

# Construction of the “Dual-track Parallel” Paradigm for Ideological and Political Education Content in English Courses of New Engineering Education

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## ABSTRACT

Against the backdrop of the new engineering education initiative and the curriculum-based ideological and political education reform, the construction of an ideological and political education system for English courses that meets the needs of cultivating engineering talents has become a crucial issue. This article analyzes the pain points in the ideological and political education of public English courses, such as a loose curriculum-based ideological and political education system, the absence of national conditions narrative, and a disconnection from training requirements. In response to these pain points, a "dual-track parallel" paradigm for ideological and political education content is constructed. One track centers around the narrative framework of "Governance of China", integrating contemporary national conditions content to enhance students' understanding of China's development and their ability to "tell China's stories well". The other track focuses on the narrative framework of scientific spirit. By combining the characteristics of engineering majors, scientific spirit is integrated into teaching to cultivate students' interdisciplinary capabilities. Practice has proven that this paradigm effectively overcomes the dilemmas of traditional curriculum-based ideological and political education, promotes the improvement of the effectiveness of ideological and political education in new engineering English courses, and provides strong support for cultivating compound talents with a sense of national responsibility and professional proficiency.

**Keywords:** “Dual-track Parallel” paradigm, New engineering education, Ideological and political education in English courses.

## 1. INTRODUCTION

Since February 2017, the Ministry of Education of the People's Republic of China has been actively advancing the construction of emerging engineering education, dedicating itself to exploring and establishing a Chinese model, thereby contributing to the development of a strong higher education nation. The field of higher education is currently undergoing a profound pedagogical reform. As a critical means to implement the "Four New" strategy (i.e., new engineering, new liberal arts, new agriculture, and new medicine), the development of English courses for emerging engineering education necessitates breaking down the disciplinary barriers of traditional public English teaching and constructing a language competency cultivation system tailored to the needs

of science and engineering students. As an integral component of English teaching in emerging engineering education, the challenge of how to effectively integrate ideological and political education to better align with the talent cultivation requirements of science and engineering disciplines has become a pivotal issue to be addressed in English pedagogy.

## 2. EMERGING ENGINEERING EDUCATION AND IDEOLOGICAL AND POLITICAL EDUCATION IN ENGLISH COURSES

Since the formal proposal of the concept of "emerging engineering education" in 2017, it has garnered increasing attention from scholars. This represents a reform direction rooted in the national

strategic development needs and the new requirements for fostering virtue through education in the new era. Academician Zhong Denghua (2017) defines the core of emerging engineering education as being guided by the principle of cultivating morality and fostering talents, adopting the philosophy of adapting to changes and shaping the future, and utilizing inheritance and innovation, interdisciplinary integration, coordination, and sharing as primary approaches to cultivate future-oriented, diversified, and innovative outstanding engineering talents. Academician Liu Jizhen (2019) and other scholars argue that the newness of emerging engineering education reflects new circumstances and demands, emphasizing new concepts and actions. This newness entails a comprehensive and profound transformation in concepts, characteristics, knowledge systems, models, and talent cultivation, distinct from the construction of traditional disciplines or majors (Lu Guodong, 2017). Evidently, emerging engineering education requires breaking down disciplinary barriers under the guidance of virtue cultivation to comprehensively implement reforms that align with national and societal needs. For language disciplines, constructing foreign language courses suitable for emerging engineering education should focus on enhancing students' comprehensive qualities such as interdisciplinary integration, innovative thinking, and social responsibility, promoting their personalized development, and strengthening their capabilities for professional communication and collaboration in cross-cultural contexts (Wang Zonghua & Xiao Fei, 2023).

Since its proposal, ideological and political education in courses has consistently attracted scholarly attention. Luo Liangong (2021) emphasizes that curriculum ideology and politics is not narrowly defined as political and ideological education but serves as a guarantee and support for the fundamental task of universities to educate and cultivate talents. Yang Jincai (2022) points out that the essence of ideological and political education in a course is not a separate course but a guidance and dissemination of ideas and values. This dissemination of ideas and values serves as a powerful means to cultivate socialist builders and reliable successors who are patriotic, and well-developed morally, intellectually, physically, aesthetically and labor-wise. Wen Qiufang (2021) notes that the function of ideological and political education in foreign language courses is to collaborate with other courses to help students establish correct outlooks on life, the world, and

values. Moreover, foreign language courses possess unique characteristics beyond the common ideological and political functions of other disciplines. For example, through curriculum learning, students can, by comparing cultures with other nations, strengthen their cultural confidence, deepen their understanding of civilizational exchanges, and the construction of a community with a shared future for mankind, and enhance their sense of social responsibility. By learning to express their own culture and national conditions in foreign languages, students can boost their confidence in international communication, and assume the responsibility of spreading China's voice effectively, and enhancing national soft power. Ideological and political education in college English courses holds special significance and should be given high priority (Wang Zhuo, 2021). Against the backdrop of emerging engineering education, college English courses need to implement comprehensive reforms in curriculum design, teaching models, methodologies, techniques, and evaluation systems. One of core aspects is the expansion of teaching content. Wen Qiufang (2021) emphasizes that the content chain serves as the starting point for foreign language teachers to implement ideology and politics education and the primary means to advance this work. Constructing teaching content effectively is of great significance for enhancing the effectiveness of ideological and political education in public English courses within the framework of emerging engineering education.

### **3. PAIN POINTS IN IDEOLOGICAL AND POLITICAL TEACHING OF PUBLIC ENGLISH COURSES**

Although the construction of ideological and political education in public English courses has been implemented for many years, the pain points and blockages therein have not been well resolved. It still faces realistic dilemmas in value guidance and deviations in the value coordinate system.

#### **3.1 *Realistic Dilemmas in Value Guidance: Loose Ideological and Political Curriculum System and Absence of National Conditions Narrative***

Although the ideological and political content in public English courses for college students has shown a trend of increasing richness in quantity, it generally remains fragmented due to the lack of

top-level system design. This fragmentation first manifests in the subjectivity of content selection mechanisms, where teachers primarily rely on the bias of personal knowledge reserves and the inertial thinking from long-term teaching experience to filter ideological and political elements, rather than conducting systematic planning based on curriculum education objectives. Constrained by individual cognitive differences, teachers diverge in their understanding of the core dimensions of ideological and political education, leading to a notably fragmented curriculum ideology and politics system.

In the education of ideals and beliefs, some teachers simplify it into slogan-style propaganda, lacking deep integration with linguistic knowledge. In the cultivation of cultural confidence, there is a superficial interpretation of traditional Chinese culture, ignoring methodological guidance on its modern transformation and international communication. In the dimension of national conditions education, due to individual teachers' cognitive limitations regarding contemporary Chinese development, there is often uneven coverage of core educational content. The fragmented content organization model fundamentally undermines the internal unity between language teaching and ideological and political education. As a carrier of thought, language acquisition should inherently form a symbiotic relationship with the construction of values. However, the current content selection based on individual experience makes ideological and political elements resemble "cultural patches" detached from the language knowledge system, difficult to integrate into the core links of language skill training.

This fragmentation directly results in the lack of a scientific logical framework for selecting ideological and political content in courses, failing to form a spiral-upward educational gradient and struggling to achieve organic integration with core language skills such as listening, speaking, reading, writing, and translation. When different teachers arbitrarily extract ideological and political fragments based on personal preferences, the overall educational objectives of the curriculum are diluted in the patchwork of fragmented content. The disjointed teaching practices not only prevent the formation of a synergistic educational force in curriculum ideology and politics but also cause cognitive confusion among students due to the diverse and disordered content input.

This fragmentation also manifests in the value orientation of content selection. The general educational background of foreign language teachers further exacerbates the structural imbalance in national conditions narration. As most foreign language teachers have long been deeply engaged in the field of language and literature, their knowledge structure includes a relatively systematic grasp of traditional Chinese culture, but lacks in-depth understanding of the development practices in contemporary Chinese politics, economy, science and technology, and other fields. This limitation of professional background causes teachers to prefer to avoid unfamiliar contemporary issues and rely on familiar traditional cultural materials when selecting ideological and political content for courses. This selection preference leads to repeated interpretations of content such as traditional festival culture occupying a large amount of teaching time in class, while core issues reflecting contemporary Chinese national conditions, such as Chinese-style modernization, scientific and technological innovation achievements, and China's solutions in global governance, are rarely addressed.

The absence of contemporary national conditions narration causes students' cognition of China to remain at the level of cultural symbols in the historical dimension, making it difficult to establish a systematic understanding of China's development achievements in the new era. And it is impossible to form a rational recognition of the Chinese path and system in cross-cultural contexts. This cognitive gap leads to the cultivation of patriotic feelings lacking a realistic foundation. Students can neither easily transform cultural pride into a sense of responsibility for national development nor effectively construct a three-dimensional image of contemporary China in international exchanges. Ultimately, it weakens the effectiveness of ideological and political education.

Facing this dilemma, strengthening the top-level design of the ideological and political curriculum system for public English courses has become a pressing priority. This system not only needs to break the content selection model dominated by individual experience and establish scientific screening criteria based on educational objectives but also focuses on filling the gap in contemporary national conditions narration. Through systematic content design, it should organically integrate language skill training with the cultivation of core socialist values with Chinese characteristics, enabling students to master foreign language

capabilities while forming a complete cognitive framework of China's development, in order to achieve the deep integration of "linguistic instrumentality" and "value guidance."

### ***3.2 Deviations in the Value Coordinate System: The Dilemma of Disconnection Between Curriculum Ideology and Cultivation Requirements***

In the current ideological and political education system for foreign language courses in colleges and universities, the deviation in disciplinary adaptability is evolving into a contradiction restricting the effectiveness of education. It shows the structural fragmentation between teaching content and the cultivation objectives of science and engineering talents. Essentially, this deviation represents a systematic mismatch between the supply and demand sides of education. When the ideological and political elements in foreign language courses still adhere to the narrative logic of the humanities and social sciences, the scientific thinking paradigms, research ethics systems, and innovative value orientations required by science and engineering students are implicitly excluded in teaching practices, creating a dilemma between knowledge imparting and value guidance.

In the ideological and political content selection mechanism of foreign language courses, the unbalanced tendency of "overemphasis on humanities and underemphasis on science" has formed path dependence. This imbalance first manifests as an unidirectional focus on humanities in content categories. However, for science and engineering students, this content structure has inherent defects. Existing ideological and political teaching materials not only lack connections with the underlying thinking of science and engineering disciplines such as mathematical logic, engineering ethics, and philosophy of science and technology, but also fail to establish effective links with scientific research practice scenarios. This content selection bias creates an internal conflict with the cognitive characteristics of science and engineering students. Science and engineering education takes empirical logic, model thinking, and critical verification as its core. Students have developed an expectation for the teaching model of "problem, explanation and application" in their professional studies. However, the current humanistic narrative paradigm of ideological and political education in foreign language courses is accustomed to

achieving educational goals through emotional resonance, value indoctrination, and cultural comparison. This teaching logic of "emphasis on perception over argumentation" and "emphasis on phenomena over mechanisms" conflicts with the thinking inertia of science and engineering students. When ideological and political education in courses continuously outputs humanistic cases detached from professional contexts, students find it difficult to establish cognitive connections between English language competence and scientific research innovation capabilities. This even leads students to form the stereotype that ideological and political education is an exclusive domain of humanities and social sciences, causing the value-guiding function of foreign language courses to be eroded by disciplinary barriers.

The direct consequence triggered by the disciplinary adaptability deviation is the functional fragmentation between value guidance and knowledge imparting. This cognitive gap leads to dual negative effects. On the one hand, students develop resistance to the content of ideology and politics, regarding it as an additional task to language learning rather than an organic component. On the other hand, foreign language courses miss the critical opportunity to shape scientific values within professional contexts. When language competence cultivation and scientific spirit shaping belong to separate discursive systems, this separation runs counter to the cultivation requirements of "composite talents" under the "New Engineering" construction initiative.

Essentially, the formation of this dilemma stems from the absence of interdisciplinary awareness at the curriculum design level. Many foreign language teachers construct ideological and political teaching content from the perspective of language education. They lack a deep understanding of the knowledge production laws and talent development logic in science and engineering disciplines, fail to fully consider the professional characteristics and growth needs of science and engineering students, and are unable to organically integrate "patriotic feelings, scientific spirit, and innovative consciousness" to build an education paradigm with the characteristics of science and engineering.

#### 4. CONSTRUCTION OF THE “DUAL-TRACK PARALLEL” PARADIGM FOR IDEOLOGICAL AND POLITICAL EDUCATION CONTENT

Wu (2023) points out that foreign language education should explore integration with professional education and student characteristics to construct a public foreign language teaching system oriented to different disciplines. Currently, in the ideological and political teaching of public English courses, there are dilemmas such as the looseness of the curriculum ideology and politics system, the absence of national conditions narration, and the disconnection between curriculum ideology and politics and cultivation requirements. To address this, guided by the national overall requirements for constructing foreign language courses under the "New Engineering" framework in science and engineering universities, and combined with the professional cultivation requirements of science and engineering students, the author's university has established a "Dual-track Parallel" ideological and political education content system. "Dual-track Parallel" refers to taking national conditions narration and scientific spirit as the main construction threads, while flexibly applying various digital intelligence platforms (such as knowledge graphs) and teaching methods in the teaching process to cultivate talents. The purpose of this system is to cultivate talents who not only understand contemporary China and possess the communication ability to "tell Chinese stories well" but also demonstrate scientific spirit compatible with the professional cultivation of science and engineering students. Practices have shown that this system can achieve the transformation of curriculum ideology and politics content from fragmented infiltration to systematic construction, helping improve the effectiveness of ideological and political education in English courses for science and engineering students.

##### 4.1 Construction of the Curriculum Ideological and Political Content System under the Narrative Framework of “Governance of China”: Innovative Teaching Paradigm Practice Based on Understanding Contemporary China

To address the issues of a loose ideological and political education system and the absence of

national conditions narration in English courses for science and engineering students, the university where the author belongs to has deeply aligned with the talent cultivation objectives for these students. One of the main threads adopted is the textbook series (*Understanding Contemporary China*) published by authoritative industry presses to construct an ideological and political education system for English courses. In conjunction with students' professional training, instructors have integrated content from these textbooks into the original curriculum to help students better understand contemporary national conditions and acquire the English proficiency to tell Chinese stories, particularly scientific and technological stories, effectively.

He Lianzhen (2022) argues that textbooks should emphasize value guidance in cultivating patriotism. As one of the primary carriers of the system, *Understanding Contemporary China* aims to organically integrate the study of Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era with English competence development. It guides students to systematically learn and deeply comprehend this thought, enabling them to observe and analyze China's development and achievements through Chinese theories, interpret the Chinese path and wisdom from a cross-cultural perspective, and enhance their critical thinking, cross-cultural competence, and international communication skills. Meanwhile, it fosters students' patriotism and global vision. The content design helps compensate for foreign language teachers' gaps in addressing topics such as Chinese-style modernization reflecting contemporary national conditions, achievements in scientific and technological innovation etc.. It enables students to move beyond cultural symbols in historical dimensions and establish a systematic understanding of China's development achievements in the new era, forming a rational recognition of the Chinese path and system in cross-cultural contexts, and strengthening the realistic foundation for cultivating patriotism. This process helps students transform cultural pride into a sense of responsibility for national development and apply the language knowledge related to contemporary national conditions acquired to tell Chinese stories effectively.

For example, in *Unit 1: Understanding Chinese Culture and Tradition* for first-year undergraduates, content from three textbooks in the *Understanding Contemporary China* series was integrated. These include discussions on the interpretation and

dissemination of Confucian thought, explanations of the role of civilizational exchanges and mutual learning, and translation-related debates on cultural confidence. From multiple content perspectives, they expand science and engineering students' knowledge accumulation and value recognition of China's national conditions, and enhance their ability to "tell Chinese stories well."

In the graduate students' "English A" course, when teaching the text *Three Challenges to Sustainability*, instructors integrated content from *Beautiful China* (a volume in the *Understanding Contemporary China* series). English teachers introduced students to both ancient Chinese wisdom on environmental issues and modern Chinese perspectives on environmental discourse. Meanwhile, students were asked to discuss how their respective disciplines could contribute to environmental protection and complete a team video project titled Telling China's Story to the World with the theme of environmental sustainability. The instructors would select and showcase outstanding videos to the class, not only aligning with the professional training objectives of students but also strengthening their competence in "telling Chinese stories well".

#### **4.2 Reconstruction of Curriculum Education Content System under the Narrative Framework of Scientific Spirit: Practices Adapted to the Disciplinary Characteristics of Talent Cultivation**

To address the long-standing structural bias of "overemphasis on humanities and underemphasis on science" in ideological and political education for foreign language courses, the university where the author works systematically identified integration points between scientific spirit and English curriculum content. By consciously introducing scientific spirit into curriculum ideology and politics teaching, the university aims to integrate foreign language curriculum with the professional training of science and engineering students, enabling English courses to provide value guidance on scientific spirit for these students.

Instructors systematically mapped the six core dimensions of scientific spirit: empirical spirit, rational thinking, skeptical criticism, innovative consciousness, collaborative spirit, and humanistic care. Relevant content was incorporated into the ideological and political teaching design of English

courses for science and engineering students to help them establish cognitive connections between English courses and scientific research innovation capabilities. The curriculum enhances "pursuit of empirical evidence" by introducing cases grounded in data and real-life experiences, aligning with the cognitive characteristics of science and engineering students to guide their understanding and recognition of scientific spirit. New digital intelligence formats such as AI tools and knowledge graphs are used to enrich teaching methods and expand content capacity, alongside diversified pedagogical approaches like case-based teaching, flipped classroom, and experiential teaching for ideological and political instruction. This integration of language competence cultivation and scientific spirit shaping aims to organically unite patriotic sentiment, scientific spirit, and innovative consciousness, helping students develop interdisciplinary capabilities.

To some extent, this reform has reversed the excessive "humanistic orientation" of English curriculum ideology and politics and its low adaptability to the professional training objectives of science and engineering students. It achieves integration between English teaching and science/engineering professional training, constructs an ideological and political education content paradigm for English courses that better aligns with the "New Engineering" initiative, and facilitates the cultivation of science and engineering talents.

For example, in the "English for Science and Technology" course for second-year undergraduates, instructors at the authors' university utilized global automotive sales data from 2020 to 2024. Students were guided to discuss, compare, and analyze data changes in China's automotive industry and their underlying causes in group work. Additionally, evaluations by American businessmen on Sino-U.S. automotive parts were presented to prompt students to reflect on the value and advantages of Chinese manufacturing. Meanwhile, in the knowledge graph of this course, instructors incorporated content related to China's high-speed rail to guide students in learning and understanding the craftsmanship spirit. This not only expanded students' knowledge base but also deepened their recognition of Chinese manufacturing and their identification with the craftsmanship spirit. Through this teaching design integrating professional cases, national conditions interpretation, and value-based critical thinking, theoretical explanations in textbooks were

transformed into operational teaching modules to cultivate students' rational thinking, critical spirit, and collaborative spirit.

In the graduate-level "English C" course focusing on academic paper writing, instructors guided students to analyze and discuss English academic texts, helping them understand the discursive meanings implicit in different English expressions. Students were enabled to appreciate the precision and rigorous logic embodied in academic paper language and recognize the importance of empirical spirit and rational thinking. Through lectures on the special notations regarding animal experiments and human trials in English academic texts, instructors also made students aware that scientific research requires humanistic care.

## 5. CONCLUSION

The paradigm of ideological and political education content in English courses achieves "two-dimensional coupling" by integrating narrative content with professional knowledge, and value guidance with competence cultivation. It fills the vacuum of national conditions narration through the content system of authoritative textbooks, incorporates national governance narratives into the English education system for new engineering disciplines, provides a realistic foundation for value guidance, helps science and engineering students better understand and recognize contemporary Chinese national conditions and national governance narratives, enhances their ability to "tell Chinese stories well," and constructs a discourse competence cultivation model with Chinese characteristics for science and engineering talents. Meanwhile, through real-world professional cases, it achieves organic integration of ideological and political elements with scientific spirit and disciplinary knowledge, transforming abstract theoretical preaching into perceivable learning experiences to help students deeply understand and identify with the scientific spirit. This effectively addresses the shortcomings of traditional curriculum ideology and politics in value guidance and value coordinate systems.

By establishing a "dual-track parallel" paradigm for ideological and political education content in English courses for new engineering disciplines, which promotes parallel development of the policy discourse system of "China's governance" and the professional discourse system of "scientific spirit," organic linkage and synergistic enhancement are

formed among different systemic elements. This paradigm adapts to the cognitive characteristics of science and engineering students, realizes systematic embedding of ideological and political elements, and achieves a systematic transformation from knowledge imparting to value internalization.

## ACKNOWLEDGMENTS

The essay is an achievement of the project "Digital Curriculum Construction of the Knowledge Graph for "English for Science and Technology" in College English Courses" by Chengdu University of Information Technology(JYJG2024034) and the project "Exploration of AI+-Based Teaching in English for Science and Technology Courses Driven by DeepSeek" by Chengdu University of Information Technology(JYJG2025089).

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