

# Research on the Influence of Artificial Intelligence Technology in English Personalized Teaching

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## ABSTRACT

Personalized teaching is an important direction for the technological transformation of modern English pedagogy. The wide usage of the latest teaching concept to English personalized teaching is conducive to the demand analysis of English personalized teaching, further accelerate the construction of English personalized education resources, helping improve the intelligent level of English personalized teaching, and accelerating the integration of English personalized teaching and multi fields. This article focuses on the recent progress of modern English training and the specific teaching strategies of using artificial intelligence technology in English personalized teaching, which has shown some practical meaning for the improvement of language education theory in the context of the continuous development in the filed of artificial intelligence.

**Keywords:** *Influence, Artificial Intelligence, English, Personalized Teaching*

## 1. INTRODUCTION

New technologies that are maturing provide language educators with interdepartmental items involving various contents, which has been used in the fields of information analysis, model identification, and so on. Many effective consequences have been obtained in the new domains. Algorithms, computing power and big data are the essential support of the latest development, and the basic technologies based on them are computer, linguistic analysis and voice identification system [1]. Through these three technologies, artificial intelligence enables machines to understand the human world and communicate with human beings in human language. The rapid progress of data analysis has produced earth-shaking variation to human beings. As to the education, the latest development is promoting the transformation of English education to digitization, networking and intelligence. Teaching activities have shown the outstanding characteristics of multi-party participation, diversified learning methods, and personalized learning content. AI technology can be applied to teaching links such as pre class, classroom, after class, extracurricular and examination, which has brought profound changes to contemporary English teaching. Teachers can achieve the continuous improvement of teaching efficiency only by adapting to the revolution of new technology, innovating English education methods and constantly exploring the integration of virtual space and physical space [2].

## 2. CONCEPT OF THE APPLICATION OF ARTIFICIAL INTELLIGENCE TECHNOLOGY IN ENGLISH PERSONALIZED TEACHING

With the continuous infiltration of "Internet plus education" in the education sector, more and more scholars begin to explore their application in their respective fields. How to implement English teaching based on Internet technology and how to properly combine Internet teaching with traditional classroom teaching to improve teaching effect have also become a common concern of many English teachers. Artificial intelligence is the model of advanced technology [3]. With the further analysis of educational behavior, researchers have set up a intelligent calculating organization. With the maturity of the latest education concept, its positive role has become huge, which can effectively improve the disadvantages of conventional English education, such as the lack of teachers in teaching and the weak awareness of students' subject learning, peculiarly in the situation of language fragmentation. However, the conventional education methods can hardly satisfy the high demands. In this case, the technical intervention of artificial intelligence will effectively alleviate this contradiction. The usage of the latest concept in language education will continue to enrich the education contents and diversify teaching methods, promoting the effect of language education. Figure 1 shows the matrix of adaptive mechanism model [4].

$$C_R^{(1)} = \begin{bmatrix} C_{R-L}^{(1)} \\ C_{R-Y}^{(1)} \\ C_{R-P}^{(1)} \\ C_{R-D}^{(1)} \end{bmatrix} = \begin{bmatrix} L_1 T_1 P_1 D_1 \\ L_2 T_2 P_2 D_2 \\ \vdots \\ L_n T_n P_n D_n \end{bmatrix} \begin{bmatrix} C_L^{(1)} \\ C_Y^{(1)} \\ C_P^{(1)} \\ C_D^{(1)} \end{bmatrix}$$

FIG. 1 Matrix of adaptive mechanism model

### 3. ENGLISH LEARNING IN THE CONTEXT OF ARTIFICIAL INTELLIGENCE TECHNOLOGY IN ENGLISH PERSONALIZED TEACHING

#### 3.1. Change the Concept of English Education

In traditional English teaching, teachers are the chief disseminators of information and knowledge. Educators take the lead in the classroom, who are the organizers and managers of classroom teaching [5]. One-way indoctrination and knowledge storage are still the main teaching methods of English teaching in some areas. With the development of the latest technology, interactive study, human-machine collaborative learning, and cross-border integrated learning will become the norm of learning. English learning methods are becoming more and more diversified, which widens the channels for different students to obtain knowledge, increases the scope of visual vision, greatly enriches students' visual perception experience, fully mobilizing students' tactile and auditory use, and improving English learning efficiency. The advancement in language education has reduced the control and dominance of the educators, and teachers have transformed into guides and helpers of students' autonomous learning in teaching, creating a more free and broad space for students' exploratory learning. Artificial intelligence technology promotes the intellectualization of campus environment and forms a more independent and open learning environment, which is conducive to cultivating students' thinking mode of independent thinking and habit of independent learning. These changes have had a wide and huge impact on classroom teaching methods and have an impact on the talent training mode, which is conducive to educators to break through the obstacles of the educational system and the shackles of educational ideas, changing the concept of English education and teaching [6].

#### 3.2. Enrich Language Teaching Resources

The development of the latest technology provides more abundant resources for English education and teaching, providing more diversified choices for both educators and learners. In the context of the continuous development of mature new technologies, massive

learning resources have been shared, especially the popularization of intelligent terminal language learning software applications, providing rich listening and speaking materials for different students to learn English. According to the cognition and learning characteristics of different students, the advent of various language learning software enables students to easily obtain rich learning resources without being limited by space and time, which is beneficial for students to overcome the learning barriers brought by language and improve learning efficiency. Convenient network resources and the application of various learning software provide teachers with rich teaching materials and extracurricular resources, improving the efficiency of teachers' lesson preparation [7].

#### 3.3. Help Personalized English Learning

The latest technological method offers strong data support for each student to have a personalized learning plan, facilitating the dataization of the study. The teaching digitalization is gradually overcoming the shortcomings of traditional teaching standardization and unified teaching methods, and promoting the realization of personalized learning. In the context of the continuous development of new teaching concepts, a fair amount of educational files can timely track the classroom English learning and after-school practice of different students, help teachers accurately and comprehensively understand the overall and individual learning situation of all kinds of students, reflecting the personality differences of learners. By analyzing the data of learning status, knowledge mastery, learning progress, homework completion and other basic situations, teachers can tap the laws behind students' learning, timely adjust teaching contents and teaching progress, improve teaching methods, and then recommend targeted learning resources and provide personalized guidance. English learning of various types of students is no longer limited by time and space [8]. They can choose optimized learning content according to their personal interests and abilities, arrange their own learning progress, realizing the individualization of knowledge learning, and meeting the personal development needs [9].

#### 3.4 Improve the Efficiency of Feedback Mechanisms

Many students' language learning has the characteristics of strong mechanical memory ability and weak image memory ability, and students often adjust their learning status through teacher feedback, and lack the ability to obtain other feedback information [10]. There are also great differences in students' acceptance of feedback information, which requires teachers to provide targeted guidance. In traditional English teaching, due to the large class size, teachers usually

give oral feedback in classroom teaching based on the overall learning situation of the whole class. In the era of artificial intelligence, rich educational data can reflect students' English learning status and potential learning needs, and can conduct preliminary diagnosis and evaluation of students' learning ability, helping teachers to provide timely and effective personalized suggestions and precise guidance, greatly improving the efficiency of the English teaching feedback mechanism. By using various mobile intelligent terminal learning software, students can objectively understand their own learning status, find deficiencies in learning in time, which can effectively stimulate students' enthusiasm and potential in English learning, helping students form good English learning habits, and promoting the improvement of autonomous learning ability [11].

**4. PROBLEMS OF ENGLISH LEARNING IN MY COUNTRY**

First of all, traditional teaching methods cannot formulate individualized teaching goals. Due to the large number of students in the teaching class, teachers cannot carry out teaching design around accurate teaching goals.

Secondly, fail to choose personalized teaching content. The traditional teaching content is highly dependent on teaching materials. Teachers rely on English teaching materials to carry out various teaching activities, and the teaching focus is also on the explanation of various vocabulary, grammar, sentence patterns and articles in the teaching materials [12].

Thirdly, fail to adopt the personalized teaching organization form. In the past English teaching, most of the teachers just taught in a mechanically step-by-step manner, and the teaching organization was often unchanged. Then, the students' interest in learning was not high enough, and individualized teaching was difficult to achieve.

**5. THE STRATEGIES FOR THE APPLICATION OF ARTIFICIAL INTELLIGENCE TECHNOLOGY IN ENGLISH PERSONALIZED TEACHING**

***5.1. Facial Recognition System Helps Teachers Accurately Grasp Students' Learning Status show in Fig 2***

Date	b1	change	b2	change	b3	change
2021.02.04	red	none	pink	p2r	green	none
2021.02.07	red	r2b	red	none	green	none
2021.02.09	blue	none	red	none	green	none
2021.02.12	blue	none	red	none	green	none
2021.02.16	blue	none	red	none	green	none
2021.02.20	blue	none	red	none	green	none
2021.02.23	blue	none	red	none	green	none
2021.02.25	blue	none	red	none	green	none
2021.02.28	blue	none	red	none	green	none
2021.03.02	blue	b2r	red	none	green	g2pur
2021.03.05	red	none	red	r2b	purple	none
2021.03.11	red	none	blue	b2r	purple	none
2021.03.15	red	none	red	r2b	purple	none

**Fig 2.** Facial Recognition System Helps Teachers Accurately Grasp Students' Learning Status

Facial recognition system helps teachers accurately grasp students' learning status. The precise look form is departed from the present stable portrait or vital televisual data to realize the computer's comprehension and identification of the looking, determining the spiritual state. The application of face identification system based on this in classroom teaching has been recognized by authoritative experts. The facial

recognition system uses the camera to replace the teacher's eyes and ears to instantly capture the students' state and emotional data in class. Combined with big data analysis, it can more effectively, finely and accurately grasp the learning state of each student in the classroom and judge whether the students really understand or falsely understand the content taught by the teacher. The application of facial recognition system

can intelligently recommend the situation of students receiving teaching content, prompt students who need special attention, indicating which teaching links need to be strengthened. By analyzing the state of learners in the process of language education, the system can provide each student's learning status report, which is more accurate than teachers' observation [13].

**5.2. English Listening and Speaking Intelligent Teaching System Helps Students Improve Listening and Speaking Ability**

Speech technology includes speech recognition, language recognition, speaker recognition, speech enhancement, speech synthesis, tone conversion and other technologies. In the context of continuous innovation driven by new technologies, speech innovation develops rapidly. The intelligent teaching system of English listening and speaking based on voice technology can arrange listening and speaking assignments with one click. Students complete the assignments through man-machine dialogue, and the system automatically evaluates the answers and generates multi-dimensional evaluation and analysis reports.[14] At the same time, the system can also accurately recommend listening and speaking practice resources for students based on the evaluation results, conduct targeted listening and speaking training, help teachers better guide the comprehensive practice, improving students' English language skills. Besides, the system can also simulate the dialogue under specific scenes (duty-free shop shopping, hotel check-in, restaurant order, etc.), and put forward suggestions on students' pronunciation, grammar, expression and other aspects according to the dialogue, so as to achieve the effect of one-to-one foreign teacher accompaniment, immediately correcting students' dialogue practice and accent. The intelligent teaching system of English listening and speaking based on voice technology can be

completely synchronized with students' textbooks. Teachers arrange and check homework via the platform, and learners can use the modern device to follow the system to practice listening and speaking after class. The system is equipped with a teacher for each student. The intelligent virtual speaking coach simulates the pronunciation of real people, and has rich expressions and learning scene design, forming a good teaching interaction [15].

**5.3. Intelligent Marking System Helps Teachers Improve Marking Efficiency**

The intelligent review system based on machine vision uses handwriting recognition technology to automatically recognize the results of students' handwriting. At present, the handwriting recognition rate of related products is as high as 98%. [16]The system automatically matches the recognition results with the answers of the question bank to realize automatic review. The review results are automatically entered into the system, and the results are statistically analyzed in real time, which can be inquired by teachers and students. It would help teachers to save time and improve work potency. In the context of advancement of machine vision science and the speeding up of mobile networks, students can judge their usual homework by themselves as students can upload and recognize text and get instant feedback by simply taking pictures of their homework with their mobile phones. With the development of the intelligent marking system based on machine vision, it is predictable that in the future, more usage of machine vision concept will be applied to students' handwritten assignments and examination papers, thereby reducing the repetitive work of teachers and allowing teachers to focus more on education itself, which also allows students to get more accurate feedback on their work. Figure 3 shows the basic framework and workflow.

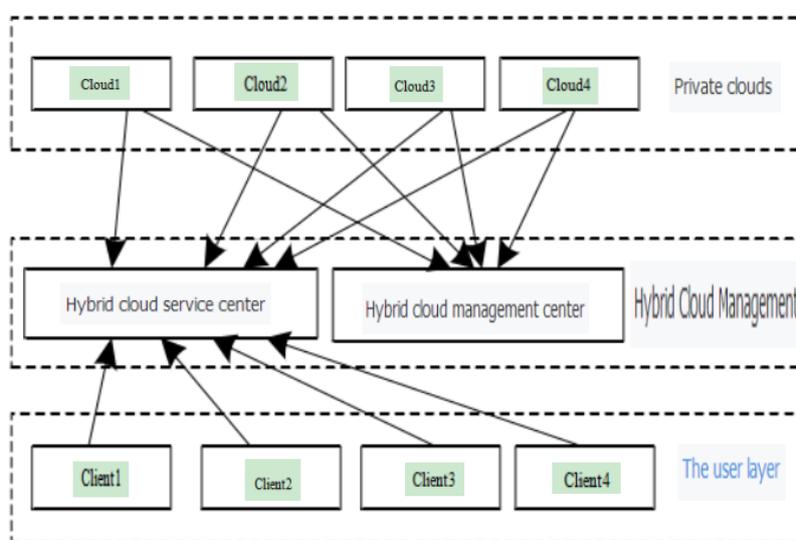


FIG.3 The basic framework and workflow

## 6. CONCLUSION

Under the background of modern teaching methods driven by new technology entering the classroom, the teaching of English teachers has undergone tremendous changes. The reform of English teaching mode is also deepening. Artificial intelligence technology provides new ideas and breakthrough points for contemporary students' English study, and has a great role in promoting the reform of English education concepts, enriching English teaching resources, helping English personalized learning. Presently, the latest progress in the field of teaching research is becoming more and more obvious, and the integration of the two is becoming more and more perfect. English education has begun to undergo encyclopedic reforms. Language educators should continuously improve teaching objectives, which can improve the efficiency of classroom tutoring.

## REFERENCES

- [1] Aruna P, Priya N. Analysis of Machine Learning techniques for Predicting Student Success in an Educational Institution[A]. Proceedings of 2021 4th International Conference on Computer Science and Software Engineering (CSSE 2021)[C]. 2021.
- [2] Bailey, L. W. *New Technology for the Classroom: Mobile Devices, Artificial Intelligence, Tutoring Systems, and Robotics*. [G]|| Bailey L. *Educational Technology and the New World of Persistent Learning*. Hershey, PA: IGI Global.
- [3] Barnes T, Boyer K, Sharon I, et al. Preface for the Special Issue on AI-Supported Education in Computer Science [J]. *International Journal of Artificial Intelligence in Education*, 2017 (1).
- [4] Boden, M. A. *AI: Its Nature and Future*[M]. Oxford: Oxford University Press, 2016.
- [5] Chomsky, N. *Aspects of the Theory of Syntax* [M]. Cambridge: The MIT Press, 1965.
- [6] Corey Dunn; Nour Moustafa; Benjamin Turnbull Robustness Evaluations of Sustainable Machine Learning Models against Data Poisoning Attacks in the Internet of Things[J]. *Sustainability*, 2020 (2).
- [7] Eaton JE, Vesterhus M, Mc Cauley BM, Atkinson EJ, Schlicht EM, Juran BD, Gossard AA, La Russo NF, Gores GJ, Karlsen TH, Lazaridis KN. Primary Sclerosing Cholangitis Risk Estimate Tool (PREsTo) Predicts Outcomes of the Disease: A Derivation and Validation Study Using Machine Learning [J]. *Hepatology*, 2020; 71: 214-224.
- [8] Holotescu C. MOOCBuddy: A chatbot for personalized learning with MOOCs [A]. Iftene A, Vanderdonck J. *Proceedings of the International Conference on Human-Computer Interaction - Ro CHI 2016* [C]. Bucharest: Matrix Rom, 2016.
- [9] Javed Asharf; Nour Moustafa; Hasnat Khurshid; Essam Debie; Waqas Haider; Abdul Wahab A Review of Intrusion Detection Systems Using Machine and Deep Learning in Internet of Things: Challenges, Solutions and Future Directions [J]. *Electronics*, 2020 (2).
- [10] Nickolaos Koroniotis; Nour Moustafa; Elena Sitnikova A new network forensic framework based on deep learning for Internet of Things networks: A particle deep framework [J]. *Future Generation Computer Systems*, 2020 (1).
- [11] Pinkwart N. Another 25 years of AIED? Challenges and opportunities for intelligent educational technologies of the future[J]. *International journal of artificial intelligence in education*, 2016(2):771-783.
- [12] Roll I, Wylie R. Evolution and revolution in artificial intelligence in education[J]. *International Journal of Artificial Intelligence in Education*, 2016(2):582-599.
- [13] Sussex, R. *Teaching Knowledge and Intelligent Tutoring*[J]. *Computer Assisted Language Learning* (5) : 195-199, 1992.
- [14] Vail A K, Grafsgaard J F, Boyer K E, et al. Predicting Learning from Student Affective Response to Tutor Questions [C]. *International Conference on Intelligent Tutoring Systems*. Springer International Publishing, 2016: 154-163.
- [15] Woolf B P, Lane H C, Chaudhri V K, et al. AI Grand Challenges for Education [J]. *AI Magazine*, 2013 (4): 61-84.
- [16] Yalden, J. *The communicative syllabus*[M]. Oxford: Pergamon Press, 1983.