

Foreign Language Teaching Based on Human-Machine Collaboration Under Cultural Education Orientation

-- Innovation and Practice in College English Courses

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Abstract

To address the limitations in traditional College English teaching—such as singular approaches to enhancing cross-cultural competence, insufficient focus on higher-order thinking skills, and lack of sustainable motivation for language learning—this study proposes an innovative model guided by "cultural education" and grounded in "human-machine collaboration." From a cultural empowerment perspective, the model reconstructs course content through a "four-integration" framework to enhance humanistic value and academic rigor, while establishing a "full-chain" ideological education pathway to broaden cultural education approaches. Under the human-machine collaboration framework, a "five-stage progressive" teaching method targets higher-order competency development, and a "triple-feedback" evaluation system stimulates learning motivation. These innovations foster bidirectional intellectual growth between teaching and learning, creating a new ecosystem for foreign language education.

Keywords

Cultural education, human-machine collaboration, foreign language teaching, humanistic literacy, higher-order competencies.

1. Introduction

The digital transformation of education and advancements in generative AI have made human-machine collaborative learning the new norm. As noted by Academician Zheng Quanshui (2023), the primary goal of lower-division undergraduate courses should shift from knowledge transmission to cultivating ways of thinking. In AI era, fostering creative and deep thinking skills becomes paramount. Human-machine collaborative foreign language teaching emphasizes language development and intellectual growth through intelligent assistance, requiring learners to maintain critical judgment during interactions. This model transcends traditional language skill acquisition, focusing instead on higher-order thinking and complex problem-solving to cultivate critical thinking, collaboration, innovation, and communication skills (Jiao Jianli, 2023).

2. Literature Review

2.1. Cultural Education-Oriented Foreign Language Teaching

With the deepening of globalization and the proposal of China's fundamental education task of "fostering virtue through education," cultural education has gradually become the core guiding principle for foreign language teaching reform. This concept emphasizes that language teaching should go beyond skill training to cultivate students' patriotism, international vision, and cross-

cultural competence through cultural immersion (Wen Qiufang, 2021). In recent years, scholars at home and abroad have conducted extensive research on this topic, covering theoretical foundations, teaching practices, teaching evaluation, and other dimensions.

In terms of teaching content design, many researchers advocate integrating rich cultural elements into foreign language teaching. On one hand, introducing cultural knowledge of target language countries, such as history, geography, customs, and literature, to broaden students' cultural horizons; on the other hand, focusing on the foreign language expression of local culture to cultivate students' cultural dissemination capabilities. In teaching method innovation, situational teaching creates real or simulated cultural scenarios to enable students to learn cultural knowledge and language skills through experience. Project-based learning guides students to carry out research and practice around specific cultural themes, cultivating their autonomous learning and cross-cultural research abilities. Additionally, case teaching and task-driven methods have been widely applied in foreign language teaching guided by cultural education.

Some scholars have explored the construction of teaching models for cultural education-oriented foreign language teaching. For example, the "language-culture-education" trinity teaching model emphasizes the organic integration of language knowledge, cultural understanding, and value cultivation to achieve their collaborative development in the teaching process. The "input-output-reflection" cyclic teaching model helps students deepen their understanding and application of culture and improve their cultural literacy and language abilities through cultural knowledge input, language practice output, and learning reflection. These teaching models provide systematic guidance for foreign language teaching practices.

2.2. Foreign Language Teaching Based on Human-Machine Collaboration

Against the backdrop of accelerated globalization, societal demands for foreign language talents have become increasingly diversified and specialized, leaving traditional foreign language teaching models facing numerous challenges in meeting students' personalized learning needs and improving teaching efficiency. The introduction of human-machine collaboration has provided new ideas and methods for foreign language teaching, promising to build a more efficient and personalized teaching environment by integrating human teachers' educational wisdom with machines' intelligent advantages.

In recent years, academia has carried out extensive research on human-machine collaboration-based foreign language teaching, covering multiple dimensions such as teaching model innovation, technological application practices, and teaching effect evaluation. Currently, widely studied intelligent technology tools include adaptive learning systems, speech recognition and synthesis, natural language processing, virtual reality (VR) and augmented reality (AR) technologies, etc. These technologies are mainly applied in language practices such as foreign language speaking, writing, cross-cultural communication, and personalized learning. The interaction modes of human-machine collaboration mainly include auxiliary, collaborative, and leading types.

3. Innovation and Practice in College English Course

3.1. Reconstructing a Main-Line Curriculum Content System of "Four-Integration" from the Cultural Empowerment Perspective

The essence of foreign language education is cross-cultural education. In response to the national cultural output strategy, the curriculum incorporates cross-cultural competence as a key teaching objective, takes cross-cultural tasks as the main line, and integrates four modules—"skills, culture, critical thinking, and scenarios"—to present key teaching content in a linear structure. This main-line content structure integrates fragmented language skills and

cultural knowledge into different cross-cultural scenarios. Through full participation in situational tasks, students deepen their understanding of Chinese and foreign cultures, cultivate cross-cultural awareness, form cultural consciousness, and continuously improve their cultural interpretation and dissemination capabilities, addressing the problem of single pathways for improving cross-cultural competence.

3.2. Building a "Full-Link" Curriculum Ideology and Politics Pathway from the Cultural Empowerment Perspective

The curriculum empowers ideological and political education through culture, infiltrating it into the first classroom and practicing it in the second classroom. It runs through the entire process of teaching implementation and language practice with elements of "patriotism" and Chinese traditional culture, combining implicit infiltration with explicit implantation. It inspires students to explore the core elements of traditional culture, construct a framework for systematic cognition of excellent traditional culture, and strengthen the important role of Chinese elements, characteristics, and styles in cross-cultural comparison.

By building a "full-link" ideological and political pathway extending from the first classroom to the second classroom, the curriculum integrates value guidance into cultural experiences, enhancing students' cultural understanding and interpretation abilities, fostering cultural consciousness, establishing cultural confidence, cultivating patriotism, and strengthening identity, thus fully highlighting the curriculum's cultural education characteristics.

3.3. Creating a "Five-Progression" Foreign Language Learning Pathway under the Human-Machine Collaboration Model

Based on the concept of human-machine collaboration, the curriculum integrates large language models into daily teaching, initiating a new foreign language teaching model of alternating "AI-assisted" and "non-AI-assisted" approaches. It fully leverages AI tools as intelligent teaching assistants and learning companions. Outside class, "AI-assisted" autonomous learning and personalized learning focus on cultivating basic abilities such as grammar, vocabulary, knowledge, and shallow thinking. In class, "non-AI-assisted" cooperative learning and inquiry-based learning alternate with "AI-assisted" interactive learning and growth-oriented learning, focusing on higher-order abilities such as application, critical thinking, emotion, and cognition.

The "five-progression" foreign language teaching takes the first classroom as the main front for language learning. Students deeply engage in classroom activities, completing various language tasks with the assistance of intelligent tools, forming a new ecology of human-machine collaborative foreign language learning. Taking the second classroom as the main channel for language practice, the curriculum builds a three-dimensional language practice platform, enhancing students' enthusiasm for language learning, promoting the extension and migration of language abilities, and achieving "five-progression" capability upgrades.

Human-machine collaborative foreign language teaching not only pays attention to students' language output performance without AI tools but also encourages them to use AI tools efficiently and critically. Different ability goals are emphasized in and out of class, guiding students to follow the progressive foreign language learning path of "learn-use-think-practice-create." Through learning and using language, students develop linguistic thinking; through critical discussions and language practice, they exercise logical and critical thinking; and through subject competitions, they achieve the migration of abilities and qualities to form innovative thinking, solving the problem of insufficient focus on higher-order abilities.

3.4. Constructing a "Three-Feedback" Curriculum Evaluation System under the Human-Machine Collaboration Model

Relying on the iTest intelligent assessment cloud platform and AI tools, the curriculum tracks language learning data before, during, and after class, with self-evaluation, peer evaluation, and teacher evaluation as the three main evaluation bodies and diversified evaluation dimensions. This evaluation system de-emphasizes outcome orientation and strengthens the tracking of the language learning process. It constructs a human-machine collaborative "three-feedback" evaluation system, focusing on the motivational role of feedback mechanisms in language learning and fully leveraging the collaborative effectiveness of humans and machines in language feedback to address the lack of sustained motivation in foreign language learning.

① AI-Assisted Immediate Feedback: During human-machine interaction, AI tools provide immediate feedback on students' out-of-class knowledge mastery and skill application (such as vocabulary, syntax, and discourse logic), solving their personalized learning pain points and improving language evaluation efficiency.

② Non-AI-Assisted Periodic Feedback: For individual performance at different stages of language learning, peer feedback helps students recognize their language learning pain points and analyze their causes. Peer collaboration facilitates emotional resonance and shared problem-solving approaches, effectively reducing language learning anxiety and alleviating the psychological burden of autonomous learning.

③ AI-Assisted and Non-AI-Assisted Comprehensive Feedback: Before class, intelligent tools are used for learning analysis, and teachers adjust teaching designs accordingly. During class, classroom activities with varying difficulty levels are set up, and activity evaluations are provided. After class, teachers and AI tools work together to diagnose learning effects, providing comprehensive feedback for language learning. The purpose of feedback has shifted from learning diagnosis to inspiring thinking, providing progressive motivation for sustained foreign language learning.

4. Conclusion

This paper takes the College English course as an example to explore the innovative pathway of foreign language teaching guided by cultural education and based on human-machine collaboration. Through the reconstruction of a "four-integration" main-line curriculum content system and the design of a "full-link" curriculum ideology and politics system, it realizes the organic unity of language skills, cultural literacy, and value guidance. With the "five-progression" learning pathway and the "three-feedback" evaluation system, the human-machine collaboration model effectively improves students' higher-order thinking abilities and sustained learning motivation. Practices show that this model not only solves the problems of single cross-cultural competence cultivation and insufficient focus on higher-order abilities in traditional foreign language teaching but also constructs a foreign language teaching ecology of collaborative development of "language-culture-thinking" through the two-way integration of technological empowerment and humanistic infiltration. In the future, it is necessary to further deepen the ethical reflection and localized practice of human-machine collaboration, promote the balanced development of instrumentality and humanism in foreign language education in the digital era, and provide a paradigmatic support for cultivating compound talents with both patriotism and global competence.

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