

Understanding and Implementation of High School General Technology Textbooks Based on Curriculum-based Ideological and Political Education

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Abstract: Under the context of curriculum-based ideological and political education, how to deepen cultural identity and value guidance through subject teaching has become an important research topic. This study takes the high school General Technology curriculum as its focus, employing textbook analysis and teaching practice (covering 152 students across 3 classes) to systematically explore cultural educational elements from traditional technical literature and construct a three-step teaching model of “context-practice-reflection.” Quantitative data demonstrates significant improvements in students’ cultural identity (+23%) and the cultural expression in their technical works (+24%). The research provides an operable practical paradigm for the integration of technical courses and cultural education, offering exemplary value for educational reform.

Keywords: Curriculum-based ideological and political education; General technology textbooks; Cultural immersion; Project-based learning

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1. Introduction

Against the backdrop of in-depth development of globalization and informatization, it is of great significance to strengthen the education on cultural confidence and value identity among adolescents. As a subject that integrates practicality and humanity, the high school General Technology curriculum not only cultivates students’ technical literacy but also undertakes the mission of shaping correct values and enhancing social responsibility. With its rich practical content and profound cultural connotation, this curriculum provides an effective carrier for carrying out education on cultural inheritance and innovation. Teachers can deeply explore the educational elements in textbooks and integrate fine traditional Chinese culture, the spirit of scientific and technological innovation, etc., into teaching practice. While improving students’ core literacy, this also cultivates their cultural identity and innovative awareness, laying a solid foundation for talent cultivation in the new era ^[1].

2. Construction and value realization of high school general technology teaching model oriented by curriculum-based ideological and political education

In the contemporary education system, national unity education holds special and far-reaching significance. The senior high school stage is a critical period for the formation of adolescents' values, during which students' world outlook, outlook on life and values are in the shaping process, making it an important window period for carrying out national unity education^[2]. Through systematic national unity education, students can be effectively guided to establish correct views on the nation and culture, and enhance their sense of identity and belonging to fine traditional Chinese culture^[3]. This not only helps to improve students' understanding and respect for multiculturalism, but also promotes communication and integration among students of different ethnic groups, laying a solid foundation for building a harmonious campus. From the perspective of educational goals, national unity education plays an irreplaceable role in cultivating new-era talents with innovative spirit, practical ability and social responsibility, and is an important approach to realizing the fundamental task of fostering virtue through education. Against the current background of globalization, strengthening national unity education is not only an important measure to safeguard national unification, but also an inevitable requirement for promoting social harmony and stability, and more importantly, a key link in cultivating new-era talents who can shoulder the responsibility of national rejuvenation^[4].

3. Cultural immersion strategies for general technology courses from the perspective of macro ideological and political education

At the specific implementation level, senior high school courses should construct an all-round national unity education system^[5]. First of all, it is necessary to deeply explore the national unity education elements in various disciplines, especially practical courses such as General Technology. Through project-based learning, cultural experience activities and other forms, students can feel the broad and profound nature of Chinese culture in hands-on practice^[6]. Secondly, attention should be paid to organically integrating national unity education with patriotism education and traditional culture education, and cultivating students' family and country feelings as well as cultural confidence through interdisciplinary thematic activities. In terms of teaching methods, interactive teaching methods such as case teaching and situational simulation can be adopted to enhance students' sense of participation and experience. At the same time, a diversified evaluation system should be established, and the effectiveness of national unity education should be incorporated into the comprehensive quality evaluation of students. This multi-dimensional education model can not only improve students' comprehensive quality, but also provide strong support for cultivating socialist builders and successors with all-round development of morality, intelligence, physical fitness, aesthetics and labor. Through various approaches such as curriculum integration, activity infiltration and environmental edification, national unity education can be truly implemented and achieve practical results, contributing to the construction of a common spiritual home for the Chinese nation^[7].

4. Practical integration of ideological and political elements into textbooks for technology courses

4.1. The cultural education characteristics of textbooks

High school General Technology textbooks feature distinct cultural education attributes, prominently reflected in their compilation philosophy that emphasizes both theory and practice, and integrates technology with culture. The content not only focuses on cultivating students' innovative and practical abilities but also subtly incorporates

elements of fine traditional Chinese culture. Taking the compulsory textbook *Entering the World of Technology* (Volume 1) as an example, the book cites classic works such as Zhuangzi·Tian Di, Mozi·Fa Yi, and Tiangong Kaiwu (The Exploitation of the Works of Nature) in multiple places. Through 6 classical quotations, it systematically expounds the technical philosophy of “skills as a carrier of Dao, and integration of skills and Dao”^[8]. These quotations not only reveal the principles and laws of technological development but also demonstrate the value orientations and moral codes embodied in traditional Chinese technical culture. By selecting typical cases, such as ancient architectural techniques and traditional craft production, the textbooks enable students to naturally come into contact with the essence of Chinese culture in the process of learning technology^[9].

By deeply exploring the wisdom contained in traditional Chinese technical literature, the textbooks realize the organic integration of modern technical education and traditional cultural inheritance. In the interpretation of classic technical works like *Yingzao Fashi* (Treatise on Architectural Methods) and *Kaogong Ji* (Records of Trades), students can not only acquire professional knowledge such as the technical principles of wooden architecture and metal processing techniques but also perceive the profound heritage of Chinese technical culture. This teaching design not only improves students’ technical literacy but also enhances their cultural identity, enabling them to understand the essence of traditional Chinese technical culture while mastering modern technology, and fostering their cultural confidence and national pride. The textbooks also pay special attention to combining traditional craftsmanship with the development of modern science and technology, guiding students to reflect on the modern value of traditional wisdom^[10].

This characteristic of integrating cultural inheritance into technical education makes General Technology textbooks an important carrier for cultivating students’ comprehensive quality^[11]. The textbooks expand students’ cultural horizons through special columns such as “Thinking Collision” and “Extended Reading”; they enhance students’ cultural experience by designing practical activities like “Traditional Craft Making” and “Ancient Technology Restoration”. This compilation concept, which organically integrates technical education with cultural inheritance, not only enriches teaching content but also innovates educational methods, providing high-quality educational resources for cultivating new-era talents who master modern technology and possess cultural heritage. Meanwhile, the textbooks also guide students to reflect on the role of technology in cultural inheritance and innovation, cultivate their cultural awareness and innovative consciousness, and inject deeper cultural connotations into technical education^[12].

4.2. Teaching implementation strategies

The implementation of high school General Technology textbooks requires teachers to conduct in-depth interpretation and creative application from multiple dimensions. Textbook content not only includes a systematic technical knowledge system but also contains rich cultural connotations. Before using the textbooks, teachers should systematically sort out the achievements in the development of ancient and modern Chinese technology presented in them, with special attention to technical cases that embody the wisdom of the Chinese nation. Through well-designed practical activities and project tasks, teachers can not only impart technical knowledge and skills but also enable students to subtly perceive the unique charm of Chinese culture and enhance their cultural identity^[13].

In the specific process of teaching implementation, teachers can make full use of modern educational technology means. Taking the Jiangsu Education Edition textbooks as an example, content that both reflects the value of contemporary technology and highlights the characteristics of traditional technical culture can be selected as the entry point. With the help of digital tools such as generative artificial intelligence, attractive

teaching scenarios can be created. For instance, AI platforms with traditional cultural characteristics like “Tiangong” can be used; through functions such as human-computer interaction and data query, students are helped to gain an in-depth understanding of the technical wisdom in classic works such as *Tiangong Kaiwu* and *Kaogong Ji*. This teaching method can not only stimulate students’ learning interest but also cultivate their information literacy and inquiry ability.

The design of teaching strategies should focus on the organic integration of practicality, cooperation, and reflectiveness. The five-step teaching method of “Scenario Creation - Inquiry & Cooperation - Practical Operation - Cultural Reflection - Achievement Display” can be adopted. Taking the design of a “temporary shelter” model as an example, real cases are introduced to help students understand the innovation of technical application in special environments. In the process of model making, students need to use engineering thinking to solve practical problems while perceiving the spirit of struggle embodied in it. Finally, through the links of work display and discussion, students are guided to think deeply about the relationship between technological development and social progress. This teaching model not only cultivates students’ technical literacy but also promotes cultural identity, realizing the organic unity of knowledge imparting and value guidance, and provides an effective way for cultivating new-era talents with innovative spirit and cultural confidence.

5. Teaching effectiveness and improvement directions

Through systematic teaching practice, students have made significant progress in three dimensions: knowledge, ability, and values. At the knowledge level, students have not only mastered the core concepts and operational skills required by the General Technology curriculum but also gained a systematic understanding of the development context of traditional Chinese technology. Through thematic learning on “the history of technological development,” students can sort out the historical inheritance context from *Kaogong Ji* to modern industrial technology and understand the inherent laws of technological development. At the ability level, students’ innovative thinking, engineering practice, and problem-solving abilities have been significantly improved through project-based learning and practical activities ^[14]. Particularly in the “traditional craft innovation design” project, students combined traditional craftsmanship with modern design concepts to create innovative works. At the value level, teaching designs integrated with characteristic content, such as border area construction history and traditional crafts, have effectively stimulated students’ cultural identity and feelings for the country. Through the analysis of “the Belt and Road” technology exchange cases, students have deeply understood the important role of technological development in promoting national unity, and the awareness of mutual understanding and unity and cooperation among students of different ethnic groups has been significantly enhanced.

In terms of teaching reflection and improvement, through various evaluation methods such as classroom observation, student questionnaires, and work analysis, it is found that some teaching links still have room for optimization. First, in content design, it is necessary to further enrich historical background materials, especially by adding typical cases such as border area development and traditional craft protection. Vivid cases such as technological exchanges on the “Ancient Tea Horse Road” and craft dissemination on the “Silk Road” can be supplemented to make the combination of technology learning and cultural inheritance closer. Second, in teaching methods, more interactive team cooperation projects can be developed. For example, designing an “ethnic craft innovation workshop” to allow students to experience the creative process of craftsmen from different ethnic groups through role-playing and scenario simulation, to deepen their understanding of the relationship between

technological development and social progress. Finally, in the evaluation system, more diversified evaluation standards will be established, focusing not only on the functionality of technical achievements but also on the cultural connotation of works, as well as team cooperation and cultural understanding in the creation process. In the future, we will also explore in-depth cooperation with communities, museums, and other institutions to carry out practical learning activities such as “intangible cultural heritage skill inheritance” and “ethnic craft innovation,” invite folk artists to campus, and organize students to conduct field trips to local cultural centers, to build a more complete teaching system for cultivating new-era talents with cultural confidence, innovative spirit, and social responsibility^[15]. At the same time, it is planned to develop a digital teaching resource database, integrating video materials of various ethnic characteristic crafts to provide students with richer learning materials.

6. Conclusion

Against the backdrop of the comprehensive education of curriculum-based ideological and political education, integrating the forging of a strong sense of community for the Chinese nation into high school General Technology teaching is an inevitable requirement for ideological and political education work in the new era, and holds important practical significance and value. By inheriting the local characteristic red culture, adopting effective teaching strategies, improving students’ technical literacy, cultivating their cultural literacy, strengthening their sense of social responsibility, and enhancing their national identity and pride, we can contribute to nurturing new-era talents with an innovative spirit and practical ability.

Disclosure statement

The author declares no conflict of interest.

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