

Transformation of English Teaching Models in the AI Era: Challenges and Development Pathways

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Abstract

The transformation of English teaching models in the AI era is the result of the combined effect of four factors: guidance from national education strategies, empowerment through technological iteration, pressure from the pain points of traditional teaching, and leadership from global education development trends. The current study aimed to represent the transformation of the English teaching model in the Artificial Intelligence (AI) era and to explore the challenges and development in English teaching given by AI. The findings aim to provide practical insights for educators, policymakers, and researchers to effectively leverage AI for enhancing English teaching quality and efficiency. This study proposes a conceptual framework for AI-driven pedagogical transformation. After conducting a deep search and analysis of relevant scholarly works, this study identifies key challenges, which include ineffective combination between AI technological tools and English teaching, anxiety in the teaching profession, and declined independence even gradually disappeared among students in the student bracket, while proposing strategies for the sustainable development of AI-integrated English teaching models. Additionally, Relevant literature has proposed new teaching models, including personalized learning, human-computer collaboration, and smart classrooms. These studies lay a solid foundation for exploring the development paths, innovative strategies, and future trends of English teaching in the AI era. In the meantime, this combination has promoted the development of science and technology in the field of education.

Keywords

English teaching reform, artificial intelligence (AI), human-computer collaboration, personalized learning, pedagogical transformation

1. Introduction

With the advancement of global technology, modern society has entered an era of vigorous development of AI, AI has become a key driving force for global technological progress and educational transformation. In this study, education, particularly English teaching, which serves as a bridge for cross-cultural communication, must embrace AI-induced transformations to enhance teaching effectiveness and align with contemporary learning needs. The global application of AI in education is gaining momentum. This highlights the necessity for education, particularly English teaching, to embrace the impact of AI. Admittedly, conventional English teaching methods are no longer sufficient to satisfy the requirements of contemporary talent cultivation [1]. Traditional English teaching has various deficiencies, which include uniformity,

teacher-centeredness, low efficiency, and a lack of personalization. Traditional English teaching methods focus on written expression rather than on social communication as the goal of language learning. Therefore, teaching is usually isolated from real-life situations [1]. Moreover, Traditional English teaching mostly adopts a teacher-dominated content-output model, with little attention to the diversification and innovation of teaching methods or students' classroom feedback. As a result, students tend to develop silent English, which is not conducive to the cultivation of their comprehensive abilities and qualities [2]. Currently, AI can play an enormous role in the field of English teaching. Numerous drawbacks of traditional English teaching models can be addressed through AI, thus achieving the joint advancement of AI and education. Unlike the rigid and homogeneous characteristics of traditional teaching, AI technologies such as ChatGPT, intelligent tutoring systems, and automated writing evaluation can make up for the deficiencies of traditional models in personalization and efficiency. Driven by AI, English teaching is shifting from a teacher-centered, classroom-bound model to a learner-centered, diversified, and intelligent one. This transformation not only reshapes the teaching methods and learning modes but also redefines the roles of teachers and students, which is the core focus of this paper's subsequent research on challenges and development paths. Ruan focuses on the view of mixed education with online educational platforms and traditional education, which is named Internet+education [3]. Meanwhile, such transformation helps cultivate learners' independent learning ability, cross-cultural communication competence and comprehensive literacy, which not only meets the demands of personal development in the digital era, but also enhances national talent competitiveness and supports the long-term progress of global education and social innovation. However, the initial costs of software and cloud data deployment are relatively high in artificial intelligence education systems, and the investment in system training is also substantial. More importantly, the application and implementation of AI technology in education is a complex project that requires overall planning at the national level and massive financial investment [4].

2. Literature Review

Many scholars have studied the topic of the transformation of English teaching models under the AI era from various perspectives. Some research focuses on the opinion that AI plays a positive role in the transformation of English teaching models. As an assistant, supporter, and optimizer, artificial intelligence is integrated into the entire process of English teaching and learning. Based on students' English proficiency, learning progress, and areas for improvement, AI can automatically deliver tailored learning materials and practice tasks to implement personalized instruction. A researcher proposes strategies for empowering the intelligent transformation of English teaching through smart education, which can accurately identify and analyze students' learning status [5]. Some scholars hold that colleges and universities have fully recognized the significance of artificial intelligence technology and its flexible application in teaching. College English teachers can leverage intelligent speech recognition technology to create immersive cultural communication scenarios for students. This allows students to form a sense of cultural identity of their own culture in a virtual simulation environment, with such technology breaking the temporal and spatial boundaries of traditional classrooms [6]. Some studies hold the opinion that the integration of AI into English teaching is challenging, not only in terms of technology and funding, but also in relation to students' self-control. Technical failures are common across various systems, ranging from connectivity issues to functional breakdowns. As artificial intelligence systems gain pervasive adoption in educational contexts, it is imperative for educators and institutional leaders to maintain vigilant awareness of these challenges, thereby enabling proactive prevention and mitigation where feasible [7]. Overall, although current research on the integration of artificial intelligence and English teaching has made some progress, it still has obvious limitations. Most studies focus on the functional introduction and application advantages of AI tools, resulting in a disconnection between theoretical discussion and practical teaching. The construction of teaching models is scattered, lacking systematic and replicable transformation paths. Insufficient attention has been paid to the transformation of teachers' roles and the improvement of their digital literacy, and empirical research and long-term evaluation mechanisms are relatively inadequate. Meanwhile, the application of AI mostly stays at the shallow auxiliary level, failing to achieve in-depth integration with the whole process of teaching, and discussions on potential risks such as data security and ethical issues are relatively weak. Generally speaking, existing research is not sufficient to systematically support the in-depth transformation of English teaching models in the AI era.

2.1 Overall Trend

Driven by rapid advancements in artificial intelligence, the transformation of English teaching models has emerged as an inevitable trend in contemporary education. Traditional teacher-dominated instruction can no longer satisfy the demands of talent cultivation in the new era. Intelligent, personalized, and scenario-based teaching has gradually become the mainstream orientation of educational reform. With the rapid development of AI, ChatGPT, based on large language models, has become a focus in education. As an AI tool with text generation and interactive functions, it is widely used in English teaching. It provides students with instant feedback and personalized materials, and helps teachers improve teaching design and classroom interaction [8]. The extensive integration of AI has accelerated innovation in teaching philosophies, approaches, and environments, creating new opportunities for the high-quality development of English education.

2.2 Theoretical Research

Theoretical exploration concerning AI-enabled transformation in English teaching has become increasingly systematic and in-depth. Scholars have examined foundational theories including smart education, personalized learning, human-computer interaction, and immersive instruction. Relevant theories indicate that AI can effectively compensate for the limitations of traditional teaching, such as inflexible content, monotonous methods, and inadequate learning feedback. These theoretical frameworks highlight the importance of centering teaching on students' cognitive features, learning status, and cultural awareness, thus providing a solid theoretical basis for the practical application of AI in English teaching.

2.3 Practical Application

In practical educational contexts, artificial intelligence has been widely adopted in colleges and universities. AI empowers English teaching with diverse scenarios and personalized pathways: it streamlines teachers' curriculum design, grading, and individualized assessment while expanding students' autonomous learning opportunities and enhancing their learning experience. By extending teaching time and space, enriching instructional methods, reducing writing anxiety, and boosting motivation, AI aligns with student-centered pedagogy and fosters contextualized, intelligent, personalized, and precise English instruction [9]. AI systems enable accurate identification and analysis of students' learning progress, offer timely feedback, and transcend the temporal and spatial constraints of conventional classrooms. Practical evidence demonstrates that AI-assisted instruction effectively enhances students' language performance, cross-cultural communication competence, and cultural confidence. Traditionally, teachers assigned uniform tasks per standardized pacing, but AI integration disrupts this model. Educators use AI to accurately diagnose students' strengths and gaps, designing differentiated pathways and timely targeted interventions instead of relying on summative assessments.

2.4 Discussion of Challenges

Nevertheless, the implementation of AI in English teaching still confronts numerous challenges. The use of AI products in language learning has become inevitable, yet over-reliance on and misuse of AI in some teaching practices have exceeded the control of both students and teachers, leading to a surge in academic cheating and plagiarism [10]. Consequently, the transformation of English teaching models is restricted by technological, resource-related, and managerial factors. It is pointed out that systematic integration is still needed. Generative AI promotes the maturity of college English blended teaching, achieving the deep integration of AI and foreign language education. It transcends traditional instrumental teaching, builds a human-machine collaborative model, and offers new ideas for educational technology innovation and the upgrading of foreign language education [11].

3. Discussion & Synthesis

Against the backdrop of the AI era, the transformation of English teaching models is a profound reform driven by technological progress and educational demand, which is not only a simple superposition of AI tools and teaching activities but also a comprehensive reshaping of teaching concepts, methods, roles and ecological systems. AI can improve learning efficiency, innovate English learning methods, help teachers

grasp students' learning progress, and allow them to devote more time to improving teaching quality and innovating teaching approaches [12]. This study further analyzes the internal logic, practical dilemmas and core connotations of the transformation of English teaching models under the empowerment of AI, and sorts out the inherent connections between technological application and educational practice, in order to provide a more in-depth thinking for the high-quality development of AI-integrated English teaching. The core driving force of the transformation of English teaching models in the AI era lies in the subversion and reconstruction of the traditional teaching logic by AI technology. Traditional English teaching is restricted by the homogeneity of teaching design, the limitation of time and space, and the lack of personalized feedback, which leads to the disconnection between teaching and students' actual learning needs and the difficulty in cultivating students' comprehensive language application ability. AI technology represented by large language models and intelligent tutoring systems breaks these limitations: on the one hand, it realizes the precise diagnosis of students' learning status through data analysis, and constructs differentiated learning paths for different students, which makes personalized teaching from an ideal to a practical possibility, on the other hand, it enriches the teaching scenarios and methods, expands the boundary of classroom teaching, and makes the shift from teacher-centered knowledge output to student-centered autonomous exploration possible. At the same time, the integration of AI also reshapes the role positioning of teachers and students: teachers transform from simple task assigners and knowledge transmitters to personalized teaching architects, intelligent learning guides and human-computer collaboration coordinators. Students become the main body of autonomous learning, and their learning initiative and creativity are effectively stimulated. This role transformation is the key to the realization of the intelligent and personalized transformation of English teaching, and also the core embodiment of the student-centered teaching concept in the AI era. The practical implementation of an AI-integrated English teaching model is a systematic project, and its development is accompanied by multiple intertwined challenges, which are not only technical and resource-based but also managerial and cognitive. In terms of technical application, the current combination of AI technological tools and English teaching still has the problem of ineffective integration: some teaching practices only use AI as a simple auxiliary tool for homework correction and resource delivery, without digging into its potential in cognitive collaboration, scenario construction and personalized intervention, which falls into the misunderstanding of technological instrumentalism. In terms of resource support, the construction and operation of AI education systems require high initial investment in software and cloud data, as well as continuous input in teacher training and technical maintenance. The uneven distribution of educational resources makes it difficult for some regions and schools to effectively popularize and apply AI teaching technology, resulting in the digital divide in English teaching.

In terms of teaching management, the over-reliance on and misuse of AI by students have led to the frequent occurrence of academic cheating and plagiarism, and the decline of students' independent learning ability; at the same time, many teachers have professional anxiety due to the lack of AI application skills, which affects the enthusiasm and effectiveness of AI integration in teaching. In addition, the lack of perfect teaching evaluation systems and management norms for AI-integrated English teaching also makes the teaching practice lack scientific guidance and effective constraints, which restricts the sustainable development of the transformed teaching model. The healthy development of the transformation of English teaching models in the AI era must adhere to the unity of technological empowerment and educational essence, taking the cultivation of students' comprehensive language application ability and core literacy as the fundamental goal, and avoiding the one-sided pursuit of technological application while ignoring the educational connotation. AI is an intelligent partner of the teaching system rather than a substitute for human teaching. The core of the human-computer collaborative cognitive teaching model is the organic combination of AI's technical advantages and teachers' educational experience: AI is responsible for data analysis, personalized feedback and repetitive teaching work, and teachers focus on value guidance, emotional communication, critical thinking cultivation and scenario-based teaching design. This combination can not only improve the efficiency of teaching and learning, but also retain the temperature and connotation of education, and avoid the alienation of teaching caused by excessive technologicalization. At the same time, the transformation of English teaching models must be based on the actual situation of education, and realize the hierarchical and step-by-step promotion according to the differences in regional educational resources, school running conditions and teacher-student quality, so as to narrow the digital divide and ensure the fairness of education while pursuing the high quality of education.

4. Conclusion

In conclusion, this study takes the transformation of English teaching models in the AI era as the research object, systematically analyzes the background, motivation, overall trend, theoretical research and practical application of the transformation, and deeply discusses the core challenges faced by the current AI-integrated English teaching practice. The research of this paper has certain limitations. The analysis of the transformation of English teaching models in the AI era is mainly based on the sorting and analysis of existing theoretical research and practical experience, and lacks the empirical research of specific teaching practice cases. In the follow-up research, it is possible to select different types of schools for empirical investigation and teaching experiment, so as to further verify the effectiveness of the AI-integrated English teaching model, and put forward more targeted and practical development strategies according to the empirical results. At the same time, with the continuous development and iteration of AI technology, the transformation of English teaching models will face new situations and new problems, which require continuous follow-up research and in-depth exploration to keep pace with the times and promote the sustainable development of English teaching in the AI era.

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Conflicts of Interest

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