The Dilemmas and Approaches of Cultivating Critical Thinking in College English under the Background of the AI Era

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Abstract: As AI technology continues to evolve, it is increasingly integrating into our daily lives, impacting every aspect of human life. The widespread application of AI in education presents unprecedented opportunities and challenges for the development of higher education curricula and specialized learning, continuously reshaping the educational ecosystem. On the one hand, AI technology enhances teaching, providing students with a wealth of online resources. With various AI algorithms and platforms, students' learning efficiency has significantly improved. On the other hand, the powerful data processing and decision-making capabilities of AI have led to students becoming overly reliant on AI information, which restricts their learning methods and thinking patterns, negatively affecting their curiosity and critical thinking skills. Therefore, in the context of the AI era, how to effectively utilize AI tools to foster independent personalities and critical thinking among students is worth further consideration and discussion.

Keywords: AI Technology; College English; Critical Thinking; Approach Exploration

1. Overview of the Development of Critical Thinking

The concept of critical thinking was first introduced by American educator and philosopher Richard Paul in 1933. It emphasizes the importance of forming one's own understanding and judgment through the rational and objective analysis, identification, and evaluation of factual information, which requires individuals to maintain independent thinking and cautious judgment throughout the process. In recent years, with the deepening of international educational exchanges and the ongoing reform of Chinese education, the cultivation of critical thinking has become a key component in the development of students' innovative qualities, receiving significant attention from the education sector. Since 2014, when the Ministry of Education launched the 'Core Competencies Research,' critical thinking has been explicitly integrated into the core competencies system for student development, becoming an essential part of the 'Scientific Spirit'. In other documents issued by the Ministry of Education, the cultivation of innovative and critical thinking skills among contemporary students is also listed as a core capability.

With the strong promotion of national education policies, schools at all levels have made beneficial and profound attempts and explorations in this field. The 'China College Entrance Examination Evaluation System' released in 2020 emphasized the assessment of 'key abilities', specifically highlighting that 'logical thinking ability and critical thinking ability' are key directions for college entrance examination questions. In the construction of humanities courses such as higher education, philosophy, and psychology, universities have incorporated the cultivation of critical thinking into their course objectives, emphasizing the organic integration and innovative practice of multidisciplinary knowledge, combining theoretical principles with practical applications, and actively developing localized models for cultivating critical thinking to adapt to China's educational system. For example, Tsinghua University's 'Critical Thinking and Moral Reasoning' course has been selected as a national-level quality course for 10 consecutive years. 'Ethics of Artificial Intelligence' course in Fudan University integrates knowledge from disciplines such as philosophy and computer science, fostering students' interdisciplinary critical thinking skills and making valuable contributions to the integration of different disciplines. The importance of independent thinking and critical thinking in preparing students for professional studies and research in higher education is becoming increasingly evident.

In today's era of information explosion, people are bombarded with a vast amount of information daily. The challenges of information overload and cognitive load are issues that need to be addressed by both society and individuals. To effectively utilize information and discern truth from falsehood, students must develop logical reasoning skills, continuously analyze, integrate, and filter useful information, learn to question and think independently, and form their own independent views and rational analyses to tackle real-world problems in future studies and careers.

2. The Main Dilemmas of Cultivating Critical Thinking under the Background of AI

In the era of rapid AI technology development, the deep integration of AI tools and language learning has become an indispensable aid for students, greatly enhancing their language learning experience. Tools like ChatGPT and Grammarly can quickly identify sentences or articles written by students, provide instant feedback, correct grammatical errors, optimize writing styles, and offer vocabulary suggestions. Platforms such as DeepSeek and Doubao support multi-modal language input and output, instantly correcting pronunciation errors and providing optimization suggestions and feasible answers. VR technology helps students simulate real-life language scenarios, creating an immersive language learning environment. Adaptive learning systems tailor personalized learning paths based on students' language abilities and learning levels, offering customized exercises and tasks for listening, speaking, reading, and writing.

However, AI platform algorithms can provide students with a vast amount of information and materials in an extremely short time, allowing them to obtain instant answers without deep thought. This leads to students becoming overly reliant on AI tools, resulting in mental inertia. For example, during English reading classes, when practicing English-Chinese translation exercises, AI translation tools can complete the translation of a whole paragraph in just a few seconds, with smooth writing and accurate grammar. As a result, during the entire exercise, few students seriously and systematically analyze sentence structures or adjust tense and grammar, leading to a lack of active thinking and critical thinking skills. In English writing classes, when conducting group brainstorming activities on a specific topic, students tend to grab their phones first. AI platforms like ChatGPT and DeepSeek can provide flawless answers based on the instructions or needs provided by students. The group activities become superficial, with little effective and intense debate, which contradicts the original intention of using brainstorming activities to broaden students' writing perspectives and creativity. Moreover, the AI rewriting and continuation functions further foster a dependency mindset among students, causing them to lose the ability to independently construct logical frameworks and objectively express viewpoints. Students are more likely to copy and paste, which inhibits their ability to express unique viewpoints in English, failing to ensure the originality and innovation of their compositions. For example, in the English listening class, some students will use the speech recognition function to convert the English materials of listening exercises into text for reading, and turn the listening exercises into reading exercises that they are more familiar with and good at, resulting in the ineffective improvement of students' listening skills.

The English objective questions in classroom exercises and homework are more prevalent, and their answers lack authenticity and reliability. AI tools can easily provide photo and text recognition functions, allowing platforms to generate standard answers based on the text, making homework and practice answers readily available. This often leads students to adopt a utilitarian approach to learning goals, opting for shortcuts to quickly complete assignments and obtain standard answers. Over time, this can trap students in the immediate gratification trap, leading to mental inertia and technological dependence, hindering their ability to engage in thorough language learning and critical thinking, resulting in superficial language learning and hollow language skills. Consequently, students will struggle to question texts, data, or viewpoints, and their ability to independently analyze and solve problems will gradually decline, weakening their logical reasoning and proactive exploration skills.

3. The Main Approaches to Cultivate Critical Thinking under the Background of AI

As AI technology continues to mature and evolve, College English course is facing unprecedented challenges. On the one hand, students, as beneficiaries of AI technology, can

easily access vast amounts of information and resources; on the other hand, they are also constrained by AI technology, leading to mental inertia and tool dependency. College English teaching is transitioning from language model training to the development of higher-order thinking skills, which places greater emphasis on cultivating students' critical thinking abilities. Below are some beneficial attempts and specific approaches to explore the cultivation of critical thinking in university English teaching.

3.1 Improve Digital Literacy and Build a Collaborative Model

First, in the face of the rapid advancement of AI technology, educators should have a clear understanding of their roles, gradually shifting from being mere knowledge transmitters to becoming guides for thinking and facilitators of skills. Teachers can participate in AI technology training programs to understand platform algorithms and technological innovations, quickly master AI intelligent teaching tools, enhance their digital literacy, and achieve a dynamic collaborative teaching model of 'AI + teacher'. Additionally, they should attend critical thinking training and workshops, integrate online and offline teaching resources, select teaching materials that focus on cultivating critical thinking, and encourage students to engage in deep thinking and objective evaluation.

Furthermore, teachers should guide students to optimize the use of AI tools, treating them as learning companions rather than substitutes for their own thinking. They should encourage students to step out of their 'information cocoons' and transform their 'answer banks' into their own 'toolboxes'. Additionally, teachers should guide students to utilize AI adaptive learning platforms to understand their learning progress and mastery, achieving precise positioning and recognition of their language learning, thereby enhancing their language skills and proficiency. Teachers should also help students integrate 'AI technology + critical thinking', enabling them to identify logical flaws and cognitive biases, continuously breaking through their cognitive limitations, and fostering the healthy development of their thinking abilities. Teachers can further assist students by designing 'anti-laziness' tasks, introducing critical thinking tools, and strengthening the connection between language and thought, helping students transition from passive recipients to active thinkers, becoming 'AI-enhanced' learners.

3.2 Restructuring Teaching Content to Deepen Cultural Understanding

In the course research and teaching phase, teachers can foster interdisciplinary collaboration, encouraging English teachers to collaborate deeply with computer science, accounting and finance, or other humanities disciplines to create interdisciplinary courses that integrate professional knowledge and language skills. They can also introduce specialized courses on critical thinking to enhance students' critical thinking skills through interdisciplinary practice. In classroom teaching, teachers can employ project-based and inquiry-based learning methods, providing practical language learning cases and creating authentic language scenarios to help students apply critical thinking skills to solve real-world problems. Additionally, activities such as mind mapping and brainstorming can be organized to spark creative thinking among students, encouraging them to question boldly and innovate continuously. Teachers are encouraged to design teaching tasks at different levels, using AI tools for basic tasks like spelling checks, while requiring students to complete high-level tasks like writing independently, prohibiting the direct use of AI platforms to generate content. In homework assignments, the proportion of objective questions that can be answered directly by AI tools should be minimized, with more open-ended questions and projects designed to encourage students to think outside the box, using critical thinking tools like inductive reasoning to deepen their understanding and make rational decisions.

Moreover, language is not only a tool for communication but also an important cultural medium. It carries rich historical and cultural heritage, ways of thinking, and values. In English teaching, teachers should focus on introducing cultural background knowledge to help students gain a comprehensive and multi-faceted understanding of the cultural customs and lifestyles of English-speaking countries. Teachers can use AI tools to generate texts with various styles from English-speaking countries, which helps develop students 'skills in text interpretation and viewpoint analysis. Additionally, by organizing students to read

English literary works and engage in text analysis and evaluation activities, teachers can facilitate a deeper understanding and logical reasoning of texts, promoting students' metacognitive development and logical expression skills. Furthermore, teachers can create platforms and opportunities for students to participate in international exchange activities and academic discussions, allowing them to experience the English language and culture through cross-cultural interactions and form their own critical perspectives.

3.3 Exercise Critical Thinking and Optimize the Evaluation System

In the AI-assisted collaboration mode, students 'language accuracy and grammatical proficiency will significantly improve. However, it's important to note that language accuracy does not equate to the depth and breadth of thinking. Therefore, in college English courses, teachers should focus on developing critical thinking skills, reducing mechanical word and grammar instruction, and implementing student-centered inquiry-based teaching activities. Additionally, students should be encouraged to boldly question and engage in discussions, debates, case analyses, and role-playing to explore problems from multiple angles and facilitate the exchange of diverse viewpoints. More importantly, teachers should emphasize the cultivation of students' reflective learning, guiding them to reflect on and self-assess their thoughts. For instance, during English text reading, students should reflect on how they form their views and the main ideas behind problem-solving. Teachers should also set up diagnostic learning logs and process analysis activities to help students enhance their self-awareness and critical thinking skills.

Moreover, the current evaluation system in university English is predominantly exam-oriented, focusing on students 'mastery of theoretical knowledge while inadequately assessing their language application skills, practical abilities, and critical thinking. Teachers can design a more comprehensive process evaluation system by using diverse assessment tools, such as group presentations, reflective journals, and peer reviews, to evaluate students' ability to express opinions and collaborate. Additionally, teachers can use AI-assisted tools to track students 'thought processes and learning performance in real time, analyze learning behavior data, gain a clear understanding of students' learning performance, and provide personalized and precise feedback. Furthermore, natural language processing technology can be utilized to analyze students' writing and reading content, evaluating issues such as logical rigor and the sufficiency of evidence.

4. Conclusion

In the era of AI, the cultivation of critical thinking in college English education faces numerous challenges, with many students developing mental inertia and technological dependence. By enhancing the digital literacy of both teachers and students, implementing dynamic collaborative teaching through 'AI + teacher' models, redefining critical thinking content, deepening the understanding of language and culture, and optimizing the evaluation system, college English teaching can better foster a symbiotic relationship between AI and language learning. This approach aims to cultivate students' critical thinking and independent thinking skills, laying a solid foundation for their lifelong learning.

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