A Study on the Construction of a Personalized Teaching System for Ideological and Political Education in College English Curriculum Based on the Integration of Hainan Free Trade Port and AI Technologies

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Abstract: *The development of the Hainan Free Trade Port presents both new opportunities and challenges for integrating ideological and political education into the college English curriculum. This study focuses on the convergence of AI technology and the Hainan Free Trade Port initiative. It explores the use of intelligent algorithms to analyze students' language proficiency, cultural awareness, and value orientation, aiming to construct a personalized teaching framework that integrates "language skills, intercultural communication, and ideological-political awareness." Drawing on the research paradigm of integration between procuratorial organs and professional services in Hainan Province, the study proposes converting characteristic Free Trade Port cases into ideological-political teaching materials. By utilizing AI to enable dynamic adjustment of teaching pathways, the research seeks to enhance the effectiveness of ideological and political education within college English courses, with the ultimate goal of cultivating inter-disciplinary talents who possess both a global perspective and a deep sense of national commitment.*

Keywords: *Hainan Free Trade Port; AI technologies; ideological and political education in college English curriculum; personalized teaching system*

Introduction

As a new high ground for China's opening-up, the Hainan Free Trade Port holds a distinctive international positioning and strategic significance. Within the context of the Free Trade Port's development, the college English curriculum must not only enhance students' language skills but also place greater emphasis on cultivating their intercultural communication competence and ideological-political awareness, thereby aligning with the demands for internationally-oriented talent. The rapid advancement of AI technologies has introduced transformative changes to the field of education. By utilizing intelligent algorithms to analyze student learning data, it becomes possible to implement personalized instruction and improve teaching effectiveness. Consequently, constructing a personalized teaching system for ideological and political education in the college English curriculum, based on the integration of Hainan Free Trade Port development and AI technologies, holds significant practical importance.

1. Analysis of Background and Significance

1.1 The Internationalization Demands of Hinaan Free Trade Port Development

The development of the Hainan Free Trade Port aims to establish a new high ground for an open economy with international competitiveness, attracting a significant number of international enterprises and professionals. Within this context, the college English curriculum needs to cultivate talents who can adapt to an international working environment and possess intercultural communication competence. Students are required not only to master solid English language skills but also to acquire knowledge of international business practices and cultural differences. This enables them to articulate their viewpoints accurately in international exchanges and safeguard national interests.

1.2 Application Trends of AI Technologies in the Field of Education

The application of AI technologies in the field of education is becoming increasingly widespread, exemplified by intelligent tutoring systems and personalized learning platforms. By utilizing intelligent algorithms to analyze student learning data-such as learning progress, answer accuracy rates, and study duration-educators can gain insights into students' learning characteristics and needs. This enables the provision of personalized learning resources and tailored learning pathways for students. Furthermore, AI technologies can facilitate the intelligent management of the teaching process, thereby enhancing instructional efficiency.

1.3 The Importance of Ideological and Political Education in the College English Curriculum

Curriculum-based ideological and political education involves integrating ideological and political instruction into specialized course teaching, embodying an educational philosophy of holistic, process-oriented, and all-encompassing cultivation. Incorporating elements of ideological and political education into the college English curriculum serves to cultivate students' sense of national commitment, international perspective, and social responsibility. By guiding students to correctly understand international cultural differences and strengthening their cultural confidence, this approach enables students to establish a correct worldview, outlook on life, and values while learning the English language.

2. Review and Brief Analysis of Research Related to the Topic

2.1 Current Research Status of Ideological and Political Education in College English Curriculum

In recent years, research on ideological and political education within the college English curriculum has gradually increased. Scholars have primarily explored aspects such as the conceptual underpinnings of curriculum-based ideological and political education, implementation strategies, and evaluation systems. For instance, some studies indicate that ideological and political education in college English should organically integrate language instruction with ideological and political content. This can be achieved by identifying ideological and political elements within teaching materials and designing related teaching activities to accomplish the goals of such education. However, most current research remains at the theoretical level, lacking practical case studies and specific instructional frameworks.

2.2 A Review of Research on the Application of AI Technologies in English Language Teaching

Research on the application of AI technologies in English language teaching has also yielded certain achievements. For instance, intelligent speech recognition technology can be applied in English speaking instruction to provide real-time correction of students' pronunciation errors. Natural language processing technology can be utilized in English writing instruction to analyze students' grammatical mistakes and vocabulary usage. Furthermore, some studies have employed AI technologies to build personalized learning platforms, recommending suitable learning resources to students based on their learning data. However, the majority of these studies focus on the cultivation of language skills, with little attention paid to the development of ideological-political awareness.

2.3 A Review of Research on the Integration of Hainan Free Trade Port Development and Education

Research concerning the integration of Hainan Free Trade Port development and education remains relatively limited. Some studies primarily focus on the impact of the Free Trade Port initiative on vocational education, proposing strategies for cultivating skilled talents who can meet the demands of the Free Trade Port. However, systematic research on how to reform and innovate the college English curriculum by incorporating elements of Free Trade Port development has yet to be conducted.

3. Construction of a Personalized Teaching Framework Based on the Integration of Hainan Free Trade Port Development and AI Technologies

As a major national strategic deployment, the development of the Hainan Free Trade Port aims to establish a new high ground for an open economy with international competitiveness. In this process, a

multitude of international business activities and cultural exchanges continuously emerge, placing higher demands on the comprehensive quality of talents. As a crucial foundational course, College English must not only impart English language knowledge but also cultivate students' intercultural communication competence and ideological-political awareness. This dual focus is essential to meet the internationalization demands arising from the Hainan Free Trade Port development. Concurrently, the rapid advancement of AI technologies provides technical support for educational personalization. By utilizing intelligent algorithms to analyze student learning data, it becomes possible to implement tailored instruction, thereby enhancing both teaching efficiency and quality. Consequently, constructing a personalized teaching framework based on the integration of Hainan Free Trade Port development and AI technologies holds significant practical importance.

3.1 Setting the Trinity Teaching Objectives of "Language Skills-Intercultural Communication-Ideological-Political Awareness"

3.1.1 Language Skill Objectives

Within the internationalized environment of the Hainan Free Trade Port, English, as a global lingua franca, serves as a vital tool for international business and cultural exchanges. Consequently, language skill objectives form the foundational goals of the personalized teaching framework. Students need to proficiently master basic English skills in listening, speaking, reading, writing, and translation, equipping them with the ability to communicate effectively in diverse scenarios. Specifically, in listening, students should be able to comprehend English materials featuring various accents and speech rates, including dialogues from international business negotiations and cultural exchange activities. In speaking, they should be capable of expressing their viewpoints fluently and accurately, participating in international business discussions and cultural exchanges while employing appropriate pronunciation and intonation to enhance their expression. In reading, they should be able to quickly and accurately understand various English texts, such as international business contracts and cultural research reports, to extract key information. In writing, they should be able to produce standardized international business correspondence and summaries of cultural exchanges, using accurate language and clear logic. In translation, they should be capable of performing accurate bidirectional translation between Chinese and English, particularly for specialized terminology and expressions related to the fields of international business and culture.

3.1.2 Intercultural Communication Objectives

The Hainan Free Trade Port serves as a hub for multicultural convergence, where individuals from various countries and regions engage in business activities and cultural exchanges. Consequently, intercultural communication competence constitutes one of the essential abilities that students must acquire. The objectives for intercultural communication require students to understand the cultural differences among different nations and regions, encompassing aspects such as values, beliefs, customs, and etiquette. Through study, students should learn to respect diverse cultures and avoid misunderstandings and conflicts arising from cultural differences. In intercultural communication contexts, students must be able to articulate their viewpoints accurately, comprehend the intentions of others, and employ appropriate communication techniques to conduct effective exchanges.

3.1.3 Ideological-Political Awareness Objectives

In the development of the Hainan Free Trade Port, cultivating internationally-oriented talents who possess a sense of national commitment, a global perspective, and social responsibility is of paramount importance. The ideological-political awareness objectives aim to guide students in establishing a correct worldview, outlook on life, and set of values, thereby strengthening their cultural confidence. By integrating ideological-political elements into English language teaching, students gain an understanding of China's strategic position and significant role in the development of the Hainan Free Trade Port, which serves to inspire their patriotic fervor and sense of national commitment. Simultaneously, students are guided to pay attention to international situations and developmental trends, broadening their global perspective and fostering a global mindset. Throughout the teaching process, by introducing China's outstanding traditional culture and modern developmental achievements, students enhance their cultural confidence, enabling them to proudly present Chinese culture in international exchanges.

3.2 Transforming Characteristic Hainan Free Trade Port Cases into Ideological-Political Teaching Materials

3.2.1 Cross-Border Trade Dispute Mediation Cases

Cross-border trade activities are frequent within the Hainan Free Trade Port, and trade disputes occur from time to time. Introducing practical cases of cross-border trade dispute mediation into English language teaching holds significant educational value. Instructors can collect relevant case materials to guide students in analyzing the legal issues, cultural differences, and communication strategies present in the cases. For example, in a cross-border trade contract dispute case, differences may exist in the legal systems and contract terms of the countries involved, leading to disagreements between the parties during the interpretation and execution of the contract. Simultaneously, differing cultural backgrounds may result in variations in communication styles and expressive habits, potentially exacerbating the dispute.

By organizing activities such as student discussions and role-playing, students can assume the roles of the trading parties and a mediator, personally experiencing the dispute resolution process. During these discussions and role-playing exercises, students are required to apply their acquired English knowledge and intercultural communication skills to accurately express their viewpoints, understand the other party's position, and seek the optimal solution to the problem.

Through such activities, students can not only develop their intercultural communication competence and practical problem-solving abilities but also enhance their legal awareness and sense of social responsibility. This enables students to understand that in cross-border trade activities, it is essential to comply with laws and regulations, respect the cultural differences of various countries, and resolve disputes through reasonable communication and negotiation to uphold a fair and just trade order.

3.2.2 International Business Etiquette Cases

International business activities within the Hainan Free Trade Port are increasingly frequent, and good international business etiquette serves as a crucial guarantee for successfully conducting these activities. Instructors can collect etiquette cases from international business activities in the Hainan Free Trade Port, such as business banquets and meeting organization, to explain the norms and key points of international business etiquette to students. For example, in business dining, significant differences exist in dining habits and etiquette norms among different countries. Western countries emphasize personal dining space and independent eating, while Asian countries like China place greater importance on sharing food and interactive communication. In meeting organization, different countries also have varying requirements regarding agenda setting, speaking order, and time management.

Through case analysis and practical exercises, students gain an understanding of business etiquette differences across cultural contexts. Activities such as simulated business banquets and meetings can be organized, allowing students to apply their learned business etiquette knowledge in practice. This enhances their intercultural communication literacy and helps shape their professional image. Simultaneously, by introducing traditional Chinese business etiquette culture, students can strengthen their cultural confidence, enabling them to showcase the appeal of Chinese culture in international business settings.

3.3 Dynamic Adjustment of Teaching Pathways

3.3.1 Personalized Learning Resource Recommendations

Based on the analysis results from intelligent algorithms, recommending suitable learning resources for students constitutes a crucial component of achieving personalized instruction. For students with weaker language foundations, foundational learning resources are recommended, such as English textbooks, online courses, and instructional videos. These resources can start with basic knowledge areas like English phonetics, grammar, and vocabulary, helping students build a solid foundation. For instance, recommendations may include English textbooks suitable for beginners, which feature detailed grammar explanations and abundant practice exercises; online courses delivered by professional instructors for systematic learning, allowing students to study according to their own schedules and pace; and instructional videos that use vivid and engaging animations and examples to aid students' comprehension of English knowledge.

For students with stronger language proficiency, advanced learning resources are recommended, such as original English literary works and academic literature. These resources can broaden students' knowledge base and perspectives, enhancing their comprehensive application of English skills.

3.3.2 Adjustment of Teaching Strategies

Adjusting teaching strategies promptly based on students' learning progress and feedback is key to enhancing instructional effectiveness. If teachers find that students have not firmly grasped a particular knowledge point, they can increase relevant practice and explanations. For instance, regarding the challenging topic of the subjunctive mood in English grammar, if students exhibit a high error rate on tests, teachers can arrange a dedicated lesson for detailed explanation. Through abundant example sentences and exercises, this helps students understand and master the usage of the subjunctive mood.

Simultaneously, teachers can also employ methods such as group discussions and cooperative learning, allowing students to communicate and learn from each other to deepen their understanding of the knowledge points. If student participation in a particular teaching activity is low, teachers can modify the activity format or content to increase student interest. For example, when organizing English speaking practice activities, if teachers observe that students show little interest in traditional dialogue practice formats, they can adopt forms such as role-playing and scenario simulations. This creates more vivid and engaging teaching scenarios to stimulate students' interest and motivation for learning.

3.3.3 Adjustment of Teaching Pace

Flexibly adjusting the teaching pace according to students' learning capabilities and progress is a crucial guarantee for achieving personalized instruction. For students with a faster learning speed, teachers can appropriately accelerate the pace and provide more extended content. For example, after completing the teaching content specified by the textbook, teachers can introduce related knowledge of English cultural background and English literary works to students, thereby broadening their knowledge base and perspectives. Simultaneously, teachers can encourage students to participate in activities such as English competitions and academic research, fostering their innovative and practical abilities.

For students with a slower learning pace, teachers can decelerate the teaching progress and offer more guidance and support. For instance, teachers can develop specialized learning plans for these students, arranging additional study time and tutoring sessions to help them address knowledge gaps and improve their academic performance. Concurrently, teachers should pay attention to students' learning psychology and emotional changes, providing timely encouragement and support to enhance their confidence in learning.

4. Teaching Practice and Effectiveness Evaluation

4.1 Application in Teaching Practice

Amidst the ongoing pursuit of innovation and breakthroughs in higher education, and to thoroughly investigate the practical effectiveness of the personalized teaching system-based on the integration of Hainan Free Trade Port development and AI technologies-within the college English classroom, we conducted a rigorous and significant teaching practice study. Following careful consideration and selection, we meticulously chose two college English classes within the university that had comparable English proficiency levels and similar class sizes, designating them respectively as the experimental group and the control group.

The experimental group adopted the meticulously constructed, personalized teaching system that deeply integrates the distinctive features of the Hainan Free Trade Port with AI technologies. This system functions like an intelligent and attentive learning companion, fully leveraging the powerful analytical capabilities of AI to create a precise "profile" of each student's learning progress, ability level, and learning style. Based on this detailed data analysis, it tailors a unique learning pathway and content for each individual student.

The control group continued to employ traditional teaching methods, which were textbook-centered and followed a predetermined teaching syllabus and pace. In the classroom, the teacher primarily conducted one-way delivery of knowledge, while the students passively received it, resulting in a lack of personalized learning experiences.

In the process of teaching practice, we strictly adhered to the requirements of the teaching framework and meticulously organized each lesson. Every aspect was carefully planned, from engaging and interesting lesson introductions to clear and in-depth knowledge explanations, from lively and active classroom interactions to thoughtfully designed homework assignments. Simultaneously, we regularly collected feedback from students to understand their difficulties and needs during the learning process, in order to promptly adjust teaching strategies and ensure the smooth implementation of instructional activities.

4.2 Evaluation of Teaching Effectiveness

In terms of effectiveness evaluation, we adopted a multi-dimensional and comprehensive approach, striving to fully and objectively reflect the actual outcomes of the two teaching methods.

Language Skill Assessment: We meticulously designed tests for college English listening, speaking, reading, writing, and translation. These tests not only covered all aspects of the English language but were also closely integrated with practical application scenarios of the Hainan Free Trade Port, such as business negotiations and cultural exchanges. By comparing the test scores of the two groups, we found that the students in the experimental group achieved significantly higher results on the language skill assessments than those in the control group. This result clearly indicates that the personalized teaching system can effectively stimulate students' learning interest and potential, thereby enhancing their comprehensive language application ability.

Assessment of Intercultural Communication Competence: We employed a combination of questionnaire surveys and scenario-based simulation tests. The questionnaire surveys primarily aimed to understand students' level of cognition, respect, and adaptability towards different cultures, delving into their inner thoughts through a series of carefully designed questions. The scenario-based simulation tests established multiple intercultural communication scenarios, such as international business meetings and cross-cultural social events, where students engaged in role-playing. During the simulations, we observed students' communication skills and their ability to solve practical problems. The assessment revealed that students in the experimental group were able to respond more calmly and confidently to various issues encountered in cross-cultural communication. They demonstrated more proficient communication skills and a stronger capacity for solving practical problems, which fully illustrates the advantages of the personalized teaching system in cultivating students' intercultural communication competence.

Assessment of Ideological-Political Awareness: This evaluation was conducted by observing students' performance in classroom discussions, case analyses, and practical activities, as well as by analyzing their homework assignments and essays. In the classroom, we introduced ideological-political cases related to the development of the Hainan Free Trade Port to guide students in in-depth discussion and analysis. By observing students' comments and performance, we found that students in the experimental group demonstrated more prominent performance in aspects such as national commitment, global perspective, and social responsibility. They were able to recognize the significant importance of the Hainan Free Trade Port development from the strategic height of national development, and actively contemplate how to contribute their own efforts to the advancement of the Free Trade Port. This result proves that the integration of ideological-political elements into the curriculum can effectively cultivate students' ideological-political awareness, achieving an organic unity of knowledge impartation and value guidance.

5. Conclusion

This research has constructed a personalized teaching system for ideological and political education in the college English curriculum, based on the integration of Hainan Free Trade Port development and AI technologies. By utilizing intelligent algorithms to analyze student learning data and transforming characteristic Hainan Free Trade Port cases into ideological-political teaching materials, the system enables dynamic adjustment of teaching pathways. The results of the teaching practice indicate that this teaching system can effectively enhance students' language skills, intercultural communication competence, and ideological-political awareness, thereby offering valuable insights for the reform of ideological and political education within the college English curriculum.

While this study has yielded certain achievements, it also has some limitations. For example, the research sample was relatively small, involving students from only a few universities for the teaching

practice, which may impose certain constraints. Additionally, the application of AI technology in teaching requires further depth and optimization. Future research could expand the scope of the sample and strengthen cooperation and exchange with other universities. It could also delve deeper into the application of AI technology in English language teaching by developing more intelligent and efficient instructional tools and platforms, thereby continuously improving the personalized teaching system for ideological and political education in the college English curriculum.

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