multimedia-assisted English classroom teaching are researched
- (4) How to use multimedia to carry out various teaching modes of English classroom teaching is researched
- (5) Multimedia teaching is used to create problem situations and optimize teachers' teaching
- (6) Multimedia teaching is used to cultivate students' sense of innovation and practical ability and optimize students' learning

The system administrator controls various resources by managing the background and maintains and updates the whole system. Teachers and students access the network space through user authentication and conduct teaching activities within the scope of their authority. In this study, users who design the multimedia teaching system should have basic computer operation ability, be familiar with the network, and be able to roam proudly on the Internet.

3.1.1. System Administrator User. Administrator users manage and maintain the teaching system in their daily life, such as publishing platform announcements, user group management, and course content management. At the same time, it provides full support and service for teachers and students. The system should set up the highest operating privilege for the system administrator and set up a certain feedback and monitoring mechanism, so that the administrator can enter the background in time when needed and carry out the necessary management of the system.

3.1.2. Teacher User. Users with the status of teachers log into the teaching system space, browse the course information and students' test results with the authority of teachers, publish announcements on their own course information, add, delete, check, and modify personal homepage information, and so on. Teachers should allow participation in messages, dialogue with students in an empty space, and help students learn the language. The main activities include the management of courses and students; the publication of course information such as course introduction, syllabus, calendar, and announcement of courses; the preparation of learning materials; the discussion of answering questions; the organization of learning groups; and assignments and tests.

3.1.3. Student User. After the students enter the system space, they can learn according to their own questions, and after getting feedback or evaluation from teachers, they can make follow-up improvement learning or error correction learning. Users with trainee status log on to the trainee space and choose courses to enter learning, including browsing course information and learning materials, participating in discussions and group learning, completing course assignments and

testing, etc. The system provides students with abundant learning resources and activities. Many schools have copied existing teaching models and teaching content, causing some teachers to be unclear on the goal of talent training. As a result, in the actual teaching situation of students, teachers are unable to properly teach students according to the specific conditions of students. It is also difficult for students to improve their performance. They can only learn in general, and even if their academic performance is improved, it is difficult to present leapfrogging growth. As a result, students tend to be less interested in English learning. Naturally, the actual teaching of English is also difficult to advance, and the learning progress is difficult to improve.

3.2. Principles of System Design. According to the analysis of demand mentioned above, this paper follows the following principles.

3.2.1. The Principles of Student-Centered Curriculum Design. The starting and stopping places of the design of a multimedia teaching course for English are the students. The design of a multimedia piano teaching system based on students is to fully consider the needs of students in the design. The pictures, texts, sounds, and pictures in the course should be combined organically. In the course organization, students' cognitive habits and learning habits should be fully considered. We should have a scientific form of expression through curriculum design, maximize the opportunity of students' learning enthusiasm and interest, and stimulate the creativity of learning to the greatest extent.

3.2.2. Embodying the Principle of Interactivity. The multimedia English teaching system should highlight the interaction. Among them, we mainly design the functional modules of online answering and online testing. Students can test their learning knowledge through an online answering module and online testing module. At the same time, they can also promptly raise questions in the process of online learning. The instructor can carefully revise the coursework elements and knowledge based on the students' responses and inquiries. In addition, the system provides students with control rights so that learning can be selective according to their learning situation to choose the knowledge points needed to learn.

3.2.3. Reflecting the Principle of Information Resource Breadth. At this moment, online teaching materials are abundant. In order to enable students to learn more, in the design of the network multimedia teaching curriculum, we need to provide students with more learning information resources. In the design, we set up the link function of the network teaching resources and filter and link the appropriate resources of appropriate messages on the web using the computer code. As soon as these links allow pupils to see the related elements, it greatly motivates the creativity of a flexible approach to teaching or the ability of students to learn independently.

4. Realization of a Multimedia English Practice Teaching Platform

4.1. System Technology Architecture. Although the user interface is a browser, very few transaction processing is implemented on the browser side, and most transaction processing is completed on the server side. It is a hierarchical 3-tier architecture: the representation layer, the operational logistics tier, and the digital accessibility tier. The architecture of the B/S mode is shown in Figure 1.

In the multimedia English teaching system implemented in this article, the B/S structure is categorized into only three levels from below, namely, the data level, operational management logic level, and expression unit. All access to the system can be achieved only through the middle business logic layer, without access to the background database, which can ensure the security of the background database. At the same time, through the scheduling of the middle business logic layer, the performance can be consistent with the business. Users submit the required service requests to a server through the top layer of the display layer, that is, through the network browser. The server authenticates users first. Through the authenticator, the network server transfers the required homepage of customers to the client interface through the HTTP protocol, which enables users to realize the operation within their functional rights. The middle business logic layer encapsulates the functions of the system and presents the encapsulation form of the functional module application program to the users. The bottom data layer is an exclusive layer, which provides data interaction for specific application systems and realizes unified management of background data, integration, and real-time updating of system data. The design principles of the system and the principles of course organization are combined as follows:

- (1) Abstraction
- (2) Modularity
- (3) Information concealment
- (4) Module independence
 - (4.1) Coupling
 - (4.2) Cohesion

The system architecture diagram designed in this paper is shown in Figure 2.

Usability is one of the goals of product interaction design, which is embodied in the “useful” and “easy to use” aspects of the product. Among them, the usefulness reflects the value of the material properties of the product itself. Its goal is to function as practical, safe and effective, and cost effective; the usefulness reflects the use value of the product, and the goal it pursues is easy operation, learning and mastering, and reliable performance. The user experience goal is the second goal of product interaction design. It reflects the nonmaterial attributes of the product. It pursues emotional communication between products and people. It requires the technology, functions, and design appearance of the product to emotionally impress the user. In order to carry out a more targeted system design, the feedback

FIGURE 1: Architecture diagram of the B/S mode.

mechanism serving the “goal of rejection” is defined as F1, the feedback mechanism serving the “useability goal” is defined as F2, and the service is defined as F2. The “target feedback mechanism” is defined as F3, so theoretically, it can be considered that F1 to F3 are gradually increasing at the target level. After positioning, the specific system factors are analyzed, so that the reasonable allocation and use of specific feedback forms become more purposeful [28].

4.2. Database Design. With the development of society, the importance of database technology has become increasingly prominent, which is due to the presence of computer technology in all walks of life. As long as there is interaction with the data, whether it is the bank or other communication industries, or some shopping malls, or even a small supermarket, it is inseparable from database technology. The database used in this paper is the MySQL database [29].

The MySQL database has many advantages, such as low running cost, small volume space, very fast running speed, and open source code. It is a small database management system. Because of this, after the emergence of LAMP architecture technology, MySQL has been widely used, especially in some small- and medium-sized networks.

MySQL can run on a wide range of platforms, including not only Windows systems but also Linux and UNIX systems. At the same time, the MySQL database supports the B/S development mode adopted in this paper. In the aspect of database system selection, we consider data access, access response speed, and different security control in order to achieve the best cost effectiveness.

In addition, the use of ADO technology to connect the database, ASP, and ADO combined can provide database information to establish the content of the Web page, so as to achieve the database query, insert, update, delete, and other operations. In ADO, VBScript, JavaScript, and other scripting languages can be used to control the access of export of transaction database and inquiry records. RecordSet targets can be manipulated with the same database. ADO can connect multiple databases through the ODBC system data source. The most important advantage of using ADO to access the database is easy to use a high-efficiency, less-memory, and powerful data processing function.

5. Platform Implementation Effect Testing and Analysis

In the process of teaching implementation, on the one hand, teachers must effectively control the intensity of the application of various teaching methods and the amount of information provided so that students can extract effective information from a variety of teaching methods and constantly update and improve their cognitive structure; on the other hand, it is

FIGURE 2: System architecture diagram.

necessary to pay emphasis on the spiritual development and enhancement of pupils and on the nonintellectual factors of pupils and conduct timely and effective emotional communication with students through the transmission of eyes, motivational praise, or friendly hints, so as to better establish a good teacher-student relationship, improve the tacit understanding between teachers and students, and better improve classroom efficiency. This experiment selected 15 students in the first grade of a junior high school to participate in the application value test of multimedia intelligent artificial technology-assisted English teaching. The basic situation of these 15 students is shown in Table 1.

Through the data in Table 1, we can find that the students surveyed generally have a long-time learning English experience, so they can make a correct evaluation of the current English learning status and English teaching mode. In this regard, in order to obtain more detailed data, we understand the situation of these 15 students using multimedia teaching in the process of ordinary English learning, as shown in Figure 3.

According to the data in Figure 3, most of the students who participated in the test had very little understanding of multimedia artificial intelligence technology. Three students said that they had not been exposed to multimedia English teaching; only four students received English education and when they usually receive an English education, multimedia is often used. For this reason, statistics are carried out according to the students' general English learning methods, as shown in Figure 4.

The data in Figure 4 show that 5 students think that the content of English learning only through textbooks is too single, and the students themselves learn knowledge from extracurricular readings, so they only maintain the superficial knowledge and cannot build a complete knowledge system; people watching English skits lack interest due to the inconsistency of the content with the teaching content and lack of pertinence; the relevant online courses are too esoteric and difficult to understand; English songs are only used for relaxation and entertainment, and there are few things that they want to learn from to benefit their grades;

for tutoring, it is another form of forced learning, so students are not interested in this process. To this end, we will build a multimedia English teaching platform for these 15 students for one month of English teaching, and the results of grammar, reading, vocabulary, writing, listening, and speaking (20 points for each subject) before and after the teaching record comparative analysis. The results before and after are shown in Figures 5 and 6.

It can be found from the data in Figures 5 and 6 that the overall performance of the students has been greatly improved. The number of students with good grammar scores and above has increased from 2 to 8; the number of students with vocabulary scores and above has increased from 5 to 12; the number of people with good reading scores and above has increased from 8 to 11; the number of people who failed in listening was reduced from 11 to 5; the number of people who failed in writing was reduced from 7 to 2; and the number of people who failed in oral English was reduced from 9 to 3. In this regard, interviews were conducted on the degree of satisfaction of students with different aspects of multimedia English teaching, as shown in Figure 7.

The results of the interview are obvious, and the students are very satisfied with the multimedia English teaching model as a whole, especially in the application of multimedia artificial intelligence technology and reading teaching, followed by the teaching of spoken language, vocabulary, and grammar. Seven students each expressed their satisfaction with this. In addition, in the application process of this multimedia English teaching platform, students and teachers are observed in different aspects in the classroom, and the results of these two aspects are recorded in Table 2.

By analyzing the data in Table 2, the teacher's lecture time has become 40% of the original. In addition, students' independent thinking time and language practice time have been increased, which helps to cultivate students' independent thinking and get a certain amount of exercise. The total number of students' presentations in class has also increased from 11 to 26. This change is huge. This is a direct way for teachers to better understand students' learning conditions and learning

TABLE 1: Basic situation of students.

Survey item	Numerical value
Length of exposure to English (years)	7.01 ± 1.21
Extracurricular English learning time (hours)	1.13 ± 0.37
Number of types of learning English tools (quantity)	2.37
The number of students who approved that teachers' teaching methods need to be adjusted (number)	13

FIGURE 3: Understanding of the application of multimedia intelligent artificial technology in learning.

FIGURE 4: Students' views on different English teaching methods.

effects. Five teachers made statistics on the performance of students in all aspects of class, as shown in Figure 8.

As can be seen from Figure 8, each teacher has a high evaluation of all aspects of the students. They believe that

students' enthusiasm, concentration, and knowledge-absorbing ability in class have been greatly improved. The active speeches and questions shown by students in class indicate that students are focusing on the class.

FIGURE 5: Students' performance before multimedia teaching.

FIGURE 6: Students' performance after multimedia teaching.

FIGURE 7: Students' satisfaction with the teaching of different aspects of multimedia English.

TABLE 2: Classroom composition.

	Before application	Multimedia English Teaching
Teacher teaching time (min)	30	12
Independent thinking time for students (min)	7	10
Language practice time for students (min)	8	15
Number of students exhibited	11	26

FIGURE 8: Teacher evaluation.

6. Conclusions

As we all know, many researchers are focusing on how to use multimedia technology to enrich classroom teaching content, optimize teaching courseware, and improve the listening, reading, and writing courses that scored in the written examination of the college entrance examination from the perspective of teachers and student participation. This study compares the scores of students' listening, grammar and reading, writing, speaking, vocabulary, and observation classes before and after the application of multimedia English teaching and confirms that the implementation of situational teaching with the aid of multimedia not only improves students' academic performance but also improves the students' comprehensive language ability which shows the feasibility, superiority, and operability of multimedia-assisted junior high school English situational teaching. Combined with the application of multimedia in English teaching, the teaching content is presented by means of sound, graphics, images, text, video, audio, etc., and the principles of applying multimedia to English situational teaching in junior high schools are explored.

Data Availability

No data were used to support this study.

Conflicts of Interest

The author declares no conflicts of interest.

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