

Research on Personalized English Learning in Primary and Secondary Schools Enabled by Artificial Intelligence

Yilan Yin

Huaihua Normal College, Huaihua, Hunan, China, 418000

ABSTRACT

The rapid development of educational informatization has promoted the deep integration of artificial intelligence and English teaching in primary and secondary schools. Artificial intelligence collects and analyzes study data to help accurate teaching, uses virtual reality (VR) to create immersive learning situations, and uses intelligent learning guidance system to cultivate students' self-exploration mode. This study focuses on the construction of intelligent teaching resource integration platform, the application of intelligent teaching equipment, and the cultivation of teachers' intelligent quality to promote the optimization and upgrading of English courses, comprehensively promote the improvement of teaching level, and lead the transformation of English teaching mode in elementary education in China.

KEYWORDS

Artificial Intelligence; Primary And Secondary School English Teaching; Personalized Learning

At present, the traditional English teaching model has been unable to meet the needs of educational development in the new era. The students' cognitive style is different, and their learning ability is uneven, so that all kinds of teaching problems emerge one after another. The application of artificial intelligence in education has injected new vitality into English teaching^[1]. Artificial intelligence drives English teaching towards a personalized development track and has a profound impact on the reform and innovation of English teaching paradigm. This study focuses on artificial intelligence enabling personalized English teaching in primary and secondary schools, explores its practical paths and builds a new ecology of English teaching.

1 Value of Artificial intelligence Enabling the Personalized English Learning in Primary and Secondary Schools

1.1 Meet the Individual Differences of Students and Realize Precision Teaching

The user learning behavior data collected and sorted by the educational big data platform constitutes the core driving force of the refined learning system. User data covers multidimensional indicators such as knowledge mastery level, block interest, learning time distribution, and a massive learning track database records a full range of information from login frequency to answer feedback. Large-scale data mining shows the difference in students' ability in grammar, vocabulary, reading, writing and other areas. The systematic monitoring of students' progress in completing learning units outlines a personalized learning curve. The deep information behind the data depicts a unique panorama of learner characteristics and lays the theoretical foundation for differentiated educational practice. The targeted ability evaluation mechanism encourages the system to tailor exclusive course content for each learner. Data analysis shows that students with poor vocabulary level but outstanding comprehension ability will get more vocabulary resources and moderately reduced difficulty reading materials. Users with faster learning rates have access to extensive learning content. The intelligent feedback mechanism adjusts the exercise intensity in real time and optimizes the push strategy in combination with the study routine to maximize the learning efficiency^[2]. The personalized teaching mode fully adapts to the individual differences of learners and makes the allocation of educational resources more scientific and targeted.

1.2 Stimulate Students' Interest in Learning and Enhance Their Learning Motivation

The application of digital immersive learning technology and technological tools such as VR and AR is driving profound changes in the field of education. Virtual English town provides an exotic and colorful real communication space for students, so that they can carry out diversified language practice in various scenes in the virtual town. The exploration of history and civilization through time and space brings the bustling scene of the ancient Roman Empire to the eyes, which integrates English learning into a vivid situation. The intelligent evaluation engine installed in the teaching system generates personalized evaluation reports for learners, and quantitative indicators such as "broadcast level" and "pronunciation standardization" give students a clear direction of the future. The speech analysis module

based on artificial intelligence algorithm accurately identifies pronunciation deviations and provides detailed suggestions for learners to improve. Multiple incentive mechanisms such as achievement badges, star rating and point system embedded in the learning platform can stimulate learning momentum and enhance learning confidence, and make English learning a lasting and productive journey of exploration.

1.3 Cultivate Students' Independent Learning Ability and Promote Integrated Development

Intelligent learning tools such as voice assistant and tutoring software have become a strong support for students to learn in the new era. When students encounter bottlenecks in English learning, they can often make voice interaction through intelligent voice assistants, so that the system can give detailed explanations contrapuntally. This instant feedback mechanism breaks the time and space limit of teachers to answer questions in traditional classroom teaching. Based on the deep learning algorithm, intelligent tutoring software can accurately identify students' knowledge blind spots, push related extended materials, and guide students to build a complete knowledge system during exploration. The data analysis report generated by the intelligent learning platform covers multidimensional data such as vocabulary reserve, grammar application, listening, speaking, reading and writing, and includes specific indicators such as the timeliness of answers, the correct rate, and the mastery of knowledge, thus providing an objective basis for students to examine their own learning status. Through this "mirror of data", students can clearly grasp their own learning curves and recognize their own strengths and weaknesses. After years of self-examination and adjustment, students can gradually master the method of independent learning. This ability can not only help students make great progress in English, but also lay a cornerstone for the future continuous learning, thus promoting them to achieve integrated development of moral, intellectual, physical, aesthetics and labour education.

2 New Paths of Artificial Intelligence Enabling the Personalized English Learning in Primary and Secondary Schools

2.1 Construction of Intelligent Teaching Resource Platforms: The Cornerstone of Artificial Intelligence Enabling English Personalized Learning

The intelligent teaching resource platform should gather a large number of English teaching materials, including electronic textbooks, audio, animation and video. Lively animated short films can integrate boring grammar rules into interesting situations, and students can naturally grasp the differences in usage between the simple present tense and the present continuous tense through the plots^[3]. Pure English nursery rhymes, radio plays and other audio materials provide students with excellent listening and speaking training models. English film clips, speech videos and other image materials can broaden students' cultural vision and enhance their understanding of the conditions and customs of English-speaking countries. The digital electronic textbook is not limited to the simple presentation of traditional content, students can click on the word to get detailed interpretation, received pronunciation and typical example sentences. The scientific classification of resources is the key task of the platform construction. Teaching resources are divided into the lower section of primary school, the upper section of primary school, the junior high school grades and the senior high school grades. And according to the learning difficulty, they can be divided into basic, advanced and expanded levels. Animal, festival, travel and other sections can be set up according to the theme types. The systematic classification of resources enables teachers and students to pinpoint what they need.

The intelligent teaching resource platform has a unique resource allocation advantage through the personalized recommendation function. The deep learning algorithm enables the platform to have the intelligent analysis ability. The system can evaluate and judge the language level of students by obtaining multidimensional data such as the learning track, daily homework and exam scores left by students on the platform. Browse history records students' interest profile, including reading preferences for story and science resources, and draws a unique learning map for each learner. The intelligent algorithm accurately distributes learning resources for students according to assessment results and interest profiles, so that students with weak English foundation can obtain English reading books of basic vocabulary, simple grammar exercises and slow speed, and learners with strong language skills and a passion for human history will get advanced content such as English videos about world history, cultural celebrities, and academic papers.

2.2 Application of Intelligent Teaching Tools: The Powerful Support of Artificial Intelligence Enabling Personalized English Learning in Primary and Secondary Schools

With the progress of information technology, the intelligent correction system has become a key tool to innovate English teaching models^[4]. Contemporary teachers are often too tired to deal with students' homework, and it is difficult

to make a comprehensive analysis of many problems exposed in students' exercises. The AI-enabled correction system has brought a breakthrough change to teaching practice. The system has multidimensional assessment abilities, covering grammar, vocabulary use, reading analysis and even writing level in written assignments. The writing evaluation is particularly eye-catching. The system can not only catch the spelling and grammar errors at the basic level, but also systematically evaluate the coherence and logical construction of the article. The in-depth analysis function of the intelligent correction system gives teaching management a new perspective, and accurately depicts students' performance in grammar application, vocabulary reserve, reading strategy, writing thinking and other aspects. With the help of these data, teachers can not only master the overall teaching progress, but also find the learning bottleneck of individual students, so as to optimize the teaching plan and implement personalized guidance. Through systematic feedback, students can identify the weak links in their own knowledge system and carry out targeted consolidation and improvement.

Oral English ability presents a bottleneck trend in contemporary education, and students' personalized and accurate learning demands have been unable to be satisfied for a long time. The intelligent spoken language evaluation technology driven by artificial intelligence breaks through many constraints in the classroom environment. The deep learning model analyzes learners' speech input in real time, and evaluates it in multiple dimensions such as pronunciation standardization, language fluency, and expression accuracy. The speech system is based on the standard speech library to identify each user's deviation in vowel fullness and consonant articulation, and promotes the improvement of oral skills with demonstration audio and special exercises. Advanced speech recognition algorithms provide learners with quantitative feedback on oral fluency by analyzing stagnation points and sentence repetition in speech flow. The language expression analysis module focuses on monitoring the standardization of vocabulary use and sentence structure, and generating targeted expression suggestions. After repeated testing and diagnosis, learners gradually improve their oral English level. The learning trajectory analysis function continuously accumulates user practice data, so that teachers can make teaching plans based on objective evidence.

2.3 Improving Teachers' Artificial Intelligence Quality: The key to Promoting Artificial Intelligence Enabling Personalized English Learning

The modern English classroom is facing the wave of intelligent reform, and the intelligent technology quality of teachers has become a key indicator of the success or failure of teaching reform. Teachers' cognitive depth of intelligent education, ability to use intelligent tools, and professional level of data analysis determine the application effect of artificial intelligence in English teaching. In school-based training, teachers systematically study the development process, algorithm framework, technology application of intelligent education. Machine learning principles and data modeling mechanisms behind intelligent systems trigger teachers' in-depth thinking on the intelligent teaching mode. The intelligent teaching platform integrates function modules such as teaching resource library, oral assessment engine, and homework diagnosis system. Teachers need to skillfully use these tools to complete teaching tasks such as textbook content selection, oral pronunciation guidance, and knowledge mastery assessment. The learning behavior data and knowledge point analysis report collected by the intelligent platform provide a scientific basis for course design, and teachers can select appropriate teaching resources according to the characteristics of learning conditions and formulate targeted teaching strategies.

The cultivation of teachers' artificial intelligence quality is deeply rooted in the practical exploration of teaching. In the application of oral intelligence assessment systems, teachers come up much valuable teaching wisdom, including classroom management strategies, pronunciation training methods, learning motivation stimulation and so on. In addition, teachers' thinking and innovation on artificial intelligence teaching should not be limited to one school and one institution, and an interscholastic experience sharing mechanism needs to be established^[5]. Schools around the country launch AI English teaching and research projects to provide academic support for teachers' teaching innovation. Teachers interact with each other in online communities, offline seminars, and teaching and research salons to explore the possibility of artificial intelligence enabling personalized teaching, such as personalized reading resource push, intelligent learning assessment, and differentiated task design. Cultivating digital thinking in such teaching practice, experience summary, and teamwork is helpful to realize the depth empowerment of artificial intelligence in teaching and bring personalized and high-quality learning experience to students.

3 Conclusion

The application of artificial intelligence in English education in primary and secondary schools is booming, and the deep integration of advanced technology and educational practice promotes the qualitative leap in teaching mode. The human-computer interaction in the intelligent teaching environment gives the traditional classroom new possibilities. For

example, the path for students to master knowledge and skills is more flexible and rich, and teachers get rid of repetitive work, and realize the balanced configuration of high-quality resources. A number of intelligent platform systems are iterated continuously in practice, and the information quality and teaching ability of educators are significantly enhanced. These explorations accumulate profound experience for educational reform. In short, technological innovation in the field of education is changing rapidly, and artificial intelligence is reshaping the form of English teaching, which creates a unique growth trajectory for each learner.

About the Author

Yilan Yin (1989.06-), Female, Han, Huaihua, Hunan, Master Degree, Lecturer, Huaihua Normal College, Research Fields: English teaching, Curriculum and Teaching Theory.

References

- [1] Tang Minhui. An Empirical Study on In-depth English Teaching Evaluation in Primary and Secondary Schools under the Background of the Integration of "Artificial Intelligence and Education" [J]. Kaoshi Zhoukan, 2024, (51): 101-103.
- [2] Zheng Jiejing. Research on Development of English Teaching Mode in Primary and Secondary Schools in the Era of Education Informationization 2.0 —— Taking Teaching Video Network as an Example [J]. Journal of Ningbo Institute of Education, 2024, 26(5): 125-129.
- [3] Chen Zihui. A Study on the Acceptance and Use of AIED technologies and Its Influencing Factors for K-12 EFL Teachers [D]. Soochow University, 2022.
- [4] Zhao Jie, Hu Chunyang. A Survey of Primary and Secondary School English Classroom Teaching Models Based on Intelligent Learning Space [J]. English Teachers, 2020, 20(20): 22-31.
- [5] Li Ting, Cao Hui. A Literature Review on the Influence of Artificial Intelligence on English Teaching Reform [J]. English Plaza, 2020, (1): 89-90.