

Reform and Innovation of Ideological and Political Teaching in the Course of Web Front-end Framework Technology

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Abstract: *This paper explores the paths for reform and innovation of ideological and political teaching in the course of “Web Front-end Framework Technology”. As a core course for computer-related majors, Web Front-end Framework Technology focuses on the mainstream front-end framework Vue.js in its teaching, covering topics such as component-based development, state management, and routing control, offering high comprehensiveness and strong practicality. However, in actual teaching, there are common problems such as emphasizing technical skills over humanities, rigid integration of ideological and political elements, and monotonous teaching models. This paper proposes to construct a three-dimensional integrated education system of “Engineering+Art+Ideology and Politics” in the Web Front-end Framework Technology course, deeply excavate ideological and political elements including cultural confidence, engineering ethics, craftsman spirit, and independent innovation, adopt an online-offline blended teaching model, introduce project-based learning, restructure the assessment and evaluation system, and integrate value shaping throughout the entire process of knowledge impartation and ability cultivation. Teaching practice shows that systematic integration of ideological and political elements into the Web front-end framework course can effectively stimulate students' learning interest, cultivate their sense of national belonging, professional ethics, and social responsibility, and provide a replicable reference for the ideological and political construction of other computer-related courses.*

Keywords: *Web Front-end Framework Technology; Ideological and Political Education; Blended Teaching; Cultural Confidence*

1. Introduction

The Guidelines for the Ideological and Political Construction of Courses in Higher Education Institutions (hereinafter referred to as the Guidelines), issued by the Ministry of Education, clearly state that comprehensively advancing the ideological and political construction of higher education courses is a strategic measure to fulfill the fundamental task of fostering virtue and cultivating talent^[1]. Among the “trinity” objectives of talent cultivation—value shaping, knowledge transmission, and ability development—value shaping takes precedence. The Guidelines call for systematic implementation of education on socialism with Chinese characteristics, the Chinese Dream, core socialist values, the rule of law, and China's fine traditional culture across all disciplines and institutions to enhance the effectiveness of moral education.

Web front-end framework technology is a core course for majors including Computer Science and Technology, Software Engineering, and Big Data Technology^[2]. With the rapid evolution of the Internet, websites and applications have grown increasingly complex and feature-rich, driving demand for professionals who possess both solid front-end skills and strong professional ethics. This course focuses primarily on the Vue.js framework, covering component-based development, data binding, routing, and state management. By integrating theory with practice, it plays a key role in developing students' engineering thinking and innovative abilities.

However, traditional instruction in this course tends to emphasize technical knowledge and operational skills while giving insufficient attention to students' value orientation. In line with the Guidelines, universities should integrate value shaping, knowledge transmission, and ability cultivation into a coherent whole, embedding value guidance throughout the process of technical skill development^[3]. Thus, promoting ideological and political education reform in this course—exploring its inherent ideological resources and naturally integrating elements such as cultural confidence, craftsmanship spirit,

and professional ethics—has become an urgent requirement for improving the quality of talent cultivation, ensuring that students acquire not only strong technical competencies but also correct values and a sense of social responsibility.

2. Problems in the Current Teaching of Web Front-end Framework Technology

As a comprehensive course oriented towards modern web application development, the Web Front-end Framework Technology course has a relatively new knowledge system, iterates rapidly, and its teaching resources and methods often lag behind the development of the industry. Analysis of the current teaching situation reveals the following main problems.

2.1. Emphasizing Technical Transmission while Neglecting Value Guidance

The Web Front-end Framework Technology course has long prioritized technical training over humanistic concerns. Instruction focuses mainly on framework syntax, component design, and routing configuration. As a result, while students acquire basic development skills, their work often lacks cultural depth and proper engineering ethics. They tend to care only whether the code runs and the interface responds, rarely reflecting on what social values technology should serve or what cultural messages their own projects convey. This reveals a gap between professional education and value guidance.

2.2. "Two Skins" Phenomenon between Ideological and Political Elements and Professional

In the current practice of curriculum ideology and politics, some teaching exhibits a rigid splicing of ideological and political elements with professional knowledge^[4]. Teachers often simply add moral lectures at the beginning or end of a class, lacking organic links between ideological and political content and the technical teaching of front-end frameworks. This label-attaching approach makes it difficult for students to truly identify with and internalize the content. Ideological and political education should be naturally integrated into professional teaching like salt dissolving in water, but in practice, the technical logic of front-end development and the value logic of ideological and political education have not yet been effectively integrated, resulting in unsatisfactory educational outcomes.

2.3. Inadequate Connection between Teaching Content and Industry Demands

The field of web front-end development evolves rapidly, with frequent updates of framework versions. Enterprises have high expectations for front-end developers not only in terms of technical capabilities but also in terms of professional qualities such as open collaboration, technical standardization awareness, and intellectual property protection. However, the design and supply of ideological and political elements in many courses currently do not fully reflect real industrial needs, and school-enterprise cooperation is not deep enough.

2.4. Single Teaching Method and Evaluation System

Currently, the Web Front-end Framework Technology course is mainly taught through classroom lectures supplemented by computer labs, still largely relying on indoctrination teaching methods, which are inadequate in stimulating students' internal motivation and creativity. In terms of assessment, a binary system of usual grades plus final exam grades remains common, with weak process assessment, making it difficult to comprehensively evaluate students' learning engagement, teamwork, innovative thinking, and ideological and political literacy. This single evaluation method can easily lead to "high scores but low ability", urgently calling for the establishment of more diversified assessment standards that comprehensively examine students' achievement of knowledge, ability, and quality.

3. Paths for Reform and Innovation of Ideological and Political Teaching in the Web Front-end Framework Course

The Web Front-end Framework course is a comprehensive subject involving both rigorous logic and user experience design, offering broad possibilities for integrating technical content with ideological and political elements. Through systematic design, exploring ideological and political resources in the course content, and using appropriate teaching methods and rich practical cases, students' learning interest and

intrinsic motivation can be fully stimulated, achieving the organic unity of knowledge impartation and value guidance.

3.1. Constructing a Three-Dimensional Integrated Education System of "Engineering+Art+Ideology and Politics"

The course team should set a goal of cultivating both technical competence and moral integrity, embedding value formation into the entire process of knowledge delivery and skill development. In the Web Front-end Framework course, ideological and political education should work in concert with professional training to create a shared educational impact. By identifying ideological and political elements within front-end development, a core value framework can be established as follows:

Cultural confidence: guide students to present China's fine traditional culture through front-end technologies.

Craftsman spirit: foster a mindset of continuous improvement via code optimization and user experience design.

Engineering ethics: incorporate topics such as copyright compliance and content security to strengthen students' legal awareness and professional ethics.

When explaining component design specifications and code reuse principles, instructors should help students understand that "standards drive efficiency" in team development, thereby cultivating rule-following and collaboration-oriented professionalism. Additionally, during instruction on front-end engineering construction, they should emphasize the craftsman spirit of pursuing excellence and ongoing refinement.

3.2. Deep Exploration of Ideological and Political Elements Contained in the Course

Taking Web Front-end Framework Technology as the central thread, this approach systematically identifies the ideological and political elements embedded in each teaching module and integrates professional knowledge with current political issues, humanities and history, moral cultivation, and related themes. The goal is to inspire students' sense of national responsibility and their commitment to serving the country through technological innovation. A distinct ideological and political theme is designed for each instructional unit, establishing an intrinsic connection between the teaching content and the corresponding ideological and political elements, which is subsequently implemented in teaching practice (as shown in Table 1). In this manner, students' learning interest is enhanced, their emotional engagement in the learning process is strengthened, and ideological and political themes are naturally embedded throughout all aspects of theoretical instruction.

Table 1: Correlation Table of Teaching Content and Ideological & Political Elements.

Unit Title	Teaching Content	Ideological & Political Case	Ideological & Political Elements
Vue.js Overview and Environment Setup	Development history, features, and advantages of Vue.js; environment configuration	Case 1: Vant — a mobile UI component library developed by a domestic team	Patriotic education, cultural confidence, technological self-reliance
Vue.js Basic Syntax and Data Binding	Vue instance, template syntax, data binding, MVVM pattern	Case 2: A case study on personal information protection	Awareness of the rule of law, social responsibility, rigor and standardization
Dynamic Control of CSS Styles	Box model, positioning, float, v-bind directive	Case 3: A case study on the individual and the collective	Collectivism, rule awareness, harmony and mutual benefit
Vue.js Event Handling	v-on directive, event flow, event handling, event modifiers	Case 4: A case study on form submission	Rule awareness, rigor and standardization, professional integrity
Component-Based Development	Component concept, component communication, design of reusable components	Case 5: An information display page for epidemic prevention and control	Technological self-reliance and self-strengthening, teamwork, craftsmanship spirit
Routing and State Management	Vue Router configuration, state management, page permission control	Case 6: Route guard — a virtual exhibition hall of revolutionary heritage sites	Patriotic education, cybersecurity awareness, rule awareness
Vue.js Engineering and Comprehensive Project Practice	Vue CLI scaffolding, project construction, team-based collaborative development	Case 7: An e-commerce platform for rural revitalization agricultural products	Serving national strategies, professional integrity, team spirit, craftsmanship spirit

3.3. Reform of Teaching Ideas and Methods

In view of the existing problems in the Web Frontend Framework course, teaching must undergo comprehensive and multi-level innovation. Based on systematic investigation of the engineering literacy needs of computer-related majors and the requirements of enterprise positions, the teaching system should be restructured and the whole-process education objectives refined:

Knowledge Objectives: Students should systematically understand the basic ideas and core concepts of modern mainstream front-end frameworks, master the basic syntax, component communication, lifecycle, routing management, and state management of Vue.js, and keep up with the development trends of cutting-edge technologies.

Ability Objectives: In addition to requiring students to write applications with reference to API documentation, focus on cultivating students' ability to independently analyze requirements and design reasonable component architectures; meanwhile, cultivate standardized coding habits, awareness of code reusability, and logical thinking and problem-solving skills for complex problems.

Quality Objectives: By integrating engineering ethics, Cybersecurity Law, and user privacy protection into the whole process of project development, guide students to adhere to professional ethics, enhance emotional identification, and realize that front-end technology is not only a bridge between vision and logic but also a key link connecting user experience, data security, and social responsibility.

The “post-course-competition-certificate” integration approach can be referenced, following the competency needs of front-end roles and integrating ideological and political elements like independent innovation, teamwork, and technical standards. The course should balance theory and practice: sufficient depth for complex logic and enough innovation to keep pace with technological change, thereby improving teaching quality and students' overall quality.

3.4. Enriching the "Ideological-Political & Technical" Integrated Case and Project Repository

Based on a review of the core knowledge points in this course, two comprehensive projects and a series of supporting sub-cases have been designed and developed, besides existing cases. The case repository includes examples such as Quickly Building a Harmonious Community Service Page Using the Element UI Component Library (embedding cultural confidence and a people-centered approach), and Managing Global User State with Vuex (reflecting rule awareness and a systemic perspective). Through the design and implementation of these comprehensive teaching projects and subcases, students not only gain a solid command of the core techniques of front-end frameworks by working on project driven tasks that carry real-world social significance, but also internalise ideological and political values—such as cultural confidence, systemic thinking, rule awareness, and social responsibility—into their professional character through repeated practice, like salt dissolving in water.

3.5. Adoption of Online-Offline Blended Teaching

Digital education technologies and a blended teaching model help integrate ideological and political elements into the entire teaching process—before, during, and after class. Before class, preview materials are uploaded to the Moso Cloud Class platform, with project backgrounds and key ideological points presented in advance through digital resources such as MOOCs and teaching videos. In offline sessions, the integration of professional knowledge and values is deepened by explaining difficult concepts, analyzing ideological and political cases, and facilitating group discussions. After class, extension materials encourage students to reflect on industry trends and social responsibility. Together, these steps form a closed-loop teaching system that combines online and offline, in-class and out-of-class learning.

Blended teaching extends the traditional classroom across time and space, turning passive learning into active engagement. In course design, ideological content should be woven in naturally—for instance, aligning the history of domestic framework development, technical ethics, and local cultural innovation with online tasks focused on front-end challenges, while offline sessions prioritize cross-group projects and presentations. Digital platforms enable frequent teacher-student interaction and allow the teaching team to monitor students' work attitudes and collaboration throughout the project.

3.6. Promotion of School-Enterprise Cooperation and Industry-Education Integration

The Web Front-end Framework course serves the industry's demand for versatile talents, so it is

necessary to promote the integration of classroom teaching with enterprise production practice. Following the approach of “job role analysis-typical task induction-learning field determination”, real projects are brought into the classroom, and enterprise engineers are invited to participate in team guidance. In training projects, learning fields are advanced step by step from single abilities to comprehensive qualities, from simple applications to complex engineering, so that ideological and political education aligns with career guidance. Also, vocational skills competition standards can be incorporated into the assessment plan, increasing the challenge of learning while strengthening students’ psychological resilience and the pragmatic spirit of continuous improvement.

3.7. Comprehensive Reform of the Course Assessment and Evaluation System

Establish an assessment system aligned with the ideological and political goals of the course, with greater emphasis on evaluating students’ moral character. The purpose of teaching should thus go beyond the transmission of professional knowledge and highlight the cultivation and development of students’ personal integrity. The evaluation framework can be divided into two parts: formative assessment and comprehensive quality assessment. Formative assessment mainly covers classroom performance, attendance, in-class assignments and quizzes, and lab reports. Comprehensive quality assessment focuses on whether students have developed correct values, a sound worldview, and a proper outlook on life while acquiring professional knowledge and technical skills.

4. Conclusions

Curriculum ideology and politics is an important strategic measure for colleges and universities to implement the fundamental task of establishing moral education and cultivating talents. As a core course in computer-related majors that combines engineering aesthetics and application value, the Web Front-end Framework Technology course serves as an ideal practical platform for promoting the deep integration of professional education and ideological and political education. This paper, based on the existing problems in current teaching such as emphasizing technology over humanities and lagging ideological integration, proposes a series of reform measures including constructing a “Engineering+ Art + Ideology and Politics” three-dimensional education system, deeply exploring ideological and political elements in each chapter, adopting online-offline blended teaching, and deepening school-enterprise collaborative innovation. By organically integrating value concepts such as cultural confidence, craftsman spirit, engineering ethics, independent innovation, and information security into the whole process of framework development and project practice, not only can students’ intrinsic interest in cutting-edge technologies and their motivation to study be greatly enhanced, but also their sense of mission to serve the national scientific and technological undertakings and their social responsibility can be effectively strengthened. This approach not only provides a scientific reference for upgrading the Web front-end course system but also opens up new ideas for the ideological and political construction of other technical courses in the broader computer discipline.

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