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Digital Technology-Enabled Precision Implementation of Ideological and Political Education in College English

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Abstract

Against the backdrop of educational digitalization and high-quality development of curriculum ideological and political education in China, the integration of ideological and political elements into college English teaching still suffers from vague objectives, generalized content, extensive implementation, and simplistic evaluation. Digital technologies such as big data, artificial intelligence, and intelligent learning platforms provide a new path for the precise reform of curriculum ideology and politics. Based on the Production-Oriented Approach (POA), digital student profiling, precise learning analytics, and a multi-dimensional dynamic evaluation mechanism, this study constructs a systematic, closed-loop, and operable four-dimensional precision model for college English curriculum ideology and politics: precise goal orientation, precise content integration, precise teaching implementation, and precise effect evaluation. Taking 142 freshmen non-English majors at Zhejiang Yuexiu University as research participants and Practical Comprehensive English Course 1 as the core teaching material, this study adopts a mixed-methods design including questionnaire surveys, in-depth interviews, classroom observations, and two rounds of iterative action research. The empirical results demonstrate that digital technology can help teachers accurately grasp students' ideological dynamics, learning needs, and value orientations. The precision model significantly improves students' civic awareness, cultural confidence, sense of social responsibility, critical cross-cultural thinking, and learning engagement. It effectively promotes the deep integration of language teaching, cross-cultural communication, and value guidance, and enhances the pertinence, effectiveness, and appeal of ideological and political education in college English.

Keywords

Digital Technology; College English; Ideological and Political Education; Precision Model

1. Introduction

In the new era, China has elevated ideological and political education to a strategic level of talent cultivation. The report of the 20th National Congress of the Communist Party of China clearly proposes to "accelerate the digitalization of education" and promote the high-quality development of education through technological empowerment. Since the Ministry of Education put forward the concept of "precision ideological and political education" in 2019, universities have been exploring innovative paths to integrate information technology into ideological and political work, so as to turn the internet from the "biggest variable" into the "biggest increment" for educational development.

College English, as a compulsory public basic course with the largest coverage, longest duration, and widest audience in Chinese universities, bears an important mission of value guidance. It is not only a course for language knowledge and skills but also a key carrier for cultivating students' cultural confidence, national identity, global vision, and civic literacy. However, in actual teaching practice, the integration of ideological and political elements into college English is still restricted by multiple dilemmas.

First, ideological and political objectives are vague and generalized. Many teaching designs fail to connect ideological elements with students' physical and mental development characteristics, especially the civic awareness and identity confusion of freshmen, resulting in disconnection between education and reality.

Second, content integration is fragmented and rigid. Ideological and political elements are often mechanically embedded rather than organically integrated into texts, topics, and language tasks, which makes students feel indoctrinated and reduces their acceptance.

Third, teaching implementation is extensive and standardized. Most classrooms adopt a one-size-fits-all teaching mode, ignoring individual differences in learning foundation, interests, and ideological status. Personalized guidance and precise intervention are seriously insufficient.

Fourth, evaluation methods are simplistic and formalized. Evaluation mostly relies on final examinations, paying attention to knowledge mastery while ignoring the development of emotions, attitudes, values, and practical performance. It is difficult to reflect the real effect of ideological and political education.

The emergence and popularization of digital technologies provide a solid foundation for solving the above problems. Big data analysis can accurately portrait students; intelligent platforms can realize precise resource pushing and process tracking; online learning tools can break through the limitations of time and space and connect classroom teaching, extracurricular practice, and social scenarios. Therefore, taking digital technology as the support and civic awareness as the core theme, this study carries out research on the precision model of ideological and political education in college English, which has important theoretical value and practical significance for promoting the high-quality development of curriculum ideology and

politics.

2. Literature Review

2.1. Research on Precision Ideological and Political Education in Universities

Since the concept of "precision ideological and political education" was put forward, domestic scholars have carried out extensive discussions on its connotation, path, dilemma, and model. Pang(2020) believes that precision ideological and political education has three core characteristics: pertinence, dominance, and integration. It emphasizes precise problem analysis, precise resource supply, and precise education implementation. Zhou(2024) points out that under the background of big data, college ideological and political education still faces cognitive dilemmas, data information dilemmas, and technical application dilemmas. Huang Sheng and Wang(2024) propose that the deep integration of digital technology and ideological and political education can be realized through precise goal positioning, precise learning situation analysis, precise resource pushing, and precise teaching intervention.

With the help of student portrait technology, Wang&Li(2024) explore the realization path of precise ideological and political education for college students. Su(2024) constructs a "trinity" precision education model to promote the "all-round education" mechanism. Ma Cong and Liu(2024) propose a "four-in-one" collaborative education model involving families, schools, society, and individuals. Yang(2024) analyzes the application of big data in precision ideological and political education and believes that digital technology can accurately grasp students' ideological dynamics and carry out personalized education.

In general, existing studies have laid a solid theoretical foundation for precision ideological and political education. However, most studies focus on the macro level and lack targeted research combined with specific disciplines, especially foreign language teaching.

2.2. Research on Ideological and Political Education in College English

In the field of college English curriculum ideology and politics, scholars have conducted rich discussions on connotation, path, model, and teacher construction. Wen(2021) clarifies the connotation and implementation framework of foreign language curriculum ideology and politics, emphasizing the organic unity of knowledge teaching and value guidance. Cui(2019) explores the construction of foreign language curriculum ideology and politics under the "big ideological and political" pattern.

In terms of teaching models, some scholars have constructed scaffolding models, multi-modal models, and task-based models. With the development of educational informatization, a small number of scholars have begun to pay attention to digital

empowerment. Liu(2023) explores the precise construction path of higher vocational English curriculum ideology and politics based on the 6S teaching concept. Yang(2024) constructs a precise teaching model of foreign language curriculum ideology and politics from four dimensions: diversified resources, precise objectives, visual model, and digital evaluation. Xie(2024) uses the 5A teaching strategy to promote the reform of teaching, learning, and evaluation modes.

However, there are still obvious deficiencies in the existing research. First, most studies stay at the theoretical level and lack empirical support and practical operability. Second, few studies take civic awareness as the core theme and carry out systematic precise design combined with specific textbooks. Third, the evaluation system is not perfect, and there is a lack of comprehensive, multi-dimensional, and precise evaluation mechanisms driven by digital technology. Therefore, this study takes these gaps as a breakthrough point to carry out systematic and in-depth research: lack of a systematic precision implementation model of college English curriculum ideology and politics under digital technology; lack of empirical research based on specific textbooks and actual teaching scenarios; lack of a multi-dimensional precision evaluation system integrating formative and summative evaluation; lack of targeted research on civic awareness cultivation for freshmen.

3. Construction of the Precision Model of Ideological and Political Education in College English Enabled by Digital Technology

3.1. Overall Model Design

This study constructs a four-dimensional integrated precision model: precise goal orientation; precise content integration; precise teaching implementation; precise effect evaluation.

The model takes digital technology as the support, civic awareness as the core, POA as the framework, and student development as the orientation, forming a closed-loop education system of "analysis-design-implementation-evaluation-optimization".

3.2. Precise Goal Orientation

Based on the training objectives of applied talents and the characteristics of freshmen, combined with civic awareness education, the precise ideological and political goals are constructed: cultivate civic identity and national identity; enhance moral literacy, responsibility awareness, and rule of law awareness; strengthen cultural confidence and cross-cultural critical thinking; establish correct values of patriotism, dedication, integrity, and friendliness; improve comprehensive literacy to adapt to future social and international communication.

3.3. Precise Content Integration

Taking Practical Comprehensive English Course 1 as the carrier, ideological and political elements are accurately integrated into each unit: Unit 1 Education: Patriotism, school pride, identity awareness; Unit 2 Friendship: Friendship, sincerity, kindness, digital literacy; Unit 3 Gifts: Gratitude, respect, interpersonal harmony; Unit 4 Movies: Critical thinking, cultural comparison; Unit 5 Our Earth: Ecological awareness, green development, global responsibility; Unit 6 Part-time Jobs: Dedication, integrity, labor spirit; Unit 7 Health: Life value, physical and mental health; Unit 8 Festivals: Cultural confidence, national identity, traditional culture. The integration follows three logics: textbook logic, language logic, and ideological and political logic, to realize organic integration rather than rigid embedding.

3.4. Precise Teaching Implementation

3.4.1. Three Classrooms Integration

Small Classroom in Life: Situational teaching based on current affairs news and life topics. Social Practice Classroom: Using red bases, museums, and community services to carry out immersive education. Digital Cloud Classroom: Establishing an online resource library, micro-lectures, and intelligent platforms to achieve all-round education.

3.4.2. Four-in-One CEEP Teaching Model

The CEEP model includes: Case: hot digital cases to guide thinking; exploration: Sino-foreign comparative exploration to enhance understanding; evaluation: multi-dimensional evaluation to promote development; practice: Social practice to realize internalization

3.4.3. Four-Stage Precise Teaching Based on POA

Pre-class: Precise Analysis and Guidance by adopting KWL charts, Questionnaire Star, and learning platforms to collect learning situations, push resources, and form problem chains.

In-class: Precise Explanation and Interaction by carrying out targeted teaching according to data analysis, focusing on key and difficult problems, and promoting ideological and political guidance through discussion and cooperation.

After-class: Precise Assignment and Feedback by designing personalized homework, using intelligent platforms to complete automatic correction and data analysis, and provide targeted guidance.

Extracurricular: Precise Practice and Internalization

Organize second classroom activities such as speech contests, micro-films, and volunteer services to promote the transformation of knowledge into values and behaviors.

3.5. Precise Evaluation System

A multi-dimensional, full-process precision evaluation system is constructed: diagnostic Evaluation: pre-test to understand the basis. Formative Evaluation (60%): Classroom performance, homework, discussion, platform learning records, group projects. Summative Evaluation (40%): Final examination, practical report, comprehensive quality performance.Evaluation methods include: student self-assessment, peer assessment, teacher assessment, and machine intelligent assessment

Digital portraits are established to track students' growth trajectory and achieve personalized evaluation feedback.

4. Empirical Research Design and Implementation

4.1. Participants

The study adopted a purposive sampling method and selected 142 freshmen non-English majors from Zhejiang Yuexiu University as formal research participants. All participants were enrolled in the Practical Comprehensive English Course 1 in the first semester of the 2024-2025 academic year and had similar English proficiency and learning backgrounds. According to the intact class grouping principle, participants were divided into two groups: 72 students in the experimental group, who received the digital-enabled precision ideological and political teaching model; and 70 students in the control group, who received the traditional college English teaching mode without systematic digital precision intervention. The gender ratio, college entrance English scores, and pre-test civic awareness scores of the two groups were tested for homogeneity, and no significant differences were found ($p > 0.05$), ensuring the reliability of the comparative experiment.

4.2. Research Instruments

To ensure the validity and reliability of empirical data, multiple standardized research tools and digital platforms were used in this study:

Civic Awareness Scale of five dimensions: civic identity, moral awareness, responsibility awareness, rule of law awareness, and public participation awareness. A 5-point Likert scoring method was adopted (1 = strongly disagree, 5 = strongly agree). The scale had good reliability in the pre-experiment: Cronbach's α = 0.872.

Cultural Confidence ScaleIt measures national cultural identity, cross-cultural critical thinking, and pride in Chinese culture. Cronbach's α = 0.856.

Learning Engagement ScaleIt includes behavioral engagement, cognitive engagement, and emotional engagement in English learning. Cronbach's α = 0.863.

Classroom Observation FormA structured form was designed to record teaching links, ideological and political integration, student participation, teacher-student interaction, and digital technology application.

Digital Teaching Platforms: WeLearn, Chaoxing Learning Platform, Questionnaire Star, and online teaching interaction tools were used to collect objective learning data such as login time, resource viewing, homework completion, discussion participation, and online test performance.

4.3. Data Collection Procedure

The whole empirical research lasted 16 consecutive teaching weeks, and data were collected in three standardized stages:

Pretest (Week 2)Basic information questionnaires, civic awareness scale, cultural confidence scale, and learning engagement scale were administered to clarify the initial level of students.

Mid-test (Week 9)Interim evaluation was conducted through platform data statistics, classroom observations, and student interviews to monitor the implementation effect and adjust teaching strategies in a timely manner.

Post-test (Week 16)All the above scales were distributed again, and in-depth interviews were conducted with teachers and students.A total of 142 questionnaires were distributed, and 140 valid questionnaires were recovered, with an effective recovery rate of 98.6%, which met the statistical requirements.

4.4. Data Analysis Methods

This study used a mixed-methods data analysis framework:

Quantitative dataSPSS 26.0 software was used for descriptive statistics, independent-samples t-test, paired-samples t-test, mean comparison, and standard deviation ($M \pm SD$) analysis to test the significance of differences between the experimental group and the control group.

Qualitative dataThematic analysis was used to code and categorize interview transcripts, classroom observation records, and reflective diaries, so as to supplement and explain the quantitative results from the perspectives of students' real experience and teachers' teaching feedback.

5. Results and Analysis

5.1. Pretest Comparison

Before the formal experiment, an independent-sample t-test was conducted on the pre-test scores of civic awareness, cultural confidence, learning engagement, and English basic scores between the experimental group and the control group.The results showed that there were no statistically significant differences in all dimensions ($p > 0.05$).It indicated that the two groups were at a similar level in terms of ideological awareness, learning motivation, and English foundation, and the baseline was balanced, which laid a reliable foundation for subsequent comparative experiments.

5.2. Post-test Comparison Between Experimental Group and Control

Group

5.2.1. Civic Awareness

After the 16-week teaching experiment, the civic awareness score of the experimental group was M = 4.32, SD = 0.41, while that of the control group was M=3.57, SD=0.53.The independent-sample t-test result was t=7.82, p<0.001, showing an extremely significant difference.Specifically, the experimental group scored significantly higher in civic identity, moral awareness, social responsibility, and rule of law awareness. It showed that digital-enabled precise teaching could effectively enhance students' awareness of citizenship, identity, and social responsibility.

5.2.2. Cultural Confidence

The cultural confidence score of the experimental group was M=4.25, SD=0.46, and that of the control group was M=3.48, SD=0.55.The t-test result was t=7.35, p<0.001, indicating an extremely significant difference.Students in the experimental group had stronger recognition of Chinese culture, more rational cross-cultural critical thinking, and higher cultural self-confidence. It proved that precise integration of ideological and political elements could effectively enhance cultural identity.

5.2.3. Learning Engagement

The learning engagement score of the experimental group was M=4.18, SD=0.43, and that of the control group was M=3.39, SD=0.51.The t-test result was t=7.68, p<0.001, showing an extremely significant difference.The experimental group had higher classroom participation, more active online interaction, more positive homework completion, and stronger learning initiative. Digital precision teaching significantly stimulated students' internal motivation for English learning.

5.2.4. Classroom Performance and Practical Performance

Classroom observation and platform data showed that: the experimental group had higher attendance, more active interaction, and better homework quality. Students were more willing to participate in second-class activities such as English speeches, micro-films, and volunteer services. The depth of thinking in discussions and the quality of output tasks were significantly better than those of the control group.

5.3. Qualitative Results

Semi-structured interviews were conducted with 5 teachers and 15 student representatives. The qualitative results were highly consistent with the quantitative data:

80% of students believed that ideological and political elements were naturally integrated into English teaching without forced indoctrination.

86.7% of students reported that their sense of social responsibility, national identity, and cultural confidence had been significantly enhanced.

80% of teachers believed that the precision model was highly operable and practical, which helped reduce the pressure of ideological and political design and improve teaching efficiency.Students also reported that digital portraits, precise resource push, and personalized feedback made them feel cared for and improved their sense of acquisition.

5.4. Key Findings

Digital technology provides strong data support for precise goal setting, precise resource supply, precise teaching intervention, and precise effect evaluation.

The four-dimensional precision model significantly improves the effectiveness, pertinence, and appeal of ideological and political education in college English.

Civic awareness, cultural confidence, and learning engagement of the experimental group are significantly improved compared with the control group.

The model has good replicability and adaptability and is suitable for popularization in college English teaching.

6. Discussions

6.1. The Value of Digital Technology for Precision Ideological and Political Education

Digital technology serves as a core driving force to transform the implementation logic of ideological and political education in college English. It changes the traditional teaching mode that mainly relies on teachers' subjective experience and intuition, and promotes ideological and political education to shift from experience-oriented judgment to data-oriented precision governance. With the support of big data, artificial intelligence, and intelligent learning platforms, teachers can conduct full-cycle tracking and multi-dimensional analysis of students' learning behaviors, emotional tendencies, ideological dynamics, and value preferences. This enables the transformation from unified, one-size-fits-all supply to personalized, accurate, and dynamic service, which effectively solves the problems of vague goals, rigid content embedding, and mismatched supply and demand in traditional curriculum ideology and politics. In addition, digital tools such as student portraits, precise resource pushing, real-time interactive feedback, and process data monitoring enhance the sensitivity, timeliness, and penetration of ideological and political education. Digital technology expands the time and space of education, connects classroom teaching, extracurricular practice, and social scenarios, and makes value guidance more natural, vivid, and acceptable to students. Therefore, digital empowerment fundamentally improves the pertinence, effectiveness, and sustainability of ideological and political education in college English.

6.2. Advantages of the Precision Model

The four-dimensional precision model constructed in this study has obvious structural and practical advantages. First, it forms a closed-loop education system of "precise goal orientation-precise content integration-precise teaching implementation-precise effect evaluation", realizing whole-process, standardized, and traceable management of curriculum ideology and politics. Second, the model always adheres to the student‐centered concept, fully considers individual differences in learning foundation, interests, and ideological status, and provides differentiated teaching support and targeted intervention. Third, the model takes civic awareness as the core and the Production‐Oriented Approach (POA) as the framework, which effectively promotes the deep integration of language knowledge teaching, cross-cultural communication ability training, and value guidance. It avoids the problems of "two layers of skin" between language teaching and ideological elements, and enhances the cohesion and guidance of curriculum ideology and politics. Fourth, the model introduces multi-dimensional evaluation including diagnostic evaluation, formative evaluation, and summative evaluation, which makes the evaluation of ideological and political effects more comprehensive, objective, and operational. In general, the precision model improves the systematization and scientificity of college English curriculum ideology and politics, and enhances its actual education effect.

6.3. Practical Implications

The findings of this study have clear practical implications for college English teaching, teacher development, and school management. For college English teachers, they should take the initiative to adapt to the trend of educational digitalization, continuously improve digital literacy, data analysis ability, and precise teaching design ability, and learn to use digital platforms to identify students' needs, integrate ideological and political elements, and carry out personalized guidance. Teachers should also strengthen the consciousness of curriculum ideology and politics, and improve the ability to organically integrate value guidance into language teaching rather than rigid embedding. For colleges and universities, it is necessary to strengthen the construction and upgrading of digital teaching platforms, provide stable technical support and rich resource support for precision curriculum ideology and politics. Schools should promote the integration and sharing of curriculum resources, build a high-quality resource library of ideological and political elements, and carry out regular training and teaching research activities to help teachers master digital-enabled precise teaching methods. At the same time, schools should improve the teaching evaluation system, increase the weight of curriculum ideology and politics and precision teaching, and form a long-term mechanism to promote the high-quality development of college English curriculum ideology and politics.

6.4. Limitations and Future Research

This study also has certain limitations that need to be improved in future research. First, the research participants are only selected from one university, and the scope is relatively limited, which may affect the universality of the conclusions. Second, the research only takes Practical Comprehensive English Course 1 as the carrier, and does not involve other college English courses such as listening, speaking, reading, and writing, so the comprehensiveness is insufficient. Third, the research cycle is one semester, and the long-term impact of the precision model on students' values and behavioral habits has not been tracked. In future research, the scope can be expanded to multiple colleges and universities to include more types of courses and students of different grades. At the same time, a longer longitudinal tracking study can be carried out to further verify the stability and sustainability of the precision model. In addition, future research can explore the application of newer technologies such as artificial intelligence and virtual reality in curriculum ideology and politics, and continuously optimize the precision path and evaluation system of digital empowerment.

7. Conclusion

This study constructs a complete precision model of ideological and political education in college English enabled by digital technology, including precise goal orientation, precise content integration, precise teaching implementation, and precise effect evaluation. With civic awareness as the core and POA as the framework, the model realizes the organic integration of language teaching, cross-cultural communication, and value guidance.

Empirical results show that the model significantly improves students' civic awareness, cultural confidence, sense of responsibility, critical thinking, and learning engagement. It effectively solves the problems of vagueness, fragmentation, extensiveness, and simplification in traditional college English ideological and political education.

The research results provide a replicable and promotable path for college English curriculum reform in the digital era, and contribute to the high-quality development of curriculum ideology and politics in Chinese universities.

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