

Exploration of the Integration of Ideological and Political Elements in the Course of Railway Operating Rules and Safety at Higher Vocational Colleges

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Abstract

Railway transportation serves as a critical artery of the national economy, wherein operational safety and regulatory compliance exert direct impacts on public safety, property security, and social stability. As pivotal institutions for cultivating railway professionals, higher vocational colleges must integrate ideological and political education (IPE) into specialized instruction for the Railway Operating Rules and Safety course, thereby fostering high-caliber technical personnel with dual competence in moral integrity and technical proficiency. However, current deficiency in IPE within this course has resulted in inadequate professional ethics and ideological grounding among students. This study explores ideological and political elements-including patriotism, safety awareness, accountability, and craftsmanship spirit-embedded in the curriculum, and proposes effective integration pathways through diversified pedagogical approaches such as regulatory analysis, case-based teaching, and scenario simulations. Empirical findings demonstrate that integrating these elements effectively enhances students' patriotism, safety awareness, sense of responsibility, and craftsmanship spirit, achieving a synergy between knowledge transmission and value cultivation.

Keywords

Higher Vocational Colleges, Railway Operating Rules, Ideological and Political Education, Value Cultivation

1. Introduction

Railway transportation functions as a critical infrastructure pillar of the national

economy, wherein operational safety and regulatory compliance critically underpin the safeguarding of human lives, property security, and socio-economic advancement. As pivotal training bases for future railway professionals, higher vocational colleges carry the dual mandate of delivering specialized knowledge while cultivating professional ethics and ideological literacy. However, a persistent pedagogical imbalance exists in the current delivery of the Railway Operating Rules and Safety course: Attach importance to technology teaching and despise ideological and political education. This imbalance has resulted in deficiencies in students' ideological and political identification.

The new era of vocational education prioritizes *Lide Shuren* (fostering virtue through education), mandating synchronized advancement of specialized courses and IPE. Key policy instruments, including the National Vocational Education Reform Implementation Plan and the Notice on Implementing the Newly Revised Vocational Education Law, explicitly require cultivating high-caliber technical-skilled personnel with dual competencies in moral integrity and technical proficiency. As a national strategic industry, railway sector talent development must align with strategic imperatives, necessitating reinforced IPE centered on patriotism, craftsmanship ethos, safety accountability, and value internalization. Given that higher vocational students undergo critical value-formation stages, their professional identity cultivation and moral development directly determine career trajectories. Implementing IPE-integrated curricula enables students to: 1) establish a professional outlook; 2) strengthen the sense of railway belonging; 3) ignite enthusiasm for national railway advancement; 4) achieve person-society value harmonization.

Guided by the national policy orientation of “fostering virtue through education”, the safety-critical regulatory paradigm of railways, and students' developmental need for value formation, IPE integration into the Railway Operating Rules and Safety course requires centering on core elements: patriotism, safety awareness, and the craftsmanship spirit. This research aims to achieve an organic fusion of specialized knowledge transmission and value guidance. Therefore, based on the aforementioned perspectives, this paper endeavors to identify the ideological and political elements within the Railway Operating Rules and Safety course and explore effective pathways for integrating these elements into its curriculum content.

The remainder of the paper is organized as follows: Section 2 presents a literature review. Section 3 is the importance of integrating ideological and political elements into the “Railway Operating Rules and Safety” Course. Section 4 explores the ideological and political elements within the course. Section 5 is the exploration of integration pathways for ideological and political elements. Section 6 is the teaching effectiveness evaluation. Section 7 summarizes the conclusions.

2. Literature Review

The railway industry, constituting a fundamental component of national infra-

structure, plays a critical role in economic development and social stability. IPE, understood as the systematic cultivation of political awareness, ethical integrity, and social responsibility, is essential within this sector for fostering professionals equipped with both technical proficiency and a strong normative foundation. The origins of IPE within the railway sector emerged during the early 20th century, coinciding with the period of rapid national railway expansion. During this formative era, training initiatives prioritized the acquisition of essential technical skills, while the ideological and political dimensions received comparatively scant attention. However, as railways evolved into strategically vital assets for national logistics, industrial growth, and territorial integration, governments increasingly recognized the imperative to inculcate a robust sense of national identity, duty, and social responsibility among railway personnel. This shift aimed to ensure operational reliability, enhance public service commitment, and strengthen workforce cohesion. The latter half of the 20th century and beyond, characterized by sweeping economic reforms and accelerating globalization, precipitated profound transformations in the railway industry. Drivers included market liberalization, technological revolutions (e.g., high-speed rail, digitization), and heightened global competition. These shifts necessitated fundamental adaptations in the content, methodology, and focus of IPE. The introduction of advanced technologies and novel management paradigms, for instance, rendered an exclusive focus on technical skills inadequate, highlighting the need for IPE to address new ethical dilemmas, evolving safety cultures, workforce anxieties, and the balance between commercial pressures and public service mandates within a globalized context. This ongoing imperative underscores the dynamic nature of railway IPE, demanding its continuous alignment with the sector's evolving technological, economic, and socio-political landscape.

The research on IPE in railway industry mainly includes five aspects: the integration of IPE and professional courses, the innovation of teaching methods and means, faculty development, the construction of evaluation system, and international vision and comparison.

2.1. The Integration of IPE and Professional Courses

Research emphasizes the integration of IPE into railway-related professional courses, such as railway vehicle engineering and rail transit operation management (Ma, 2024). Educators extract inherent ideological-political elements—such as scientific rigor, patriotic values, and professional ethics—from technical curricula to achieve pedagogical integration of knowledge transmission and value cultivation. For instance, when teaching railway vehicle technologies, instructors may contextualize content within China's railway development milestones, highlighting indigenous technological advancements to foster patriotism through historical-technological narratives (Ma, 2024). Chinese universities and vocational colleges are actively exploring methods to integrate ideological and political elements into railway-related curricula. For instance, Sun & Pan (2024) proposed the “4S” instructional

model. By deeply embedding ideological and political elements centered on these four dimensions, they established a replicable, referential, and operational experiential model, effectively enhancing the relevance and effectiveness of IPE (Sun & Pan, 2024). Furthermore, Chen & Tang (2024), in the course Urban Rail Transit Operation Equipment, organically integrated ideological and political elements with professional knowledge through scenario-based teaching and blended online-of-line instructional models. This approach cultivated students' service awareness, responsibility consciousness, and safety mindset.

2.2. The Innovation of Teaching Methods and Means

The pedagogical approaches in railway IPE are continuously evolving alongside the rapid advancement of information technology. Modern technologies such as Virtual Reality (VR) and Augmented Reality (AR) are being integrated into the ideological and political classroom (Wang, 2025). By simulating railway operational scenarios, these technologies enable students to develop a profound understanding of safety protocols, professional ethics, and other ideological and political concepts through immersive experiences. Concurrently, the application of pedagogical models such as project-based learning and the flipped classroom has significantly enhanced student engagement and learning outcomes.

With the advancement of artificial intelligence (AI) technology, its application in IPE has gained traction. Based on data mining technology, Yin (2021) combines machine learning algorithms and dimensional analysis to study the ideological and political evaluation model of colleges and universities and builds an artificial intelligence teaching evaluation model based on actual needs. The results show that the performance of the model meets the expected goals and can be applied to practice.

Practical training constitutes an indispensable component of railway IPE. Through university-enterprise collaboration, internships, and practical training, students are able to experience the essence of railway culture within authentic work environments and comprehend the practical significance of ideological and political theories. For instance, Ma (2024) highlighted in his research that establishing off-campus internship bases through deep collaboration with railway enterprises enables students to deepen their understanding of professional ethics, safety regulations, and related ideological and political content during practical application.

2.3. Faculty Development

Research indicates that instructors of IPE must possess not only solid theoretical knowledge but also familiarity with the latest developments and technological advancements in the railway industry (Sun & Pan, 2024). Consequently, educators are required to continually update their knowledge structures and enhance their professional competence to evolve into "dual-qualified" teachers (possessing both academic expertise and industry proficiency). To advance the pedagogical capa-

bilities of IPE instructors, higher education institutions and vocational colleges have implemented comprehensive faculty training programs. These include organizing lectures and exchanges with industry experts to broaden educators' perspectives and pedagogical approaches. Simultaneously, teachers are encouraged to participate in enterprise practices, thereby strengthening the relevance and practicality of their instruction. Study on the Teaching Model of IPE for Railway.

2.4. The Construction of Evaluation System

Research advocates establishing a diversified assessment system for IPE (Rolina & Accou, 2018). This system should extend beyond evaluating students' knowledge acquisition to emphasize value formation, moral cultivation, and the development of social responsibility. By comprehensively utilizing multiple evaluation methods—including examinations, assignments, classroom participation, and social practice—the effectiveness of IPE can be holistically assessed.

An effective feedback mechanism should be implemented to promptly understand students' needs and perspectives regarding IPE, thereby informing instructional improvements. Concurrently, assessment outcomes should serve as a significant factor in faculty performance evaluations and professional promotion, incentivizing educators to actively engage in IPE initiatives (Rolina & Accou, 2018).

2.5. International Vision and Comparison

With the deepening of globalization, the internationalization level of the railway industry continues to rise. Research focus has shifted toward examining international experiences and practices in IPE within the global railway sector. Through comparative studies, China aims to draw on advanced international concepts and methodologies to enhance the quality and effectiveness of its domestic railway IPE.

Greater emphasis is placed on the significance of cross-cultural communication within IPE (Zhang, 2023). International cooperation and exchange programs are leveraged to deepen students' understanding and respect for diverse cultures and value systems. This approach cultivates railway professionals with global perspectives and intercultural communication competence, equipping them to navigate international contexts effectively.

2.6. Challenges in IPE Implementation

Notwithstanding documented advancements, significant challenges continue to impede the effective implementation of IPE within railway industry education. Three interconnected challenges are particularly salient:

- 1) Pedagogical Limitations: Heavy reliance on traditional lecture-based methods fails to foster the experiential engagement necessary for internalizing IPE concepts, necessitating more interactive, practice-oriented pedagogies.

2) Curricular Integration: Achieving organic synthesis of IPE elements within technical curricula remains problematic, as educators grapple with balancing disciplinary knowledge transmission with value cultivation without compromising either.

3) Assessment Deficiencies: Current evaluation mechanisms lack robust methodologies to objectively measure IPE's impact on students' ideological-political development, hindering evidence-based refinement of programs.

Within the Chinese context, IPE implementation is explicitly shaped by national policy directives, prioritizing the cultivation of railway professionals who demonstrate not only technical proficiency but also political alignment and a robust sense of social responsibility. Scholarly efforts, exemplified by research on constructing humanistic care content systems within IPE, focus on developing comprehensive frameworks designed to address students' holistic developmental needs (Zhang, 2023). This imperative is acutely evident in core courses like Railway Operation Regulations and Safety, where effective integration of IPE elements is essential for cultivating high-quality, ethically grounded technical talent—directly confronting the aforementioned challenge of curricular integration.

3. The Importance of Integrating Ideological and Political Elements into the “Railway Operating Rules and Safety” Course

Contemporary societal demand for highly skilled personnel has shifted from a singular focus on technical competence towards a requirement for comprehensive quality. As China's railway network continuously expands and high-speed rail technology matures, the industry now demands composite professionals characterized by excellent technical proficiency, strong sense of responsibility, and steadfast ideological commitment. Integrating ideological and political elements into the Railway Operating Rules and Safety course constitutes a crucial measure in fulfilling the fundamental mission of “fostering virtue through education” (Lide Shuren) within national vocational education. It also serves as a vital vehicle for shaping students' values. Through Curriculum-based Political Education, students can deepen their value cognition across dimensions such as professional responsibility, reverence for safety, and teamwork consciousness.

Firstly, the Railway Operating Rules and Safety course encompasses extensive knowledge concerning train operation rules, safety management, and emergency response procedures, all of which are directly linked to public safety and social stability. Integrating ideological and political elements enhances students' sense of responsibility and mission, enabling them to recognize the profound significance of their future work. This not only elevates their professional ethics but also motivates them to implement rules and regulations with greater rigor and conscientiousness in their future roles, thereby ensuring the safety and efficiency of railway transportation.

Secondly, incorporating ideological and political content such as patriotism,

education, and social responsibility into this course can ignite students' national pride and sense of national honor. The development trajectory of China's railway industry itself constitutes a grand historical narrative—from its arduous beginnings to achieving global leadership in high-speed rail technology. This series of accomplishments embodies the diligence and ingenuity of countless railway professionals. Familiarizing students with this historical context not only deepens their understanding of the industry but also inspires them to strive diligently towards the great rejuvenation of the Chinese nation.

Finally, cultivating a spirit of dedication and a service-oriented mindset forms an essential component of the course's ideological and political integration. The unique nature of railway work often demands a high degree of accountability and a spirit of selfless dedication from its personnel. By recounting the exemplary deeds of outstanding railway workers or organizing relevant practical activities, students can develop a positive professional attitude and learn how to better serve passengers and ensure safety.

4. Exploration of the Ideological and Political Elements within the “Railway Operating Rules and Safety” Course

Within the Railway Operating Rules and Safety course, the exploration of ideological and political elements constitutes the pivotal foundation for integrating IPE. This course encompasses not only specialized knowledge pertaining to railway operating regulations and safety operating procedures, but also harbors rich ideological and political elements, such as patriotism, safety awareness, sense of responsibility, and the craftsmanship spirit. Deeply exploring these ideological and political elements and organically articulating them with specialized knowledge serves as both a crucial breakthrough point for course teaching reform and the central pathway for achieving the synergistic educational outcomes of “knowledge transmission and value cultivation”.

Patriotism: A deep commitment to one's nation, manifested through cultural identity, civic engagement, and loyalty.

Safety Awareness: Proactive recognition of hazards and adherence to protocols to prevent harm.

Responsibility: Accountability for actions, duties, and societal roles.

Craftsmanship: Pursuit of excellence through meticulous skill, innovation, and dedication to quality.

4.1. Patriotism

Patriotism constitutes a core component of IPE. As the arterial network of the national economy, the development of railways is intrinsically linked to national prosperity. During instruction, teachers can cultivate students' patriotic fervor and enhance their sense of identity and belonging to the railway industry by presenting content such as the historical trajectory of China's railway development, its achievements, and the contributions of railway professionals to national con-

struction. The specific correspondence between patriotism and railway operating regulations is detailed in **Table 1**.

Table 1. Correspondence between patriotism and railway operating regulations.

Connotation of Patriotism	Regulatory Provisions of Railway Operating Regulations
Serving National Strategy	General Rules, First Paragraph, Regulations on Railway Technical Management: Railways constitute the arterial network of the national economy, vital national infrastructure, and a mass transit mode. They serve as the backbone of the comprehensive transportation system, a crucial public welfare project, and an energy-saving, environmentally friendly mode of transport, holding a position of paramount importance in China’s socio-economic development.
Safety, Excellence, Strengthening Railways to Empower the Nation	General Rules, Fifth Paragraph, Regulations on Railway Technical Management: Personnel of the National Railways must strictly comply with and implement the provisions of these Regulations. Within the scope of their respective duties, they shall ensure safety in production with an attitude of responsibility towards the nation and the people. Units shall commend or reward individuals with outstanding performance in complying with these Regulations in accordance with relevant provisions. Those who violate the Regulations shall be subject to education or disciplinary action based on the severity of the violation and the nature, circumstances, and consequences of any resulting incident.
Safeguarding Lives and Property	Article 279, Regulations on Railway Technical Management: Shunting operations at stations shall be conducted in accordance with the station’s technical operating procedures and shunting plans. Personnel involved in shunting operations are required to: <ol style="list-style-type: none"> 1) Assemble and disassemble trains promptly, ensuring departure according to the schedule stipulated in the train working diagram without delaying incoming trains; 2) Promptly deliver and collect rolling stock for passenger, freight, and maintenance activities; 3) Fully utilize shunting locomotives and all technical equipment, employing advanced working methods to accomplish shunting tasks within the minimum time; 4) Conscientiously implement operational standards to ensure the personal safety of personnel involved in shunting operations and the safety of train movements.

4.2. Safety Awareness

Safety awareness constitutes a core element within the Railway Operating Rules and Safety course. Railway operational safety is the paramount priority of railway work, and safeguarding it necessitates that all railway personnel possess a heightened sense of safety awareness. During instruction, teachers should guide students to profoundly recognize the critical importance of safety and instill the “Safety First” principle by explicating operating rules, analyzing accident cases, and related content. This approach aims to strengthen their safety consciousness. Within the Railway Operating Rules curriculum, the thematic areas concerning safety awareness primarily encompass the Safety First Principle, the Safety Responsibility System, Safety Training, and Safety Protection & Emergency Response. The correspondence between these themes and specific regulatory provisions is detailed in **Table 2**.

4.3. Sense of Responsibility and Accountability

Sense of Responsibility and Accountability constitutes an essential professional

Table 2. Correspondence between safety awareness and railway operating regulations.

Safety Awareness Theme	Regulatory Provisions of Railway Operating Regulations
Safety First Principle	General Rules, Third Paragraph, Regulations on Railway Technical Management: Railway technical management must adhere to the principle of “safety first, prevention as the main focus”, ensuring the safety of people’s lives and property, and the smooth flow of transport.
Safety Responsibility System	Article 223, Regulations on Railway Technical Management: The organization of railway operations must implement the principle of safety in production, adhering to the principles of high concentration and unified leadership. Departments such as transport, locomotive, rolling stock, track, signaling, power supply, information, and building maintenance should foster a spirit of collaboration, actively cooperate, maintain close contact, coordinate actions, organize balanced production, continuously improve efficiency, tap transport potential, and accomplish or overfulfill railway transport tasks.
Safety Training	Article 240, Regulations on Railway Technical Management: Before assuming, being promoted to, or changing posts, personnel involved in train operations must undergo qualification training for the intended position in accordance with the requirements of the Railway Vocational Skills Training Specifications. They may assume the post only after passing vocational skills appraisal, examinations, and assessments, and obtaining the corresponding vocational qualification certificate and post training qualification certificate. During their tenure, they must participate in regular post-adaptability training and professional examinations in accordance with the Railway Vocational Skills Training Specifications and other regulations. Those who fail the examinations shall not continue to perform their duties.
Safety Protection	Article 244, Regulations on Railway Technical Management: When performing their duties, personnel involved in train operations must remain at their posts, wear prescribed uniforms, and wear easily identifiable badges or carry corresponding credentials... This article stipulates the uniform requirements for personnel involved in train operations while performing their duties, which is both a requirement of the Labor Law and a professional necessity.” Article 54 of the Labor Law stipulates that employers must provide workers with necessary labor protection articles. Labor protection articles refer to personal protective equipment (PPE) worn or carried by individuals to avoid or mitigate injury from accidents and occupational hazards. They serve as a preventive auxiliary measure to protect workers’ safety and health, are essential for safe production and preventing occupational injuries, and play a vital role in reducing occupational hazards.
Emergency Response	Article 339, Regulations on Railway Technical Management: Emergency handling for train operation during flood season rainstorms... Article 370, Regulations on Railway Technical Management: Emergency handling for train fires and explosions... Article 371, Regulations on Railway Technical Management: Emergency handling for rolling stock failures en route (excluding EMU trains)...

quality for railway employees. In the railway operation process, every position and every operational link is critical, as any oversight may lead to accidents. Given this, educators should emphasize the importance of responsibility and accountability throughout the teaching process, instilling in students a correct professional outlook and sense of duty, thereby enabling them to fulfill duties diligently and demonstrate courage in taking responsibility. Education on responsibility and accountability should be integrated throughout every regulatory provision.

4.4. Craftsmanship Spirit

The Spirit of Craftsmanship constitutes an indispensable professional quality for railway employees. In the railway operation process, it is essential for personnel to embody the spirit of continuous refinement and the pursuit of excellence. During instruction, educators should elucidate the meticulous requirements within railway operating regulations and the rigor inherent in safety operating procedures, thereby guiding students to cultivate the spirit of craftsmanship and to achieve continuous refinement and the pursuit of excellence. Within the railway operating regulations curriculum, the core themes of the craftsmanship spirit primarily include continuous refinement, rigorous focus, professional dedication, heritage and innovation, and the pursuit of excellence. The correspondence between these themes and specific regulatory provisions is presented in **Table 3**.

Table 3. Correspondence between craftsmanship spirit themes and railway operating regulatory provisions.

Spirit of Craftsmanship Theme	Regulatory Provisions of Railway Operating Regulations
Continuous Refinement	Article 1-3, Regulations on Railway Technical Management: Emphasizes that railway infrastructure construction and product manufacturing must be “comprehensively integrated and ensure quality” requiring technological equipment to “continuously enhance transport capacity.
Rigorous Focus	Article 7, Regulations on Railway Technical Management: Railway transport enterprises and construction units shall strictly control the quality of products entering the railway system, establishing necessary product quality inspection and quality issue accountability systems. Products failing random quality inspections or those subject to access management but lacking the relevant certification shall not be used on the railway. Locomotives, rolling stock, and their critical components manufactured or overhauled must undergo supervision by an inspection agency designated by the China State Railway Group and may only be delivered for use after meeting requirements.
Professional Dedication	Article 240, Regulations on Railway Technical Management: detailed in Table 2 for Safety Training.
Heritage and Innovation	Article 63, Regulations on Railway Technical Management: The maintenance of railway signaling and communication equipment shall adhere to the principle of “prevention first”, balancing structural integrity with functional performance, promoting total quality management, continuously improving maintenance methods, disseminating advanced maintenance experience, conducting work scientifically and rationally, and enhancing the application quality of equipment and the level of maintenance management.

5. Exploration of Integration Pathways for Ideological and Political Elements

The integration of Ideological and Political (I&P) elements into the Railway Operating Rules and Safety course aims to transcend mere knowledge transmission and foster core socialist values among students, specifically safety awareness, sense of responsibility, patriotism, and craftsmanship spirit. The effectiveness of these strategies is grounded in the understanding that values are most effectively internalized not through passive reception, but through active engagement, experiential learning, critical reflection, and contextual understanding.

Experiential Learning and Emotional Engagement: Methods like case studies, scenario simulations, and role-playing immerse students in realistic situations. Experiencing operational pressures firsthand cultivates an intrinsic understanding of one's role and its impact (building responsibility).

Contextualization & Meaning Making: Techniques such as video-based instruction, historical narrative (China's railway development), and group discussion provide rich context. Understanding the historical struggle, current achievements, and societal significance of the railway industry connects personal effort to national progress, transforming abstract patriotism into concrete pride and commitment (patriotism & industry pride). Analyzing the rationale behind detailed rules reveals the necessity of precision, linking meticulousness to safety and quality (craftsmanship spirit).

Active Construction & Collaborative Inquiry: Project-Based Learning (PBL) places students at the center of knowledge construction. This process not only deepens technical understanding but also naturally reinforces responsibility (through task ownership), craftsmanship (through iterative refinement and attention to detail in projects), and teamwork as inherent components of problem-solving. Reflection phases within PBL and simulations are crucial for consolidating learning and linking actions to values.

This conceptual framework posits that the selected pedagogies (Section 5.2) are expected to influence the target values (Section 5.1) by creating environments conducive to experiential learning, contextual understanding, active participation, collaboration, and critical reflection—key mechanisms for effective value cultivation within professional education.

5.1. Integration of Course Content with Ideological and Political Elements

Within the Railway Operating Rules and Safety course, ideological and political elements must be seamlessly integrated with the course content to achieve the synergy of knowledge transmission and value cultivation. Specifically, this can be approached through the following methods:

When explicating railway operating rules, instructors should focus on cultivating students' safety awareness. This can be achieved by analyzing the context, purpose, and significance behind the formulation of regulations, guiding students to recognize their critical importance. Concurrently, by examining accident case studies, students can gain a profound understanding of the detrimental consequences of violating regulations, thereby solidifying the "Safety First" principle.

When explicating railway operating procedures, instructors should emphasize fostering students' sense of responsibility. Analyzing the various stages, requirements, and delineation of responsibilities within operational procedures can guide students towards establishing a correct professional outlook and sense of duty. Furthermore, through practical operational drills, students can personally experience the paramount importance of embracing responsibility.

When explicating the developmental trajectory of China's railways, instructors

should prioritize igniting students' patriotism. Presenting the journey of China's railways from inception and weakness to current strength, alongside the contributions of railway professionals to national construction, enables students to deeply appreciate the intrinsic link between the railway industry and national prosperity. Additionally, discussing the current achievements and future trajectory of China's railway development serves to stimulate patriotic fervor and industry pride.

When explicating detailed requirements within railway operating rules, instructors should concentrate on cultivating the craftsmanship spirit. Analyzing the meticulous stipulations within regulations and the inherent stringency of safety operating procedures guides students in developing the qualities of pursuing perfection and excellence. Complementing this with practical drills focusing on detail-handling techniques and methods allows students to tangibly experience the significance of the craftsmanship spirit.

5.2. Fusion of Teaching Methods with Ideological and Political Elements

Within the Railway Operating Rules and Safety course, diversified teaching methodologies, including case-based teaching, role-playing, scenario simulation, and project-based learning (PBL), should be employed to fuse ideological and political elements with pedagogical approaches, achieving the synergy of knowledge transmission and value cultivation.

Explicating Railway Operating Rules: Employ a combination of case-based teaching and scenario simulation. Introduce representative accident cases and simulate emergency situations to guide students in recognizing the critical importance of rules and the perils of non-compliance. Simultaneously, through reflection and summarization during simulation exercises, cultivate students' safety awareness and response capabilities.

Explicating Railway Operating Procedures: Utilize a blend of role-playing and PBL. Simulate various stages and scenarios within railway operations, allowing students to experience professional roles and duty requirements in a simulated environment. Concurrently, design specific project tasks and research topics enabling students to acquire specialized knowledge and skills related to operating procedures while completing tasks. Finally, foster accountability and teamwork through collaboration and problem-solving inherent in the PBL process.

Explicating China's Railway Development: Combine video-based instruction with group discussion. Screen documentaries chronicling China's railway development and present content on the contributions of railway professionals, deepening students' understanding of the railway sector's vital role in national prosperity. Facilitate group discussions and exchanges to stimulate patriotic enthusiasm and industry pride.

Explicating Detailed Requirements in Rules: Integrate scenario simulation with PBL. Simulate detail-handling techniques and methods in operational contexts, allowing students to experience the importance of the craftsmanship spirit firsthand. Design specific project tasks and research topics focused on mastering these tech-

niques. Conclude with reflection and summarization within the PBL framework to cultivate the craftsmanship spirit and the pursuit of excellence.

6. Teaching Effectiveness Evaluation

To assess the pedagogical effectiveness of the proposed integration pathways, this study employed questionnaires and interviews for evaluation. The questionnaire survey targets 56 people in railway operation class 23-3 and 47 people in railway operation class 24-3. Design questions related to ideological and political elements in railway operation regulations and safety exams. Through comparative analysis, the following conclusions can be drawn:

Significantly enhanced awareness of the critical importance of railway operational safety and a marked improvement in safety consciousness.

Clearer understanding of the responsibilities associated with their professional roles and a significantly heightened sense of responsibility.

Deeper comprehension of the historical development and achievements of China's railways, leading to notably stimulated patriotism. The majority of students demonstrated a profound recognition of the intrinsic link between the railway industry and national prosperity, expressing strong confidence in the sector's future prospects.

Heightened appreciation for the detailed requirements within railway operating rules and significant cultivation of the craftsmanship spirit. The majority of students exhibited the ability to strive for precision and excellence, continuously improving their professional skills and comprehensive qualities.

7. Conclusion

Integrating ideological and political elements into the Railway Operating Rules and Safety course constitutes not only an imperative of vocational education reform, but also a crucial initiative for cultivating high-caliber technical and skilled personnel. By infusing specialized curricula with ideological-political content such as patriotism, social responsibility, a spirit of dedication, and teamwork consciousness, this approach not only enhances students' professional ethics and social accountability, but also ignites their passion for both the nation and the industry, thereby laying a solid foundation for their future careers. Empirical evidence demonstrates that this integrated teaching model not only strengthens students' mastery of specialized knowledge, but also fosters their holistic development.

The effectiveness of integrating ideological and political elements requires long-term tracking. This study only conducted comparative tests on two cohorts of students. Therefore, the next step will establish long-term student tracking through my university's teaching reform project to study the effectiveness of integrating these elements.

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Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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