Curriculum and Teaching Methodology (2025)
Clausius Scientific Press, Canada

DOI: 10.23977/curtm.2025.080213
ISSN 2616-2261 Vol. 8 Num. 2

Research on Innovative Paths for College English Teaching in the Era of Digital Intelligence

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Keywords: Digital Intelligence; College English; Teaching Innovation; Teaching Strategies

Abstract: In today's rapidly developing information technology era, digital intelligence is profoundly changing various fields of our lives, and education is no exception. Especially in the context of globalization, English, as the primary language of international communication, requires a digital transformation in its teaching that is particularly important. Traditional English teaching mainly relies on teacher lectures and printed materials, which often fail to meet modern students' needs for interaction, participation, and personalized learning. With the widespread adoption of digital intelligence technologies, educators face the challenge of effectively integrating these tools to enhance teaching quality and student learning experiences. This paper explores the impact of the digital intelligence era on English teaching and analyzes effective strategies for empowering English education through digital means, providing specific teaching frameworks and practical guidance aimed at helping college English teachers better utilize digital technology to improve teaching outcomes.

1. Introduction

Modern college English education must not only focus on cultivating high-level talents with professional English skills but also effectively enhance college students' English application abilities and adaptability for future career development through the construction of a scientific English education system. Cultivating diverse and well-rounded talents is a key factor in higher education in China, and colleges are an important foundation for nurturing high-quality talent. However, there are still many issues in college English education, particularly the relative weakness of college students' practical language application. In the context of the digital intelligence transformation in education, English classrooms need to leverage the application value of digital and intelligent technologies, actively explore new models for building digital teaching resources, promote the digital sharing of high-quality courses, and open up new forms of education to achieve the long-term goal of empowering English teaching through digital intelligence [1]. Therefore, this paper, set against the backdrop of the digital intelligence era, analyzes the impact of this era on English teaching based on the characteristics of English education and explores practical paths for the digital construction of English courses. It is hoped that through continuous exploration and practice, educators can create more vivid, engaging, and effective learning experiences in English

teaching, laying a solid foundation for students' futures.

2. The Impact of the Digital Intelligence Era on English Teaching

2.1 Changes in Teaching Concepts

The English classroom is an important venue for cultivating students' language skills and cross-cultural communication awareness. Driven by the digital wave, its teaching models and methods are undergoing a profound transformation. Digital intelligence teaching, with its rich resources, strong interactivity, and personalized features, is gradually reshaping traditional teaching models. This transformation also places new demands on teachers' teaching concepts [2]. Within the framework of traditional teaching models, teachers are the transmitters and demonstrators of knowledge, occupying a central position in the teaching process. As digital education develops, students' growing demands for personalized and diverse learning make it increasingly difficult for a single teaching method to adapt to the times. Currently, some teachers are slow to adapt to digital transformation due to constraints of traditional teaching methods, which affects the improvement of teaching quality and effectiveness. In digital intelligence teaching, the application of technology needs to be considered comprehensively. On one hand, it provides vast resources and convenient conditions for teaching, making teaching activities more diverse and colorful; on the other hand, over-reliance on technology may lead to a deviation from teaching objectives. For example, some teachers may overly pursue diverse teaching formats while neglecting the in-depth exploration of teaching content; others may depend too much on multimedia resources, reducing direct interaction with students, thereby affecting emotional engagement between teachers and students. Additionally, the constantly updated teaching tools and platforms raise higher demands for teachers' adaptability. Some teachers, due to age, technical background, and other reasons, struggle to quickly master new technologies and apply them in teaching; even those who have mastered new technologies may find it difficult to effectively integrate them with teaching content. These factors restrict the in-depth application and development of digital intelligence teaching in English classrooms [3].

2.2 Changes in Teaching Methods

Digital intelligence teaching relies on abundant online resources and teaching platforms, but selecting appropriate teaching resources that match students' age and cognitive levels and effectively integrating them into classroom teaching presents a new challenge. Teachers need to invest significant time and effort in resource selection and integration to ensure the relevance and effectiveness of teaching content. Personalized learning, as a core concept of the digital intelligence teaching system, focuses on accurately identifying each student's learning style, interests, and ability differences to create tailored learning paths and resource allocations. How to effectively translate this conceptual idea into specific teaching practices to ensure that personalized learning plans can stimulate students' learning potential and promote their overall development is an ongoing topic that requires exploration and refinement [4].

In the context of digital intelligence teaching, students are granted more autonomy in their learning, requiring them to actively participate in the learning process and plan their learning time and content independently. This transformation not only sets stricter and higher standards for students' self-directed learning abilities, prompting them to develop stronger self-motivation and exploration skills, but also raises higher demands for teachers' teaching management abilities, requiring teachers to respond flexibly and effectively guide students to adapt to the profound changes in the teaching environment and demands brought about by this shift [5].

2.3 Changes in Teacher-Student Relationships

In the wave of this emerging educational model of digital intelligence teaching, the role of teachers is undergoing a profound transformation from knowledge transmitters to learning guides, facilitators, and close learning partners [6]. This shift transforms students from passive recipients of knowledge to active participants and constructors of knowledge. While digital intelligence teaching enhances the efficiency and convenience of information exchange, it also alters the communication patterns between teachers and students. The prevalence of online communication is gradually replacing traditional face-to-face classroom interactions, resulting in a change in communication methods.

Although online communication breaks through the limitations of time and space, it lacks the intuitiveness and immediate feedback present in face-to-face interactions, which may affect the effectiveness of communication to some extent. Additionally, the increased physical distance can impact emotional connections between teachers and students, affecting trust-building and motivation for learning, thereby negatively influencing learning outcomes. In actual teaching processes, factors such as large student numbers and significant individual differences may make it difficult for teachers to fully meet the personalized needs of each student. Some students may become less motivated to learn due to a lack of sufficient attention and support, which can affect the effectiveness of teaching and the balanced development of education.

3. Innovative Paths in the Era of Digital Intelligence

3.1 Digital Intelligence in English Education Content

Digital intelligence learning resources refer to multimedia materials that have been digitally processed and combined with intelligent technologies such as artificial intelligence and big data. These resources are edited based on the characteristics of students and made available for sharing. Digital educational resources include forms such as e-books, online courses, video tutorials, and virtual experiments, which can meet the diverse learning needs and interests of different students. They are accessible via the internet, free from geographical and temporal limitations, making learning more flexible and convenient. In today’s digital age, online resources are growing at an exponential rate, widely distributed across various platforms and databases, presenting a high degree of decentralization and heterogeneity. Teachers can integrate online resources to optimize allocation and sharing, providing personalized learning resources and pathways for students.

Digital intelligence in educational content breaks the constraints of time and space, using vivid and interactive displays to stimulate students' interest and motivation for learning. At the same time, digital intelligence teaching platforms support online discussions and collaborative learning, fostering cooperation and communication among students. With the advancement of educational informatization, smart classrooms and educational cloud platforms can integrate various digital educational resources, supporting online teaching, interactive discussions, and assignment submissions, thereby providing strong support for the digital transformation of English teaching. Digital intelligence educational resources are widely used in classroom teaching, after-school tutoring, and independent learning, helping students better understand and master knowledge points [7].

3.2 Flexibility in English Teaching Methods

The digitization of educational resources and their barrier-free sharing have first promoted the diversity and accessibility of learning materials. Multimedia technology transforms abstract English

knowledge into vivid images, videos, and audio. This approach not only captures students' attention but also converts complex concepts into intuitive and understandable forms, effectively reducing learning difficulty and enhancing learning efficiency. Notably, the emergence of digital intelligence educational games cleverly combines learning with play, allowing students to absorb and internalize English knowledge while enjoying the fun of games. This entertaining approach not only stimulates students' interest and motivation for learning but also encourages them to actively explore and collaborate during the game, thereby enhancing their language practice and innovative abilities.

In classroom teaching activities, teachers skillfully employ a variety of teaching strategies and tools based on students' individual characteristics, interests, and comprehension abilities to create an interactive learning atmosphere that encourages cooperation and dialogue among students. At the same time, teachers strive to create diverse and dynamic learning environments to meet students' personalized learning needs. For example, in vocabulary teaching, situational simulations can be used to help students master vocabulary in a relaxed and enjoyable atmosphere; in reading instruction, teachers can actively guide students to engage in critical thinking training to cultivate their reading comprehension and analytical skills. Digital intelligence education will continue to drive English teaching toward greater efficiency, engagement, and personalization, laying a solid foundation of knowledge and skills for students to develop into outstanding talents who can meet the demands of the new era.

3.3 Holographic Evaluation in English Education

New curriculum goals emphasize the comprehensive development of students, and this educational orientation drives the evaluation system toward a more comprehensive, in-depth, and refined direction. In this trend, holographic evaluation has become an important practice in educational evaluation reform. It integrates digital technology to capture and analyze students' growth trajectories from multiple dimensions and perspectives, reflected in the comprehensiveness of evaluation content and the diversity of evaluation methods. This evaluation system breaks through the limitations of traditional assessments, shifting from a singular focus on knowledge testing to a comprehensive assessment of students' overall competencies, marking a transformation in educational evaluation philosophy.

In terms of evaluation content, holographic evaluation considers students' emotional attitudes, values cultivation, social practice abilities, innovative thinking, and physical and mental health as non-intellectual factors, establishing a multidimensional evaluation system. Additionally, holographic evaluation encourages the participation of teachers, students, and parents, forming a multidimensional and multi-perspective evaluation network. This diverse evaluation network not only increases the transparency of evaluations but also makes the results more objective and fair. The joint participation of parents and students transforms the evaluation process into a shared experience of learning and progress, contributing to a harmonious educational atmosphere. Furthermore, holographic evaluation emphasizes the durability and developmental nature of assessments. While focusing on students' current learning status, it also looks at their growth potential and future trends, providing guidance and support for their continuous learning.

In summary, holographic evaluation, as a new educational assessment model, provides strong support for students' comprehensive development through its comprehensiveness, diversity, and developmental nature. It not only promotes the fairness and scientific nature of educational evaluations but also opens new paths for improving educational quality and supporting students' personalized development. With the continuous advancement of technology and updates in educational philosophy, holographic evaluation will play an increasingly important role in future educational practices.

4. Effective Strategies for Digitally Empowering English Teaching

4.1 In Terms of Teaching Concepts

(1) Establishing a Digital Intelligence Education Philosophy

First, teachers should deeply understand the significant role of digital intelligence education in improving teaching quality, stimulating student enthusiasm for learning, and promoting personalized learning. Digital intelligence technology is not only a teaching tool but also a driving force for educational innovation. Teachers should thoroughly explore the essence, characteristics, and developmental context of digital intelligence education, fully recognizing its key role in enhancing teaching quality, facilitating comprehensive student growth, and promoting balanced educational development. Teachers should continuously update their educational philosophies and knowledge frameworks through professional training, reading relevant literature, and keeping abreast of industry trends. By integrating technologies such as multimedia and virtual reality, teaching activities become more vivid, effectively stimulating students' enthusiasm for learning and desire to explore, while also creating a personalized learning environment that meets diverse student needs. In this educational model, students transform into active explorers and engaged learners. Therefore, teachers must gain deep insights into individual students, using data analysis techniques to accurately grasp each student's learning characteristics, tailoring teaching plans to ignite students' intrinsic motivation and cultivate their abilities for autonomous and lifelong learning.

(2) Strengthening Awareness of Digital Intelligence Teaching

Teachers are the direct implementers of digital teaching, and their level of information technology literacy directly affects the effectiveness of digital teaching. Enhancing teachers' awareness of digital intelligence teaching is key to improving teaching quality and promoting student development. Schools need to establish a systematic information technology training system to help teachers master digital teaching skills from basic to advanced levels, closely integrating these skills with the characteristics of English teaching to enhance the digital integration capabilities of the classroom. Digital intelligence education places high demands on teachers' information technology literacy, covering aspects such as computer operation skills, internet application techniques, and the use of multimedia teaching software. Teachers should actively learn and master these technologies to smoothly integrate information technology into teaching practice, promoting the digitization of teaching content, the interactivity of teaching methods, and the diversification of teaching assessments. At the same time, teachers need to innovate actively, daring to explore and implement digital intelligence teaching models and methods, such as flipped classrooms, blended learning, and project-based learning. By utilizing diverse teaching tools like micro-lectures, online courses, and interactive games, teachers can stimulate students' enthusiasm for learning.

4.2 Teaching Methods

(1) Integrating Resources and Strengthening Safety Systems

In the process of digital and intelligent education, the teacher team plays a crucial role. They collaboratively establish selection criteria for teaching resources, ensuring that the chosen content accurately meets the actual needs of students. In this process, teachers not only rely on their own teaching experience but also incorporate the professional opinions of educational technology experts to ensure the scientific and effective nature of the teaching resources. With the help of digital teaching platforms, teachers can quickly filter high-quality resources, reducing the time needed for lesson preparation and instructional design, thereby enhancing work efficiency. Moreover, the collaboration and sharing mechanism among teachers is also key in digital education. This mechanism not only effectively alleviates teachers' workload but also promotes the continuous

optimization and innovation of teaching resources. Teachers can share teaching insights, quality resources, and innovative methods with one another, providing students with a richer and more efficient learning experience. The collective wisdom not only enhances teaching quality but also stimulates students' interest and participation in learning.

However, the implementation of digital education cannot be separated from information security guarantees. Educational institutions must continuously improve information security systems and raise the information security awareness of teachers and students. Employing advanced encryption technology to protect the personal information of students and teachers, as well as the security of teaching data, is the cornerstone of digital education. Regular assessments of the digital teaching platform are necessary.

(2) Shifting Teaching Concepts and Exploring Applications of Artificial Intelligence

Before applying artificial intelligence in college English teaching, teachers need to gain a deep understanding of it, including the types, functions, development trends, and current applications of artificial intelligence technology. They must truly grasp the concept of artificial intelligence and understand the application value of various technologies in the field of education. Only then can they recognize the advantages of artificial intelligence more deeply and genuinely shift their teaching concepts, applying artificial intelligence technology in a more reasonable and standardized manner, allowing it to play its proper role in the teaching process. To this end, teachers should actively explore information related to artificial intelligence during their spare time. For instance, they can read relevant literature to understand the origins, development, concepts, and types of artificial intelligence, thus mastering the most basic knowledge in this field; they can watch teaching cases that apply artificial intelligence in their subject or other subjects, learning various application methods of artificial intelligence in education and thinking critically to accumulate rich teaching experience. In teaching, based on the concept of information-based education, teachers can design English teaching activities that integrate artificial intelligence while identifying the connections, balance points, and fusion points between the two, empowering teaching activities. However, they must avoid placing too much emphasis on artificial intelligence at the expense of students' learning conditions. In summary, teachers should consciously shift their educational concepts and master more effective practical methods to lay a solid foundation for future information-based English teaching.

(3) Utilizing Intelligent Assessment to Reasonably Customize English Teaching Plans

If teachers wish to design more reasonable teaching plans that better meet students' English learning needs, they can utilize intelligent assessment technology to conduct in-depth analyses of students and then develop personalized teaching plans based on their actual learning conditions. First, teachers can use internet teaching platforms and data mining technology to collect various data related to students' learning. For example, they can gather information on students' English learning preferences, habits in watching micro-course videos, efficiency in learning new knowledge, cross-cultural awareness, understanding of English concepts, language expression abilities, associative thinking, and logical thinking skills. Next, using data analysis technology and intelligent assessment technology, teachers can create learning profiles that encompass students' learning abilities and needs, allowing for a more intuitive and systematic understanding of them. Finally, based on the learning profiles, teachers can design customized English teaching plans that cater to the different English foundations, cognitive levels, knowledge-seeking needs, and learning habits of various students, providing personalized English learning resources. For instance, for students with a strong desire to express themselves, teachers can design teaching plans that include listening and speaking training; for students curious about cultures around the world, teachers can create cross-cultural exploration teaching plans; and for students with strong logical thinking skills, teachers can design systematic inquiry-based teaching plans, among others. By using artificial

intelligence to gain a deeper understanding of students, teachers can formulate teaching plans that align with their actual learning conditions, respecting students' primary role, meeting their differentiated learning needs, reducing their pressure in learning English, and enhancing their motivation to actively explore the language.

(4) Virtual Reality Experiences to Stimulate Students' Interest in Learning English

In the context of information-based education, most universities have established smart classrooms equipped with various artificial intelligence devices, such as smart terminals, intelligent recording systems, interactive all-in-one machines, interactive tablets, VR devices, AR devices, and more. Teachers can utilize these devices to enhance English language instruction. In this regard, during English classes in universities, teachers can employ virtual reality (VR) or augmented reality (AR) technologies available in smart classrooms to activate students' initiative and foster a stronger interest in learning English through immersive teaching activities. For example, teachers can first search for relevant video resources based on the textbook content, such as natural scenery videos, cultural context videos, English dialogue videos, and storytelling videos. Next, teachers can optimize these internet videos by adding subtitles, highlighting key points, and creating prompts, thus producing micro-lesson videos. During English instruction, teachers can store these micro-lessons in VR or AR devices, using artificial intelligence technology to create an immersive learning environment for students. This allows students to fully engage in a virtual context, experiencing English dialogues, introductions, stories, and more, thereby deepening their understanding of relevant knowledge and recognizing the appropriate application scenarios for English vocabulary, phrases, and sentence structures, as well as initially mastering methods for applying English knowledge. By utilizing virtual reality technology, teachers can create an immersive teaching environment and conduct engaging teaching activities, which not only quickly motivates students to learn English but also provides them with a more authentic learning experience, enabling them to solidify their grasp of English knowledge while enhancing their ability to explore contextual understanding.

(5) Real-Time Interaction Between Teachers and Students to Continuously Improve English Teaching Activities

Effective teaching is not merely about following a teaching plan step by step; it requires appropriately optimizing teaching content, adjusting teaching methods, and improving teaching activities based on students' learning progress and needs, truly embodying a "student-centered" approach. This is essential to meet students' learning needs, ensuring they genuinely understand the knowledge being taught, thereby enhancing the quality of instruction. To achieve the desired teaching outcomes in English instruction, teachers can integrate artificial intelligence devices to facilitate real-time interactive teaching activities. For instance, teachers can use smart tablets in smart classrooms to conduct group collaboration and exploration activities. First, teachers can scientifically group students according to the "heterogeneous within groups, homogeneous between groups" principle, providing each group with a tablet connected to the teacher's smart terminal for real-time information transmission. Next, teachers can use the smart terminal to convey English exploration tasks and related exercises to each group, allowing students to collaboratively explore English knowledge and complete the tasks within a specified timeframe. This approach enables teachers to quickly obtain learning outcomes from each group, avoiding time wasted on repeated inquiries, while also reducing the pressure of face-to-face interactions between students and teachers. Additionally, teachers can leverage big data technology to analyze the response information from each group to generate learning reports, promptly identifying students' learning gaps. Finally, based on these reports, teachers can appropriately adjust subsequent teaching plans, assigning targeted learning tasks to each group, allowing students to address previous shortcomings and deepen their understanding of new knowledge. In summary, by utilizing smart tablets to

conduct group collaboration and exploration activities, teachers can achieve real-time interaction with students, enabling them to adjust teaching plans and activities based on learning feedback, thereby enhancing the relevance and rationality of subsequent instruction and improving the effectiveness of interactive teaching.

4. Conclusion

As the digital wave continues to advance, intelligent education is gradually becoming a significant force driving innovation and reform in English teaching. Currently, the widespread application of intelligent technology in English classrooms not only enriches teaching content and enhances teaching effectiveness but also provides students with a more personalized and diverse learning experience. With its unique advantages, intelligent education is transforming traditional teaching models and injecting new vitality into English instruction. In the future, as technology continues to progress, intelligent teaching strategies will evolve, requiring both teachers and students to explore and adapt together to achieve optimized learning outcomes.

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