

Research on the Innovation of Ideological-Political Education Teaching Mode in English Reading Courses from the Perspective of Human-Machine Collaboration

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Abstract: Against the dual backdrop of the digital transformation of education and the development of the holistic ideological-political education system, human-machine collaboration opens up new possibilities for in-depth reforms of ideological-political education in college English reading courses. At present, ideological-political education in college English reading courses is confronted with three dilemmas: fragmented integration of ideological-political elements, insufficient effectiveness of human-machine collaboration, and difficulties in quantifying educational outcomes. Supported by distributed cognition theory, sociocultural theory and human-machine collaborative teaching theory, this study constructs a “teacher-student-machine” ternary collaborative teaching mode for ideological-political education in college English reading courses, and develops a three-phase implementation pathway: pre-class AI-assisted pre-mining of ideological-political elements and learning situation analysis; in-class human-machine-collaborative in-depth reading and interactive critical thinking; post-class AI-driven value internalization and evidence-based evaluation. This study also reflects on practical challenges concerning technology applicability, teachers’ competencies and evaluation systems in the practice of human-machine-collaborative ideological-political education.

Keywords: Human-machine Collaboration; College English Reading; Ideological-political Education for Curriculum; Teaching Mode; Generative Artificial Intelligence.

1. Introduction

Digital transformation and fostering virtue through education have become the dual missions of higher-education reform in the new era. The Outline for Building a Powerful Education Country (2024-2035) lists “strengthening and improving ideological and political education in schools for the new era” and “implementing the national strategy for educational digitalization” as key initiatives. These policies provide institutional guarantees and directional guidance for the in-depth integration of artificial-intelligence technologies and curriculum-based ideological-political education.

College English reading courses possess inherent unique strengths for curriculum-based ideological-political education owing to the diversity of text themes, richness of cultural connotations and high-order thinking training they deliver. Nevertheless, the current development of ideological-political education in English reading courses still faces three-fold dilemmas.

First, the fragmented embedding of ideological-political elements. In existing teaching practices, ideological-political content is mostly added as an “afterthought” following reading instruction, without organic integration with the deep-seated structure of texts. Consequently, ideological-political education falls into the trap of superficial treatment and labelling. Second, inadequate effectiveness of human-machine collaboration. The application of AI technologies in foreign language teaching remains largely at the instrumental-aid level, such as intelligent translation and grammar error correction, and has not yet touched upon the core links of curriculum-based ideological-political education. A disconnect persists between technological tools and

educational objectives. Studies indicate that issues including the separation between technologies and educational agents as well as insufficient human-machine collaborative effectiveness are intertwined amid the digital transformation of education. Third, the absence of quantifiable evidence for evaluating educational outcomes. The effects of ideological-political education have long remained obscure with low visibility. Existing evaluation mechanisms focus on quantifiable assessments of linguistic competence, yet lack effective tools for tracking and giving feedback on the achievement of ideological-political goals.

To resolve the above-mentioned dilemmas, it is necessary to re-examine the teaching mode of curriculum-based ideological-political education in college English reading courses from the perspective of human-machine collaboration. This study aims to construct a teaching mode for curriculum-based ideological-political education in college English reading courses under human-machine collaboration, and address the key question of “how to realize the organic integration of technological logic and educational logic for fostering virtue [1]”.

2. Construction of the Teaching Mode for Curriculum-based Ideological-Political Education in English Reading Courses from the Perspective of Human-Machine Collaboration

2.1. Role Reconstruction of the “Teacher-Student-Machine” Ternary Collaboration

In the traditional ideological-political teaching of English

reading courses, teachers act as the provider of ideological-political content, while students are the recipient. Under the human-machine collaborative mode, such relationship is reconstructed into a ternary interactive structure of “teacher-student-machine”.

Teachers shift their role from providers of ideological-political content to facilitators of value discrimination and designers of collaborative teaching. Teachers are responsible for setting ideological-political teaching objectives, screening and reviewing ideological-political teaching materials generated by AI, guiding students to conduct in-depth value-oriented critical thinking during classroom discussions, and delivering real-time feedback and emotional support for the development of students’ ideological-political literacy. Positioned as a cognitive support tool and data-analysis engine, AI undertakes three core functions: intelligent mining and annotation of ideological-political elements in reading texts, generation and push of multimodal ideological-political teaching resources, as well as collection of learning-process data and preliminary assessment of students’ ideological-political literacy. Transformed from passive recipients into subjects of meaning construction, students engage in critical reading through human-machine dialogue, complete English output tasks on ideological-political themes with AI assistance, and achieve value internalization through reflection.

The key to this ternary structure lies in collaboration rather than substitution. As revealed by sociocultural theory, effective learning support should operate within learners’ zone of proximal development. The effectiveness of AI as an “artificial other” depends on whether it can deliver appropriate support matching students’ cognitive level. In the ideological-political teaching of English reading courses, AI provides scaffolding at the linguistic level whereas teachers offer scaffolding at the value level. Only through their joint collaboration can the organic integration of linguistic competence cultivation and value shaping be realized.

2.2. Three-phase Implementation Path: Pre-class — In-class — Post-class

Based on the above-mentioned role positioning, this study constructs a human-machine collaborative teaching mode for curriculum-based ideological-political education featuring “three phases and six links”.

In pre-class phase, AI assists pre-mining of Ideological-political Elements and learning-situation analysis. Teachers leverage large language models to analyze ideological-political elements in reading texts to be taught, identify entry points for ideological-political education from four dimensions: “national identity and cultural confidence”, “scientific spirit and craftsmanship spirit”, “ecological civilization and global vision”, as well as “sound personality and moral cultivation”, and generate a map of ideological-political elements [2, 3]. Meanwhile, the AI-powered learning platform analyzes students’ reading proficiency and their foundational ideological-political cognition to furnish data support for stratified teaching. This link reduces the traditionally hours-long work of case collection and learning-situation analysis to several minutes, allowing teachers to devote more energy to instructional design and strategies for value guidance.

In In-class phase, human-machine collaborates in-depth reading and interactive critical thinking. Classroom teaching

consists of three sub-links. The first sub-link is “AI-assisted in-depth text reading”. With the help of AI tools, students accomplish linguistic decoding and structural analysis of reading texts to quickly grasp the main ideas. The second sub-link is “exploration of ideological-political themes”. Centering on the pre-identified ideological-political entry points, teachers design question chains to guide students in group discussions and critical reading. The third sub-link is “human-machine interactive critical deliberation”. Students conduct value discrimination on ideological-political themes through conversations with AI agents. For instance, when reading texts about scientific discoveries, students may dialogue with an AI-role-played “scientist” to explore the connotations of scientific spirit. Teachers intervene at critical junctures to offer critical supplements to AI responses and guide students to develop independent value judgments. The core design principle of this phase is that AI provides information support and intellectual stimulation, teachers deliver value leadership and directional control, and students accomplish autonomous meaning construction.

In post-class phase, AI drives value internalization and evidence-based evaluation. After-class assignments are designed as English output activities centering on ideological-political themes, such as short English micro-writing, recording videos of thematic speeches, and producing English-language posters. AI writing assistants offer feedback at the linguistic level, whereas teachers focus primarily on the value orientation and ideological depth reflected in students’ work. The AI learning platform simultaneously collects data concerning students’ reading behaviors, discussion participation and assignment texts, and adopts natural language processing technology to generate preliminary assessment of students’ ideological-political literacy. The evaluation system covers three levels: “ideological-political cognition - affective identification - behavioral tendency”, integrating formative assessment and summative assessment.

2.3. Evaluation System for Human-machine-collaborative Curriculum-based Ideological-political Education

The difficulty in assessing ideological-political literacy constitutes a common challenge in the development of curriculum-based ideological-political education. Drawing on existing research findings, this study establishes an evaluation indicator system covering three dimensions: cognition, application and regulation. The application dimension carries the highest weight (0.500), while the cognition and regulation dimensions each account for 0.250. Within the specific context of ideological-political education in English reading courses, the cognitive dimension mainly evaluates students’ comprehension of ideological-political concepts, such as core notions including “cultural confidence” and “a community with a shared future for mankind [4]”. The application dimension assesses students’ capacity to analyze issues from an ideological-political perspective in English reading and output tasks. The regulation dimension evaluates students’ metacognitive monitoring and their ability to use AI critically during human-machine interactions.

The collection of evaluation data achieves full-process coverage via the AI-powered learning platform, including pre-class learning-situation analysis data, in-class interaction records and discussion transcripts, as well as after-class

assignments and reflective journals. Teachers conduct comprehensive evaluation based on these data, and examine and revise preliminary assessment outputs generated by AI. The value of this evaluation system lies not merely in outcome grading, but more importantly in furnishing data-driven support for instructional decision-making. Data analysis yields feedback on which ideological-political elements pose comprehension barriers for students and which teaching links yield unsatisfactory integration effects of ideological-political content, thereby forming a closed teaching loop of “evaluation-feedback-improvement”.

3. Challenges and Reflections

3.1. Technical Dimension: Biased Comprehension of Cultural Context by AI Tools

During practical implementation, it has been observed that certain AI tools demonstrate contextual comprehension biases when processing English expressions related to traditional Chinese culture. For instance, when analyzing English texts involving concepts such as “harmony without uniformity” and “the world for all”, the accuracy of AI in identifying ideological-political elements declines. This reflects that training corpora of current large language models are predominantly rooted in Western contexts, resulting in limited capacity for in-depth understanding of core Chinese cultural concepts. Further improvements are required to optimize the performance of AI tools in specific cultural contexts through domain fine-tuning or prompt engineering.

3.2. Teacher Dimension: Co-development of AI Literacy and Curriculum-based Ideological-political Education Competence

The human-machine collaborative teaching mode places higher demands on teachers. Teachers are expected not only to possess instructional design competence for curriculum-based ideological-political education, but also to master the operation of AI tools and strategies for their critical utilization. Practical evidence reveals an imbalance among some teachers between proficiency in AI tools and in-depth understanding of curriculum-based ideological-political education. Specialized training is recommended covering two dimensions: “competence in applying AI tools” and “instructional-design competence for curriculum-based ideological-political education”, so as to enhance teachers’ comprehensive teaching literacy.

3.3. Ethical Dimension: Safeguarding Subjectivity in Human-machine Collaboration

AI is playing an increasingly significant role in curriculum-based ideological-political education, yet erosion of educational subjectivity brought by technology must be guarded against. Teachers’ value judgment and emotional support cannot be replaced by AI, nor should students’ independent thinking and meaning construction be overshadowed by AI-generated “standard answers”. Human-machine collaborative ideological-political teaching should consistently adhere to the principle of “teacher-led, AI-supported, and student-centered [5]”. AI shall be positioned as a “cognitive co-pilot” rather than a value judge.

Meanwhile, AI literacy education for students should be strengthened to foster their capability of critically examining AI-generated content.

4. Summary

The innovation of the teaching mode for curriculum-based ideological-political education in college English reading courses from the perspective of human-machine collaboration essentially represents the in-depth integration of technological logic and educational logic for fostering virtue. The core contributions of this study are as follows. First, it constructs a role framework of “teacher-student-machine” ternary collaboration, and clarifies the collaborative division of labor featuring teachers’ value guidance, AI’s cognitive support and students’ subjective construction. Second, it develops a three-phase implementation path covering pre-class, in-class and post-class stages, upgrading AI technology from a teaching auxiliary tool into a systematic empowering element for curriculum-based ideological-political education. Third, it establishes a multi-dimensional ideological-political evaluation system that provides evidence-based grounds for assessing the effectiveness of curriculum-based ideological-political education.

With the continuous advancement of generative artificial intelligence, human-machine-collaborative ideological-political teaching will embrace more possibilities as well as challenges. Future research should focus on three directions. First, carry out cross-university and cross-curriculum promotion and verification to test the universality of the proposed mode. Second, conduct longitudinal follow-up studies to evaluate the sustainability of ideological-political educational outcomes. Third, explore the application of new technologies such as affective computing and learning analytics in ideological-political evaluation, so as to improve the refinement and objectivity of assessment. Only by maintaining an appropriate tension between technological empowerment and value guardianship can human-machine collaboration genuinely become a driving force for the teaching reform of curriculum-based ideological-political education in college English reading courses.

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