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Research on the Application of Artificial Intelligence Empowered Situational Teaching in Junior High School English Teaching

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ABSTRACT
In the context of the deep integration of artificial intelligence and education, the digital transformation of situational teaching in junior high school English has become a key path to enhance students' core competencies. With the deepening of digital transformation in education and the promulgation of the "Compulsory Education English Curriculum Standards (2022 Edition)", creating authentic contexts and developing students' core competencies have become the core demands of junior high school English teaching. The rapid development of artificial intelligence technology has provided new possibilities for breaking through the difficulties of traditional situational teaching.

Keywords: *AI empowerment, Situational teaching, Junior high school English teaching.*

1. INTRODUCTION

The new curriculum standard specifies that the core competencies of junior high school English include four dimensions: language ability, cultural awareness, thinking quality, and learning ability. It anchors the direction of "comprehensively using language in real situations and implementing subject education" for junior high school English teaching in the new era. It requires teaching to be based on the theme context, carry out situational and activity-based learning practices, and cultivate students' ability to analyze and solve problems in real scenarios, achieving the implementation of core competencies. However, the traditional teaching model still has significant drawbacks: the creation of classroom situations is single, and it is difficult to get rid of the dependence on static media such as pictures and audio, resulting in a lack of language input and output environment, and students are prone to the dilemma of "mute English". Learning motivation and cross-cultural communication skills need to be improved.

With the advancement of the global informatization wave, the rapid development of artificial intelligence technology provides a new path to solve the above-mentioned teaching difficulties. The increasing maturity of technologies such as natural language processing, speech recognition and synthesis, computer vision, and virtual reality makes it possible to create highly simulated, interactive, and immersive language learning contexts. Artificial intelligence can not only simulate real contexts, provide personalized conversation partners and instant feedback for students, but also dynamically adjust learning paths, greatly enriching the connotation and practical forms of situational teaching. At the same time, China has successively issued programmatic documents such as China's Education Modernization 2035 and the Outline of the Plan for Building an Education Powerful Country (2024-2035), clearly advocating to promote the deep integration of AI, big data and other intelligent technologies with education and teaching, aiming to build a new "Internet plus" education ecology, which provides solid policy support for teaching reform. In this context, exploring the application of artificial intelligence in empowering situational teaching is not only a necessary requirement to respond to national strategies and solve teaching pain points, but also a key issue to promote the transformation of classrooms towards digitization and efficiency, and effectively ensure the implementation of core competencies.

2. RESEARCH STATUS IN CHINA AND FOREIGN COUNTRIES

2.1 Research on the Application of Artificial Intelligence in English Teaching

The research on the application of artificial intelligence in English teaching in foreign countries shows a trend of diversification and internationalization, currently mainly focusing on two directions: generative artificial intelligence and cross modal data integration. These studies have made significant progress in curriculum design, innovative teaching models, and personalized learning, gradually expanding to characteristic areas such as informal learning environments, low resource contexts, and emotional factors, reflecting a broad research perspective and deep situational adaptability.

The research on the application of artificial intelligence in English teaching abroad can be traced back to the late 1950s to early 1960s, and its birth and development are closely related to the rise of computer-assisted teaching and computer-assisted language learning. One of the foundational events in this field was the development of the PLATO system. In 1960, the University of Illinois in the United States successfully developed the world's first computer-aided teaching system, PLATO. After iteration, the system can connect hundreds of terminals and teach multiple language courses, including English, marking the beginning of the systematic and large-scale application of computer technology in language teaching practice, providing an important technical platform and practical model for subsequent research. From 2010 to the early 2020s, breakthroughs in deep learning, especially the introduction of Transformer architecture, greatly enhanced machines' understanding and generation capabilities of natural language. The emergence of major language models such as Word2Vec, BERT, and GPT has demonstrated the potential of artificial intelligence to approach human level in English grammar correction, writing assistance, and complex contextual understanding. Teaching applications are beginning to move towards data-driven and highly intelligent approaches. Recently, the explosion of generative artificial intelligence represented by ChatGPT marks a new stage in this field. Artificial intelligence has transformed from an auxiliary tool to a "learning partner" capable of creating new content, serving as a dialogue partner and personalized tutoring tool, engaging in open and natural interactions with students, deeply integrating into the entire learning process, and promoting the popularization and in-depth exploration of the "human-machine collaborative" teaching model.

As one of the countries with the largest number of English learners in the world, China not only focuses on technological innovation and application in the integration of artificial intelligence and English teaching, but also pays attention to the guidance of educational theory and localized practice, forming rich research results and practical cases. The "Four Elements New Curriculum Model" proposed by Professor Wen Qiufang represents the theoretical forefront of this field. The core of this model is to go beyond the perspective of viewing artificial intelligence as a simple auxiliary tool, and instead focus on cultivating learners' ability to interact and collaborate with artificial intelligence. She emphasized that the Human Computer Interaction and Negotiation (HAINC) ability is a key competency for students to stand out in the era of artificial intelligence. This means that the focus of curriculum design is no longer on traditional "human - human" interaction, but on how to systematically cultivate students' abilities to effectively ask questions, critically verify, creatively integrate, and make efficient decisions in collaboration with artificial intelligence, marking an important shift in curriculum paradigm. At the practical level, scholars are working to clarify the specific role of AI in teaching. As the research of Xu Jiajin and Zhao Chong clearly points out, the big language model can play three core roles in English teaching: language consultant, language companion, and language assessment expert. Their research further demonstrated how to guide AI to play these roles well through precise instructions in specific teaching scenarios such as listening, speaking, reading, and writing through the key technology of "prompt engineering", transforming theoretical roles into actionable classroom teaching practices. In the optimization of teaching methods, especially in the field of assessment, research presents a dual nature. On the one hand, the research fully affirms the high efficiency and intelligent advantages of artificial intelligence in language assessment, such as achieving real-time and accurate analysis of students' writing and speaking output. On the other hand, scholars have also issued strong warnings, emphasizing the need to pay close attention to the ethical risks behind the application of technology.

This includes issues such as fairness and transparency of algorithms, privacy and security of data, and the potential lack of humanistic care that may arise from excessive reliance on machine evaluation. In summary, the current research status in China shows a mature consensus that the application of artificial intelligence in English teaching is evolving from a technical issue of "how to use" to an educational ecological issue of "how to better integrate", with the core being to fully utilize technological efficiency while adhering to the humanistic essence and ethical bottom line of education.

Research has shown that artificial intelligence technology has broad application prospects in English teaching, including but not limited to personalized learning support, multimodal assessment, intelligent feedback, and other aspects. However, its effective application still faces many challenges, requiring collaborative efforts from educators, researchers, and technology developers to explore more reasonable and effective application paths. Future research should focus more on the deep integration of artificial intelligence and English teaching, rather than simply replacing tools, emphasize the innovation of teacher professional development and human-machine collaborative teaching mode, strengthen research on AI English teaching in low resource environments to promote educational equity, promote the shift from instrumental applications to humanistic cultivation, and achieve the unity of technological empowerment and comprehensive human development. Only in this way can artificial intelligence truly become a booster for improving the quality of English teaching, creating a more efficient, fair, and enjoyable learning experience for English learners worldwide.

2.2 Research on the Application of Situational Teaching in Junior High School English Teaching

Situational teaching method is a teaching method in which teachers, based on established teaching objectives and specific teaching content, take students' cognitive laws and learning psychology as the starting point, integrate multiple carriers such as text, pictures, animations, physical props, multimedia courseware, and even role-playing, and construct a perceptible, interactive, and close to real life or subject application scenarios teaching environment. Its core lies in simulating concrete scenarios to transform abstract knowledge (such as English grammar rules, dialogue logic) into learning scenarios that students can intuitively experience and actively participate in, effectively attracting students' attention, stimulating their internal learning interest, and promoting students to transform from "passive reception" to "active exploration", understanding knowledge, mastering skills, and improving abilities in a state of "willingness to participate and deep immersion".

In the theoretical development and empirical research process of situational teaching method, many foreign scholars have put forward academic viewpoints with profound influence, and verified the scientific and practical value of these viewpoints through rigorous empirical research. These research results together form the theoretical foundation for the application of situational teaching method in junior high school English teaching. The input hypothesis proposed by American applied linguist Krashen has had a profound impact on the practice of situational teaching method for a long time. He believes that language acquisition is most effective when learners are exposed to comprehensible language input (i+1) slightly above their current level and in low anxiety situations. This viewpoint emphasizes the importance of creating positive and supportive classroom situations to reduce students' emotional filtering factors, providing theoretical guidance for the creation of emotional environments in situational teaching. Representative figures of situational learning theory, Lave and Wenger, proposed the concept of communities of practice, believing that learning is essentially a social participatory process that occurs in real practical situations through a gradual process from marginal participation to full participation. This viewpoint provides a theoretical basis for designing progressive and socialized learning activities in situational teaching. The principle of "planned improvisation" proposed by British education researcher Kurtz provides a new perspective on the role of teachers in situational teaching. Kurtz believes that effective language teaching requires teachers to flexibly adjust teaching strategies based on real-time classroom situations within a predetermined teaching framework, and create dynamically generated learning spaces. This viewpoint was further developed in a 2025 action study, where researchers proposed the Dynamic Classroom Creativity Model, which combines Kurtz's improvisational teaching principles with Ketonen's theory of social emotional development

stages, providing a practical framework for balancing presupposition and generation in situational teaching.

In the development of educational theory in China, Li Jilin is the most representative and pioneering figure in the field of situational teaching (also known as situational education). Her core viewpoint can be summarized as four basic elements: truth, beauty, emotion, and thought, which have not only had a profound impact in China, but also provided important guidance for teaching various subjects including English. In addition, many educators have concretized the connotation of situational teaching method into practical principles for English classrooms. Professor Zhang Jianzhong pointed out that situations are different environments that can affect a person's language knowledge and skills, as well as their listening, speaking, reading, and writing abilities. This means that English teaching should create vivid and concrete scenarios, so that students can be rendered and influenced in them. The theoretical exploration and practical application of situational teaching in the field of junior high school English teaching in China have yielded fruitful results. The research of numerous educators has injected vitality into junior high school English teaching, helping students achieve significant improvement in their comprehensive English application ability in an immersive language environment.

2.3 Cross-disciplinary Research on Empowering Situational Teaching with Artificial Intelligence

The empowerment of education by artificial intelligence has become an important driving force for global education reform, and its application in situational teaching has shown great potential. Situational teaching emphasizes the cultivation of students' knowledge transfer ability and comprehensive literacy in real or simulated situations, while artificial intelligence technology injects new vitality into situational teaching through virtual scene creation, personalized learning path planning, and intelligent feedback evaluation. The intelligent mentor system launched in New Jersey, USA in 2010. This system uses tablet computers as carriers to deeply empower subject based scenario teaching. The empowerment mechanism lies in the fact that artificial intelligence can diagnose students' knowledge status and cognitive biases in specific contexts in real time by constructing built-in disciplinary cognitive models, thereby dynamically generating and pushing highly personalized learning paths and coaching content. This not only directly empowers students to tap into their mathematical potential through adaptive learning scenarios, but also significantly empowers teachers, freeing them from the burden of repetitive explanations and corrections, and providing them with data-driven learning insights and teaching decision support, reflecting the effective practice of human-machine collaboration in teaching scenarios. The practice in South Korea goes further, demonstrating the platformization and ecological empowerment value of artificial intelligence in building grand and diverse teaching scenarios. The plug-in integrated teaching assistance system (ITLA) developed by it aims to construct an intelligent learning ecosystem that integrates cooperation, interaction, participation, and sharing. In this system, artificial intelligence technology serves as the underlying support, empowering an integrated education process that integrates real-time monitoring, intelligent tutoring, collaborative education mechanisms, and digital resource generation. In short, regardless of the type of student group, the inclusiveness and comprehensiveness of artificial intelligence can promote their comprehensive personality development and shape diverse "intelligent talents" for future society.

The research on empowering situational teaching with artificial intelligence in China is currently moving from the simple application of technological tools to the innovative stage of deep integration with the entire teaching process. The aim is to create, optimize, and expand teaching scenarios through intelligent technology, reshape students' learning experience, and promote the transformation of teachers' roles. In 2019, the Chinese government and UNESCO reached a consensus on artificial intelligence and education and released the "Beijing Consensus - Artificial Intelligence and Education", which comprehensively analyzed the "sparks" that artificial intelligence has ignited in education. It studied how to use artificial intelligence to analyze learning data, dynamically generate adaptive learning situations and content for students, achieve accurate resource push and path planning, and implement the millennium education ideal of "teaching according to students' aptitude". Liang Yunzhen, Liu Ruixing, and others (2023) deeply analyzed the connotation of interdisciplinary integrated teaching of "artificial intelligence+X",

and based on situational learning and activity theory, constructed a theoretical framework supported by the deep integration of artificial intelligence and disciplines. The research on the "teacher-intelligent agent collaborative teaching support model" constructed by Yuan Lei, Xu Jiyuan and others was officially published in 2024. This represents a very cutting-edge exploration in the field of interdisciplinary teaching research in the context of generative artificial intelligence technology.

3. IMPLEMENTATION STRATEGIES FOR EMPOWERING SITUATIONAL TEACHING WITH ARTIFICIAL INTELLIGENCE

3.1 Strategy for Situation Creation

According to the mainstream curriculum and teaching content of junior high school English, situation creation needs to follow the principles of appropriate goals, cognitive load, situational integration, and teacher accessibility. For example, the teaching objectives of oral classes focus on language fluency, and teachers should choose AI chat machines that can provide a large number of conversation opportunities. At the same time, for junior high school students, tools that are easy to operate, have a simple interface, and can stimulate students' interest in learning should be chosen to avoid too much distraction.

For example, when teachers explain the theme of "clubs", they can use AI to generate animated videos, create appropriate contexts, and create visual impact on students by showcasing rich and colorful club activities, stimulating their interest in learning. Teachers should clarify learning objectives, guide students to understand different club activities, discover their own interests and strengths, and master relevant vocabulary, pronunciation, and grammar knowledge. In addition, students can be guided to engage in meaningful learning in the context created by the teacher through methods such as following along, imitating sentence structures, and imitating dialogues.

3.2 Evaluation Feedback Strategy

The "Compulsory Education English Curriculum Standards (2022 Edition)" explicitly proposes to promote the integrated design and implementation of "teaching learning evaluation", emphasizing the combination of "formative evaluation" and "summative evaluation". Empowered by artificial intelligence, process evaluation can break through the technical bottleneck of traditional teaching, no longer guided by a "score based" approach, but concretizes the concept of "core literacy" advocated by the new curriculum standards into a perceptible, interventionist, and optimizable dynamic learning path. This is not only a reform of the evaluation method, but also a response to the era's fundamental questions of "what is learning" and "why to evaluate" in education. For example, in writing classes, teachers can use correction websites or AI writing assistants to collect process data and provide students with real-time and personalized revision suggestions from four dimensions: content completeness, language accuracy, detail vividness, and logical coherence, helping students optimize their expression and improve their writing skills. Teachers can also use AI tracking technology to identify students' strengths and weaknesses, and design targeted learning plans.

3.3 Teacher-Student Interaction Strategy

The essence of human-machine collaboration is not the simple addition of humans and machines, but the deep coupling and dynamic balance between teacher wisdom, technological intelligence, and learning potential. Teachers are transformed into classroom designers and dispatchers, clarifying when AI intervenes and exits in each stage of the classroom, monitoring students' learning data, and adjusting and optimizing the learning process in a timely manner. Students should learn to coexist and progress with AI tools, learn to "master" AI, and become autonomous learners and collaborative collaborators. For example, in oral classes for seventh grade students, teachers use AI technology to create relevant situations and organize students to engage in "low anxiety" dialogue exercises with AI to master basic sentence patterns; Subsequently, real teacher-student and student-student dialogue will be conducted under the organization of teachers. When teachers interact with students and AI, they observe data to determine when to intervene - when AI feedback shows that most students are stuck in a certain sentence pattern, the teacher promptly presses the "pause button" to organize the whole class to explain. This will effectively enhance the participation of all students and promote the comprehensive development of every student.

4. CONCLUSION

The core of situational teaching lies in promoting language acquisition by creating real contexts, and artificial intelligence technology, with its generative, interactive, and intelligent features, can effectively break through the limitations of traditional situational teaching - upgrading static image display to dynamic scene generation, expanding one-way teacher-student Q&A to multi-directional human-machine collaboration, and transforming unified classroom presets into personalized learning support. In addition, the technological application of artificial intelligence empowering middle school English teaching must adhere to the value bottom line of "putting education first". In teaching practice, it is necessary to be wary of two tendencies: one is that technological dependence leads to the marginalization of teachers' roles and shallow thinking of students; The second is the privacy risk during the data collection process. Only by finding a balance between technological rationality and humanistic care can artificial intelligence truly become a booster for the high-quality development of English education.

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