

Research on the Application of Artificial Intelligence in Middle School Students' English Education

Mengfan Wang

School of Foreign Languages, Hebei Normal University of Science and Technology, Qinhuangdao, China

19933223333@163.com

Abstract: AI, with its high-performance computing system, can handle complex tasks in education, helping teachers analyze student learning levels and improve knowledge. It can mine student data for personalized learning paths, adjusting content based on learning habits, interests, and weaknesses. AI will appear in various fields. This study uses a variety of research methods such as literature research, case analysis and data analysis. AI education has many important research and practical significance. Under the premise of the country (China) vigorously developing AI, but also with the rapid development of science and technology, the field of education is also facing profound changes, AI education has become a reality, and AI education is still a long way off. At present, AI education will not be implemented in all aspects, and AI education will be used in every student to help students learn in the near future.

Keywords: Artificial intelligence(AI), education, middle school students, English culture

1. Introduction

AI education technology offers personalized learning models, based on behavioral data, knowledge, and student interests. Current platforms match content, amount, and difficulty based on students' learning data, improving their learning level and enthusiasm for learning. This approach has made progress in AI education. This paper will specifically study the problem: how AI education can help middle school students improve their learning level, learning enthusiasm, and learning practicability. In this study, a variety of research methods are comprehensively used to ensure the scientific reliability of the research results. Through the literature research method, this paper extensively searched authoritative academic databases, professional books, journals, and research reports at home and abroad, combed and analyzed a large number of literatures, systematically grasped the research status and trend in the field, laid the theoretical foundation, and clarified the research direction. The case analysis method selects many representative practical cases, covering different types, backgrounds and stages of development. The phenomenon, event process and influencing factors in the case are deeply investigated, and the potential laws and problems are dug out to provide a practical basis for theoretical research. Data analysis methods With the help of professional statistical software, the collected quantitative and quantitative qualitative data are sorted out, counted, and analyzed to reveal the relationships, trends, and differences behind the data and objectively verify the research hypothesis. Through this study, the author puts forward

predictions for the future development of AI education, provides references for existing AI education, and puts forward suggestions for possible problems.

2. The importance of English to students

In today's globalized society, English communication has emerged as an indispensable skill. For high school students around the world, English typically serves as a second language. Cross-cultural communication is a top priority, but at the same time, cross-cultural communication is a skill that refers to the ability of individuals to communicate and interact in multiple cultural environments. With the increasing frequency of international exchanges, communication with people from different cultural backgrounds has become the norm, whether in business, education or daily life. Mastering cross-cultural communication skills helps to enhance understanding of others, reduce misunderstandings and frictions caused by cultural differences, and promote the establishment of a more harmonious cooperative relationship. By learning English, students are exposed to cultural knowledge and information from all over the world, and learn to analyze problems from a multicultural perspective, which is essential for them to build a global perspective and enhance their international competitiveness [1]. English is the primary language for international trade, business communication, and finance in China's global economic integration. It represents a country's education level, international influence, and cultural exchange. English is the mainstream language of today's society and plays a crucial role in global communication.

3. English culture

The Boy Scouts, the English Folk-Dance Society and the Esperance Morris movement were all founded in the Edwardian period, a golden age of Englishness that was also a golden age for worrying about England's identity and future. Robert Baden-Powell, Cecil Sharp and Mary Neal, their respective founders, confronted what they saw as a crisis in the social fabric of England by instigating voluntary movements for the recovery of healthy national bodies, the establishment of healthy national minds and the revival of healthy national traditions [2]. So, Every once in a while in the UK, the British government, prompted by a coincidence of the calendar or a hard-to-ignore anniversary, organizes a public performance about national identity. The Festival of Britain in 1951 and the Millennium Experience in 2000 were two major attempts to reformulate Englishness or Englishness in the second half of the 20th [2]. England places a great deal of emphasis on its own unique culture, and this cultural significance is a crucial aspect that should not be overlooked in English teaching. Recognizing and understanding English culture is of utmost importance, as having knowledge of the culture underlying a language is far from being futile; it is, in fact, an essential component of comprehensive language learning. When Chinese students and students from non-official English speaking countries have no suitable English language environment, so they should pay more attention to the input and understanding of English culture. In the teaching process, we can introduce rich cultural materials of English-speaking countries, such as literature, film and television works, introduction of traditional customs, etc., to help students have a deep understanding of English culture, improve their understanding and application ability of English language, and enable students to use English more accurately and appropriately in cross-cultural communication.

4. English harmonizes with Chinese culture

In the current cross-cultural communication environment, it is necessary to strengthen the construction of international communication capacity, carefully build a foreign discourse system, give full play to the role of emerging media, enhance the creativity, appeal, and credibility of

foreign discourse, speak Chinese affairs well, spread Chinese voices well, and explain Chinese characteristics well. Therefore, in order to strengthen students' awareness of intercultural communication in senior high school English teaching, teachers should guide students to consciously use their knowledge to spread Chinese culture and tell Chinese stories well, so as to convey Chinese voice and spirit to the world in English [3]. In China, there is an educational institution called New Channel (Shijiazhuang Campus), which holds "Chinese Stories in English" every year. Every year, students from all over the country are invited to participate in activities to enhance students' interest in English. Make learning English easy.

5. Dilemmas faced by teachers and students in Chinese high school English teaching after reading and writing

5.1. English learning situation of Chinese high school students

In the context of English teaching in Chinese high schools, students generally have the problem of lack of interest and low participation, and students are not very active in class, and often show a coping attitude when they finish the task of reading and writing. Many students think that the task of continuing to write after reading is tedious and difficult, which is easy to produce difficult emotions, resulting in reduced willingness to participate. Due to the uneven language foundation and reading comprehension ability of students, many students feel difficult in the face of complex texts, unable to find a sense of accomplishment in the process of writing, which weakens their enthusiasm for participation. Additionally, there is a noticeable scarcity of interaction and discussion among students in the classroom. Teachers often find it challenging to stimulate the enthusiasm of every single student, resulting in a dull and monotonous overall teaching atmosphere [4]. The above is the general situation of Chinese students learning English. English is the second language that Chinese students learn, not a simple subject. Students do not want to learn English unless they have a strong interest in it. As a result, students don't want to go to class, hate English and so on.

5.2. Chinese high school teachers' English education

Chinese high school English teachers are more traditional in the selection of teaching content, relying on classic literature works and fixed chapters of textbooks, and lacking consideration of modern and popular themes and students' interest points, resulting in monotonous teaching content. The repetitive nature of such content causes students to gradually lose their sense of novelty and enthusiasm as they engage with similar texts and topics over an extended period. Regarding the teaching mode, a significant number of many teachers still adopt the traditional teaching mode, which takes teachers as the center and imparts knowledge in a one-way way. The interaction between teachers and students is insufficient, and students accept it passively, which further weakens their willingness to actively participate in teaching. However, teachers often rely on fixed models and templates when continuing to guide reading, failing to fully consider the individual needs of students and unable to flexibly adjust according to the actual situation of students. This is reflected in the monotonous teaching content and lack of innovation of Chinese high school teachers. When choosing teaching materials, many teachers educators gravitate towards traditional classic literature works or fixed chapters in textbooks, and lack consideration of modern, popular or interesting subjects. Too simple content selection makes students gradually lose their freshness and interest in repeating similar texts and themes for a long time, and the teaching content design is often lacking in innovation. Teachers mostly adopt fixed types and requirements of continuous writing tasks, and fail to fully integrate students' interests and real life to carry out diversified design. At the same time, many teachers still follow the traditional teaching mode of lecturing, taking

teachers as the center and passing on knowledge one-way, lacking the interaction and communication between teachers and students. Students are often in a passive state of acceptance in class, and it is difficult to actively participate in the teaching process. When teachers continue writing after reading, they usually adopt fixed demonstrations and templates, lack of attention to the individual needs of students, and it is difficult to adjust flexibly according to the actual situation of students, which not only limits the students' independent learning and the development of innovative thinking, but also leads to a dull classroom atmosphere, and students' learning enthusiasm and creativity are suppressed [4]. Most English teachers in China were themselves educated in this traditional manner. As a result, these teachers may inadvertently make teaching errors, which ultimately lead to a decline in students' interest in the subject.

6. AI is beneficial and helpful to high school students' English learning



Figure 1: AI literacy: a framework to understand, evaluate, and use emerging technology [5]

Acquiring basic knowledge of what AI can do and how it works is necessary in order to make informed decisions about evaluating and using AI systems and tools, and centering human judgment and justice is important to critically consider the benefits and/or costs of AI to individuals, society, and the environment. Also, interacting, creating, and problem-solving with AI is a progression of use for distinct contexts and purposes [5]. Moreover, AI-driven applications can develop customized content and provide language translation services, thus making education more accessible to people with language barriers. Additionally, AI-based writing and revision assistants can provide valuable feedback on students' assignments, enabling them to hone their writing skills and improve their grades [6]. Besides, AI education began to be implemented in international schools in the United States, and students have a high evaluation of AI education, which shows that AI education can help students learn. In fact, AI education can help students develop personalized learning plans, and it can improve the learning level and achievement of most students. At the same time, AI can play a supervisory role and help students learn.

7. AI achieves equal teaching

The "AI Teacher Wisdom Education" project is a distinctive "AI teacher Mandarin teaching" system developed by the Good Future Group Learning and thinking online school in combination with its own advantages in teaching research and technology, aiming at the realistic difficulties in poor areas. The education assistance project of providing free Mandarin teaching services and high-quality curriculum resources to 72 schools and 70,462 students in Zhaojue County, Liangshan Prefecture, Sichuan Province [7]. Through this project, AI education has played a significant role in enabling children in the poverty-stricken mountainous regions of Sichuan Province to access equal educational opportunities. Currently, although the existing Mandarin teaching system is the primary focus, there are plans to expand and develop comprehensive systems covering subjects such as Chinese, English, mathematics, and more in the future. Among these subjects, English learning

holds particular significance and offers substantial benefits to students, especially considering that English serves as the second language for students in China. The first one is to enhance students' interests and hobbies; the second one is to have an English environment. How to enhance students' interests? AI can generate cartoon characters to help students learn on the grounds of enhancing their interests.

8. Conclusion

This paper employs the literature research method, case analysis method, and data analysis method are used to comprehensively analyze the importance of English to students, indicating the importance of English, which does not mean that English is an individual, but represents an important part of China's international development. Both English culture and Chinese culture boast a long and profound history. The initial step towards mastering English is to gain an in-depth understanding of English culture and cultivate a genuine interest in the language. China only added English into the official course in 1982, relatively late in the development process compared to most countries, but Chinese students generally have low participation in English classes, students are not highly motivated in class, high difficulty and so on. At the same time, the content of teachers in the teaching process is monotonous and lack of innovation, many teachers tend to use traditional classic literature or fixed chapters in textbooks when choosing teaching materials, and lack of interest in modern, popular or students. But AI education is different, AI education is the formation and promotion of individual learning for each student. To increase students' interest in English learning and English communication environment. The "AI education" initiatives implemented by the American International School and China Learning and Thinking Online Course in 72 schools with 70,462 students in Zhaojue County, Liangshan Prefecture, Sichuan Province, have demonstrated that AI education is not just a theoretical concept but has been put into practical application. In the future. Help students to complete homework and guidance, and contribute to the improvement of students' grades and learning level, but AI cannot replace teachers in terms of current technology, because teachers have independent thinking ability, but AI does not.

References

- [1] Yingrui W.(2024).*The Importance and Implementation Strategies of Intercultural Communication Competence in High School English Teaching*.Chengcai. (S2),92-93.
- [2] Featherstone, S. (2009). Reviving England. In *Englishness: Twentieth-Century Popular Culture and the Forming of English Identity* (pp. 28–46). Edinburgh University Press. <http://www.jstor.org/stable/10.3366/j.ctt1r25dg.6>
- [3] Yuan Y. (2025). *The Cultivation of Students' Intercultural Communication Awareness in the High School English Classroom--Taking Oxford Translation Edition Compulsory II Unit 3 as an Example*. *English Picture Journal (High School Edition)*. ,(08), 94-96.
- [4] Gang L. (2025). *Research on the path of cultivating the quality of creative thinking in high school English reading and writing teaching*. *Journal of the Academy*. (11), 40-42. doi:10.16657/j.cnki.issn1673-9132.2025.11.014.
- [5] Digital Promise. (2024). *AI literacy: A framework to understand, evaluate, and use emerging technology*. [Online]. Available:<https://digitalpromise.org/2024/06/18/ai-literacy-a-framework-to-understand-evaluate-and-use-emerging-technology/>
- [6] Wang, T., Lund, B. D., Marengo, A., Pagano, A., Mannuru, N. R., Teel, Z. A., & Pange, J. (2023). *Exploring the potential impact of artificial intelligence (AI) on international students in higher education: Generative AI, chatbots, analytics, and international student success*. *Applied Sciences*, 13(11), 6716. <https://doi.org/10.3390/app13116716>
- [7] Xinxin Z, Zhile S & Qi Z. (2019). *Exploration of Innovative Practices of Information Technology to Help Precise Poverty Alleviation in Education--The Case of "AI Teacher Intelligent Education" Program*. *China Information Technology Education*,(21), 85-88.