



## Exploring Cross-Cultural Design in the Evolution of Intelligent English Teaching: The Impact and Innovation of Artificial Intelligence

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**Abstract.** With the continuous development of artificial intelligence, it is also essential for teaching management. The integration of artificial intelligence and education has become a significant trend in the development of teaching management. The research on integrating artificial intelligence and education is also more profound. Future education reforms will pay more attention to the infiltration of artificial intelligence. The development of artificial intelligence technologies, such as learning analysis technology and computer-aided teaching systems, has brought teaching management into the age of intelligence. This paper explores the application and practice of artificial intelligence in teaching, analyzes the problems in detail, and provides reasonable solutions to promote teaching mode management development better. Finally, based on deep learning technology, three models of English listening-teaching intelligence, speaking intelligence, and teaching effectiveness assessment intelligence are designed.

**Keywords :** artificial intelligence; teaching management; intelligent age; Cross-Cultural Design

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### 1 INTRODUCTION

Using language to communicate and express ourselves is the most significant difference between humans and animals. In the classroom, the most inseparable thing is language communication. Classroom behaviors such as teachers asking questions, students discussing, and communicating all use language intelligence to transmit information. But, most of the time in a class, the teacher talks incessantly about various knowledge and skills, leaving fewer opportunities for students to speak. When teaching English classes, we attach importance to using intelligent language teaching methods to inspire students, which can help students understand knowledge and establish a good relationship between teachers and students. The critical elements of English learning are shown in Table 1.

<i>Num</i>	<i>Key elements</i>
<i>1</i>	<i>listening</i>
<i>2</i>	<i>spoken language</i>
<i>3</i>	<i>cooperation</i>

**Table 1:** Key aspects of English learning.

In teaching activities, teachers should pay attention to the use of natural observation intelligence and inspire students to discover the natural beauty in English works. If conditions permit, teachers can carry out various outdoor teaching activities, such as leading students to visit zoos, botanical gardens, etc., so that students can enjoy the natural scenery in a relaxed state and then extend the observed natural phenomena to the English classroom. Teachers' sense of English teaching burden is shown in Table 2.

<i>Teacher</i>	<i>The burden of teaching tasks (0,1)</i>
<i>A</i>	<i>0.25</i>
<i>B</i>	<i>0.36</i>
<i>C</i>	<i>0.39</i>

**Table 2:** Teachers' sense of English teaching burden.

When there is no such condition, teachers can create conditions through existing resources, such as teaching multimedia, to develop a corresponding natural atmosphere.

The theory of intelligence enriches the application form of the heuristic teaching method in the classroom and adds more brilliance to the English classroom. However, teachers also need to realize that, due to the uniqueness and differences of each student, no teaching method can play the best role for all students. Therefore, teachers try to use a variety of artificial intelligence in the classroom to inspire students and try their best to give each student a good classroom experience and achieve a good teaching effect.

The knowledge level of English teachers is an integral part of English education. Teachers need constant learning to improve their professional skills and update their information and knowledge. The concept of lifelong learning is at the core of every teacher's growth. While enhancing professional skills, they strive to keep up with the pace of education reform. Teachers should have a comprehensive and deep understanding of students and choose intelligent combinations to organize teaching according to the differences among students. In education, teachers should fully respect students, understand them, and establish harmonious relationships, which is more conducive to building a unified classroom.

In the teaching process, teachers must not unthinkingly pursue "teaching tasks" and imitate all kinds of content, which will quickly make the whole teaching content messy.

Since the beginning of the new century, human innovation in technology has continued to rise to new heights. With the emergence and exploration of artificial intelligence, earth-shaking changes have been brought to human life. More and more high-tech technologies are being applied to the English teaching process. The high level of technology used in English teaching today is shown in Table 3.

<i>Num</i>	<i>Technology category</i>
<i>1</i>	<i>multimedia</i>
<i>2</i>	<i>smart whiteboard</i>
<i>3</i>	<i>Internet of Things</i>

**Table 3:** Types of technology used in the current teaching process.

The comprehensive integration of artificial intelligence science into teaching management is an important issue that needs to be solved and improved continuously. Artificial intelligence's scientific application and improvement in teaching management is a challenging topic. School authorities must genuinely understand the necessity of artificial intelligence for teaching management. In addition, the sharing and diversification of artificial intelligence needs to be given special attention, as this will affect the pace of the development of teaching management.

## **2 THE IMPORTANCE OF AI FOR ENGLISH TEACHING MODE**

### **2.1 Improve the Diversity of Teaching Situation**

In the past, the teaching method applied in the classroom was that the teacher stood on the podium to teach, and the students only obtained information through the teacher's instruction or resources in the library. Thus, the information obtained by this method was insufficient. Students could not absorb more information, which was not conducive to their multi-dimensional development. Since artificial intelligence appeared, this shortcoming has been completely changed. No matter when or where students are, they can use the Internet to acquire information and knowledge and get the information they need without being limited by time and space. The teacher can publish the courseware of the research on the network so that students can obtain it in real-time. The previously popular MOOC model allows students to gain access to on-campus resources, off-campus, and even foreign resources. The comprehensive development of artificial intelligence has also developed more teaching modes, which are essential methods for students to obtain information, enriching the information sources obtained by students and improving their ability to grow in an all-around way. We will delve into the multi-faceted aspects of cross-cultural design within intelligent English teaching. From the customization of educational content to the ethical considerations surrounding AI, we will examine how this fusion can revolutionize language education and contribute to fostering global competence and cultural understanding among learners.

### **2.2 Improve the Openness of Teaching Mode**

With the optimization and development of the network environment, the penetration of artificial intelligence makes students' minds more open, and students can exchange information through scientific information technology to improve human wisdom. There are infinite possibilities in the network. In the past, the teaching mode was usually limited to learning and communication in classrooms, libraries, laboratories, etc. Still, in the era of rapid Internet development, teachers and students can use artificial intelligence to conduct interactive learning. Students can break through the inherent time and space of the school, break the traditional teaching mode of the past, and make future learning more open.

## **3 APPLICATION AND PRACTICE OF ARTIFICIAL INTELLIGENCE IN TEACHING MANAGEMENT**

### **3.1 Create a Precise Teaching Model**

According to the new technology of the Internet and artificial intelligence, firstly, creating a new teaching environment of "SPOC+MOOC" to ensure the organic combination of online and offline teaching, which can be unlimited in time and place; secondly using artificial intelligence technology to provide innovative push and bright learning services; and finally providing students with the most suitable teaching system and content according to the requirements of different industry positions, through the cooperated enterprises.

### 3.2 Create a Precise Matching Mode

Matching the students' practical ability with the professional requirements ensures that the postgame's technical specifications are the students' knowledge content and integrates the post's necessary technologies into the student's college careers. The intelligent platform manages, supervises, analyzes, and ensures the teaching process.

### 3.3 Create an Artificial Intelligence Teaching Management Cloud Platform

The artificial intelligence teaching management cloud platform can integrate textbook knowledge with classroom scenes, which ensures good resource exchange. The artificial intelligence teaching management cloud platform adopts intelligent classroom management, which fully meets the intelligence and accuracy of classroom teaching.

### 3.4 Application of Artificial Intelligence in Teaching Management

#### 1. Intelligent evaluation of practical courses

Through the lightweight, non-aligned convolutional neural network model, the results of the intelligent evaluation are satisfied in the learning process, and each step and the actual situation of the students are clarified.

#### 2. Practice report automation

The intelligent identification and modification of code specifications are realized using semantic identification, and then practice reports and practice results are automatically issued.

#### 3. Intelligent recording

Through extensive data analysis, intelligently recording the classrooms of both students and teachers, and providing accurate classroom results,

#### 4. Virtual teachers

Through natural language processing, picture recognition, and voice recognition, a virtual teacher who serves students in real-time can give intelligent answers when students use voice or pictures to search for knowledge.

#### 5. Differentiated learning

Each student's different learning styles are identified through artificial intelligence algorithms, and differentiated learning methods are established to provide other students with more suitable knowledge or learning plans.

#### 6. Optimize the learning direction

According to the extensive data analysis method, we can understand how it conforms to the students' learning rules and intelligently organize the knowledge sequence to adapt to the students so that they can learn in a better direction.

## 7. Smart push

Recording students' learning footprints, understanding students' basic level, clarifying students' problems in the learning process, and integrating them to push students' knowledge content intelligently.

### 3.5 The Practice of Artificial Intelligence in Teaching Management

The artificial intelligence teaching management cloud platform has various functions. It can intelligently supervise teaching scenarios, detect students' practical content, and conduct stage detection of students' daily learning. The virtual teacher can answer questions from students in real time and provide different students with differentiated knowledge content and intelligent analysis. Teaching results reflect teacher evaluation, providing each student's actual ability portrait and employment guide, etc.

## 4 PROBLEMS EXIST IN THE APPLICATION OF ARTIFICIAL INTELLIGENCE IN TEACHING MANAGEMENT

### 4.1 Incomplete Hardware and Software Facilities

Many schools have made colossal human and financial investments in hardware equipment to apply artificial intelligence technology in teaching management and obtain results quickly. However, this practice has wasted energy and material resources and has not gotten good results. As a result, educational information and teaching management resources are still insufficient. In applying artificial intelligence in teaching management, the hardware still needs to be fixed, network utilization has not been improved, teachers, students, and management are not organically combined, and resources are not fully utilized. Nowadays, the hardware equipment of school informatization is not perfect. Even though some schools have more hardware equipment, software facilities are not excellent. Software construction takes a long time, and teaching administration does not have a comprehensive understanding of the application of artificial intelligence, nor does it pay special attention to the positive role of artificial intelligence in teaching management, resulting in a waste of resources.

### 4.2 The Application of Artificial Intelligence in Teaching Management is Still in its Infancy

We all know that data is an integral element of artificial intelligence in teaching management applications. Still, the data is not open, and the perfect data integration on multiple platforms cannot be achieved. Some people hold a negative attitude towards the value of artificial intelligence in teaching management. Some educators do not support the application of artificial intelligence in teaching management. These are the problems existing with artificial intelligence in teaching management today.

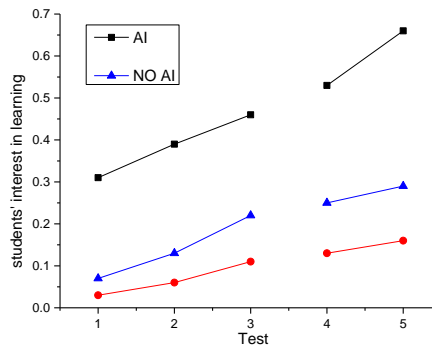
## 5 STRATEGIES BASED ON ARTIFICIAL INTELLIGENCE TEACHING MODE

### 5.1 Self-Managed Learning

Today's society has changed. Scientific teaching management must be student-centered for schools to ensure students have the conditions for multi-dimensional development. Artificial intelligence technology benefits students with a more abundant environment and better opportunities. As a pillar of the nation, students need to learn to manage their learning in their school life because the Internet era has arrived. The use of the Internet will only be more multi-faceted in the future. Hence, students

need to improve their online learning skills, broaden their ways of thinking, master some basic computer skills, and improve their discipline and self-discipline. In the new era, the transmission of information is high-speed, and grasping information quickly means one can get more opportunities in society. Schools must also genuinely understand that artificial intelligence is a scientific and practical means of teaching management. It can bring more resources to schools, teachers, and students, and the rational application of artificial intelligence in teaching management can bring unlimited potential. As for how to play better, it is also necessary to improve self-management.

The follow-up interviews found that the student's interest in learning dramatically improved after using artificial intelligence technology to enhance the teaching mode. The specific situation is shown in Figure 1.



**Figure 1:** Changes in students' interest in learning.

## 5.2 Optimizing the Artificial Intelligence System Platform

Computer hardware is becoming increasingly popular in schools, and most schools have optimized local area networks. Improving network hardware is very necessary for the interaction of school information. Schools with poor hardware facilities will affect the learning and lives of students. In addition, poor hardware is also a problem for teaching management, which will lead to a need for more smooth development in teaching management. Therefore, schools need to continuously optimize the local area network, improve the scope of network construction, and do everything possible to present students' activities perfectly, provide students with adequate network knowledge promptly, and enable real-time resource sharing among teaching management, students, and teachers. For example, in the teacher grading carried out by schools, schools can consider eliminating the traditional paper grading table, and students can use artificial intelligence platforms to grade teachers' teaching.

## 5.3 Set Up Network Office Function

In teaching management work, we cannot only carry out a single network communication but also need to improve the interactivity and richness of the network office. Teaching managers can use network means to communicate in multiple directions and methods, such as emails and WeChat groups. This will upgrade the traditional passive information-receiving mode, make the school's information release faster, and communicate with teachers and students. Communicate in real-time.

Now, school information can be published on relevant websites using the Internet, and both teachers and students can read it, which not only improves the speed of information publication but also shortens the relationship between schools, students, and teachers so that students and teachers can read at any time. Understanding the school's implementation is beneficial for the implementation

of teaching management. In addition, this will also improve the interoperability of information between various departments of the school, and each department can supervise each other so that the data can be presented more openly and transparently, reducing some lousy atmosphere, which is good for school spirit. This is a significant improvement, but also to improve the school's work network. Nowadays, with the popularization of artificial intelligence, teachers and employees in relevant school departments must clarify its importance so that the school's teaching management work will be completely paperless and cultivate senior talents who can apply artificial intelligence in teaching management. Teaching management has reached a new high. This will improve the stability and continuity of online teaching management. The total penetration of artificial intelligence in teaching management also requires continuous exploration and development. This is a big challenge for schools, and we sometimes face problems. We need to build a networked management system to deal with it together. Through follow-up interviews, it was found that teachers' workload was significantly reduced after using artificial intelligence technology to improve the teaching model. The specific situation is shown in Figure 2.

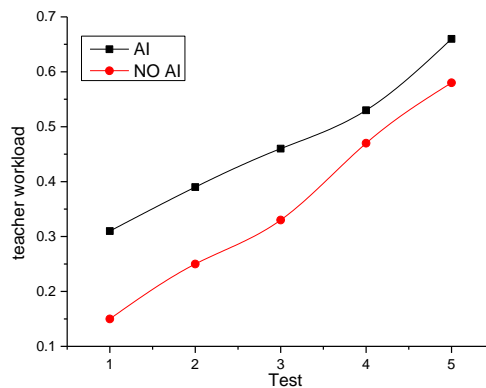


Figure 2: Changes in teacher workload.

## 6 DESIGN OF ENGLISH TEACHING MODEL BASED ON DEEP LEARNING

### 6.1 English Listening Teaching Mode Based on Deep Learning

The body is a vital part of human beings. In addition to listening with our ears and seeing with our eyes, we occasionally feel objects through our bodies. Therefore, if used correctly, our body will become a very easy-to-manipulate auxiliary prop in the classroom. Deep learning technology has a variety of mature algorithms that can perform iterative analysis based on primary data samples and continuously learn through algorithms to obtain the ability of the samples.

<i>Num</i>	<i>algorithm</i>
1	CNN
2	RNN
3	GAN

Table 4: Common algorithms of deep learning technology.

The deep learning algorithm used in this paper can effectively realize the intelligent analysis of English teaching and use the sample set to analyze valuable conclusions. The specific formula is shown in 1-4.

$$\text{English} - \text{Teaching} * \ell = \text{mode} \cup \theta * \text{exp} \quad (1)$$

$$\sigma(\text{Teaching\_effecient}) = \eta \|DL\|^{AI} - (\pi_e) \quad (2)$$

$$X(\text{DeepLearning}) = \frac{R(\xi = \text{English}_j)}{\text{TeachingMode}} \quad (3)$$

$$\Psi(\text{English\_teching}) = \frac{E(\text{Mode} = f_j)r}{G(DL+AI)^j} \quad (4)$$

where  $e$  and  $\text{exp}$  represent the parameters of the English teaching model, and  $\Pi$  represents the set of these parameters;  $X()$  represents the deep learning algorithm;  $R$  represents the English subject;  $E$  represents the application depth of the teaching model;  $G(DL+AI)$  represents the iterative function under the combination of deep learning and artificial intelligence algorithms; and  $j$  represents the corresponding incidental parameters of the function.

The teaching mode design of applying deep learning to students' English listening direction can provide more targeted feedback to students' listening needs from listening materials played by teachers. Teachers can focus on inputting students' learning status into deep learning training pants. Students will continue getting targeted listening content recommendations and their English courses during the process. The recommended English listening learning content meets the students' English listening learning level and their needs to improve their English application ability. This strategy can be used with various The use of sound sensors can enhance the integrity of data collection in students' English course learning processes and further reduce the workload of English teachers. Through follow-up interviews, it was found that students' listening application ability was significantly improved after using deep learning for intelligent listening teaching. The specific situation is shown in Figure 3.

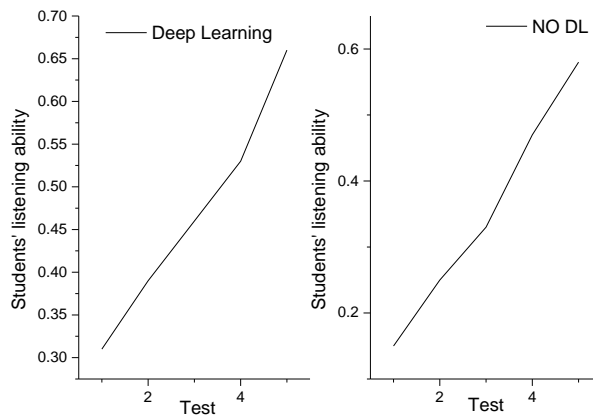


Figure 3: Students' listening application ability.

## 6.2 Spoken English Teaching Mode Based on Deep Learning

The school should establish a deep learning English teaching model system based on the English level of the students and the current English course learning situation. The system can obtain the students' English learning data and learn the student data according to the rules set by the school software developers. The system can analyze the class's oral English learning needs and obtain the best verbal English teaching content. The follow-up interviews found that students' oral language



application ability has dramatically improved after using deep learning to teach oral language intelligence. The specific situation is shown in Figure 4.

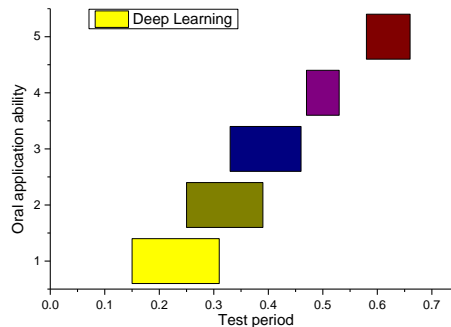


Figure 4: Students' oral application ability.

### 6.3 Teaching Mode of English Evaluation Based on Deep Learning

English evaluation is indispensable in English teaching. Deep learning technology can comprehensively analyze the teaching effect data of English courses, determine the problems existing in the current teaching process, and arrange corresponding intelligent improvement measures to complete the teaching mode.

The intelligent English teaching evaluation mode can also realize the personal evaluation of English teachers. The current review of teachers' teaching effectiveness and ability is based on the final score of the educational administration system and students' questionnaires. However, the current evaluation method is subject to people's subjective consciousness. The evaluation error generated by the English teacher's teaching evaluation based on deep learning will be completed without personal emotion to achieve the fairness of the evaluation process, ensure the authenticity of the teacher's evaluation, and enhance the teacher's sense of teaching experience.

## 7 CONCLUSION

With the rapid development of artificial intelligence, artificial intelligence technology is inevitable in school teaching management. Although the application of artificial intelligence technology in teaching management is not mature compared with traditional teaching management in the past, it is already a primary Progress, and the future still needs to be explored and improved. This paper mainly designs three models of English teaching: listening intelligence, speaking intelligence, and teaching effect evaluation intelligence based on deep learning technology. Through follow-up interviews, it was found that the teaching model has been improved in many directions after using deep learning and artificial intelligence technology, and the teaching and learning effects of students and teachers have been improved.

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