Research on Paths of Quality Improvement and Efficiency Enhancement in College English under the Background of Digital Empowerment

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Abstract: Guided by the strategy of educational digital transformation, digital technology is profoundly reshaping the form of college English teaching and has become a core engine for addressing pain points such as "homogeneous teaching, insufficient personalization, and low efficiency" to achieve quality improvement and efficiency enhancement. Based on the digital transformation theory, OMO teaching theory, and constructivist learning theory, combined with the requirements of the Ministry of Education's educational digitalization policies and practical cases from multiple universities, this paper systematically analyzes the current characteristics and core bottlenecks of digitally empowered college English teaching. From four dimensions — teacher development, teaching models, resource ecology, and evaluation systems — it proposes systematic paths for quality improvement and efficiency enhancement, including hierarchical empowerment, integrated innovation, collaborative co-construction, and diversified reconstruction. This study aims to provide theoretical support and practical guidance for promoting the in-depth integration of digital technology and college English teaching and building a high-quality foreign language teaching system.

***Keywords*:** digital empowerment; college English; quality improvement and efficiency enhancement; teaching reform

1. Introduction

The "Opinions on Accelerating the Advancement of Educational Digitalization" jointly issued by the Ministry of Education and eight other ministries (2025) clearly proposes to promote the overall reform of educational concepts, teaching models, and educational governance through digital empowerment, and integrate technologies such as artificial intelligence into all elements and the entire process of education and teaching. Minister of Education Huai Jinpeng emphasizes the need to cultivate a team of teachers with digital literacy and promote the in-depth integration of artificial intelligence technology into various links of education, teaching, and management. In response to policy calls, universities have generally built smart teaching cloud platforms for college English. Foreign Language Teaching and Research Press Online (FLTRP Online) has integrated advanced technologies such as machine learning and large language models to launch the "U-Campus Smart Teaching Cloud Platform AI Version" (hereinafter referred to as "U-Campus AI Version"), which empowers teaching with the core of "aiding learning with intelligence, assisting teaching with intelligence, and supporting evaluation with intelligence." As a core general education course in higher education, college English undertakes the important mission of cultivating students' language application, cross-cultural communication, and global competence. The collaborative application of "smart teaching cloud platform + U-Campus AI Version" provides a new solution to address the pain points of traditional teaching, such as "one-size-fits-all" approach, lack of oral practice scenarios, and lagging learning feedback. However, some universities still face problems such as superficial application of digital technology, insufficient digital literacy of teachers, and lack of synergy in the teaching ecology, which restrict the achievement of quality improvement and efficiency enhancement goals. Therefore, there is an urgent need to explore scientific and feasible transformation paths.

2. Theoretical Basis and Literature Review

This study is supported by three core theories. Firstly, the digital transformation theory takes digital technology as the core driving force to promote the reconstruction of educational system elements and ecological upgrading. Its core is to realize a closed loop of "technology empowerment - model innovation - quality improvement." In college English teaching, it is reflected in the transformation of teaching concepts from "knowledge transmission" to "competence cultivation" and teaching processes from "linear indoctrination" to "multi-dimensional interaction." Secondly, the OMO (Online-Merge-Offline) teaching theory breaks the boundary between physical classrooms and virtual spaces. Through the process design of "online preview before class, offline interaction during class, and online extension after class," it integrates online resources and offline activities to solve problems such as time and space constraints and insufficient interaction in traditional teaching. Thirdly, the constructivist learning theory emphasizes that learning is a process in which learners actively construct

knowledge. Digital technology provides an effective carrier for this, such as virtual simulation scenarios to create real language environments and intelligent learning analysis systems to accurately match needs, helping students improve their language application abilities and aligning with the goal of "learning for application." Based on the above theories, existing studies have carried out multi-dimensional explorations around digitally empowered college English teaching. At the technical application level, AI intelligent correction systems and speech evaluation platforms have significantly improved teaching efficiency. Wenxin Yiyan (ERNIE Bot) achieves an accuracy rate of over 95% in auxiliary correction, and iFLYTEK's system provides real-time oral feedback. Chang et al. (2025) have confirmed that AI mobile learning platforms can stimulate learning motivation and improve practical abilities. At the model innovation level, models such as OMO blended teaching and "three-space" integration have become hot topics, providing new ideas for connecting the first and second classrooms. At the practical case level, Guangxi Normal University has built a smart teaching cloud platform and introduced the U-Campus AI Version, constructed a hierarchical teaching system, and carried out teacher digital literacy training, achieving dual improvements in postgraduate entrance examination admission rate and CET-4 passing rate, which confirms the practical value of dual-platform collaboration. However, existing studies still have shortcomings: most focus on the application of a single technology or model, lacking systematic design for the whole-chain synergy of "teachers - models - resources - evaluation," and insufficient attention to practical issues such as regional digital divide and ethical risks. This constitutes the research gap and core exploration direction of this paper.

3. Current Situation and Core Bottlenecks

Under the background of digital empowerment, college English teaching presents three distinct characteristics: normalization of technical application, initial innovation of teaching models, and initial emergence of educational effectiveness. Most universities have built smart teaching cloud platforms for college English, integrating intelligent teaching tools, digital resources, and teaching management functions, and supporting the introduction of special tools such as AI correction and speech evaluation, forming a comprehensive teaching support system. Guangxi Normal University has further optimized the platform architecture, introducing the U-Campus AI Version as the core module, integrating high-quality textbook resources from FLTRP and advanced AI technologies. Its intelligent learning companion "Ziyan" can provide one-on-one immersive oral practice, instant Q&A, and full-process learning guidance, and is also equipped with AI learning situation analysis functions to assist teachers in precise teaching. 100% of the full-time teachers in the university have mastered the operation of the dual platforms, and 100% of the courses carry out online-offline blended teaching relying on the "cloud platform + U-Campus AI Version." OMO blended teaching has become the mainstream, forming an integrated process of "micro-class preview before class, PBL collaborative interaction during class, and extended discussion on the platform after class." The educational effectiveness is remarkable: the passing rate of college English CET-4 has increased by 4 percentage points, the "College English" course has been rated as a national first-class course, and the hierarchical teaching system has fully confirmed the practical value of digital empowerment. At the same time, digitally empowered college English teaching still faces multiple core bottlenecks, restricting the full release of its value. At the teacher level, there is an imbalance and insufficiency in digital literacy. Only some college English teachers have core competencies such as digital tool application, blended teaching design, and data analysis. Some teachers' application of AI tools remains superficial, such as homework correction and courseware playback, making it difficult to achieve in-depth integration of technology and teaching methods. In addition, there are significant differences in digital capabilities among teachers of different ages and professional titles, with greater transformation resistance among older teachers. At the technical level, insufficient adaptability and prominent digital divide are evident. Some tools have complex functions and operations, with low adaptability to teaching scenarios. Students in rural areas and weak universities lack intelligent terminals, and teachers have insufficient technical support, leading to unbalanced empowerment effects. At the same time, data security and ethical prevention and control mechanisms are not perfect, posing risks of privacy leakage of language learning data. At the ecological level, there is fragmentation of resources and lack of synergy. Digital resources are scattered across various platforms, lacking systematic integration, making it difficult to share high-quality resources. The integration between in-class and after-class learning is loose, and inter-university and university-enterprise collaboration mechanisms are lacking, resulting in insufficient joint efforts in resource development and technological optimization. At the evaluation level, the traditional system is mismatched with digital teaching. It mainly relies on summative evaluation with low weight of process evaluation, single indicators, insufficient consideration of core competencies such as cross-cultural communication and autonomous learning, and lack of support from digital tools.

4. Implementation Paths for Quality Improvement and Efficiency Enhancement

4.1 Teacher Empowerment

Constructing a Hierarchical Training System and Innovative Training Incentive Mechanisms To comprehensively improve teachers' digital teaching capabilities, it is necessary to build a hierarchical training system and innovative training incentive mechanisms. The stepped training draws on the experience of Guangxi Normal University's "cloud platform + U-Campus AI Version." The basic level focuses on dual-platform operation, covering functions such as resource uploading and activity release on the cloud platform, helping teachers master core modules of the U-Campus AI Version, such as "Ziyan" companion practice, AI evaluation, and courseware construction, to solve the problem of "inability to use." The advanced level strengthens the integration ability of OMO and PBL models with the dual platforms, combining the resource advantages of the cloud platform and the "1+N+X" system of the U-Campus AI Version, delving into the application of learning situation analysis tools to improve the ability of "proficient use." The high-level focuses on data mining and innovation, cultivating teachers' ability to develop characteristic resources and optimize AI strategies based on large language models, in line with the requirements for cultivating teachers with digital literacy. For training incentives, the model of "centralized training + workshops + promoting teaching through competitions" is adopted. Experts and famous teachers are invited for guidance, and experience is shared through AI collective lesson preparation and teaching competitions. Digital teaching achievements are included in assessments and professional title evaluations, and innovation awards are set up to promote teachers' transformation from "being required to use" to "willing to use." At the same time, the "technology partner" program is implemented to narrow the ability gap between older and younger teachers.

4.2 Model Innovation and Ecological Construction

Model innovation and ecological construction need to synergistically build a support system, which lays a solid foundation for college English’s quality improvement and efficiency enhancement.OMO integration creates a closed loop of "before class - during class - after class": before class, preview resources are pushed through the cloud platform, and weak points are identified through the learning situation analysis of the U-Campus AI Version to consolidate the foundation of hierarchical teaching. During class, smart classroom equipment and interactive tools are used, combined with virtual simulation scenarios to create an immersive environment, and "Ziyan" companion practice is linked to strengthen oral practice and real-time feedback. After class, students use "Ziyan" for extended Q&A and review, and teachers assign hierarchical homework and provide rapid feedback relying on the AI evaluation engine to achieve precise tutoring. For ecological construction, the cloud platform is used as the hub to integrate resources from the U-Campus AI Version, high-quality inter-university courses, and virtual simulation materials, building a resource library covering all language skills, supplementing bilingual resources on Chinese culture, and updating them dynamically. Deepen inter-university and university-enterprise collaboration, jointly develop AI-adapted tools and co-construct teaching resources with enterprises, and integrate real industry scenarios. Strengthen technical defense lines, standardize data security management and anonymization processing, and strengthen digital ethics education to guide teachers and students to use AI tools standardizedly.

4.3 Evaluation Reconstruction

A "three-dimensional and six-subject" multi-evaluation system is constructed, with "knowledge mastery, ability improvement, and literacy cultivation" at its core. It integrates six types of evaluation subjects and methods to fully reflect students' learning outcomes.Process data such as online learning duration and activity participation are counted based on the smart teaching cloud platform. With the help of the evaluation engine of the U-Campus AI Version, multi-dimensional intelligent scoring and real-time feedback of writing, speaking, and translation are realized. Comprehensive process evaluation is carried out in combination with offline practical performance, giving full play to the effectiveness of "supporting evaluation with intelligence," addressing the problems of low efficiency and single dimension of traditional evaluation, and forcing the improvement of teaching quality through scientific evaluation.

5. Conclusion

Digital empowerment provides a historic opportunity for the quality improvement and efficiency enhancement of college English, and it is also an inevitable requirement for promoting the high-quality development of higher foreign language education. Based on the integration of multiple theories and the analysis of practical cases, this paper proposes a four-in-one path of "teacher empowerment - model innovation - ecological construction - evaluation reconstruction", aiming to address the core bottlenecks in current digital teaching and promote the in-depth integration of technology and teaching. Practice has shown that only by adhering to student-centeredness and ability orientation, strengthening teacher development,

optimizing teaching models, and improving the support system, can the empowering value of digital technology be fully released, and the dual improvement of college English teaching quality and educational efficiency be achieved.

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