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Research on the Practical Path of Ideological and Political Education in Courses for Cultivating "Craftsman Spirit" in Vocational Undergraduate Education

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Abstract: In the context of the new era, integrating the "craftsman spirit" into vocational undergraduate education is not only an essential requirement for fulfilling the fundamental mission of fostering virtue through education and promoting students' holistic development, but also a crucial measure to enhance students' professional competitiveness and support the national strategy of building a manufacturing powerhouse. As the global industrial landscape rapidly evolves, the demand for highly skilled professionals who possess both technical expertise and strong ethical foundations has never been greater. Using curriculum-based ideological and political education as a primary vehicle, this paper conducts an in-depth analysis of the significant importance of cultivating the "craftsman spirit" in vocational undergraduate education. It systematically identifies current shortcomings in this regard, such as the superficial integration of moral education, outdated pedagogical frameworks, and a lack of synergy between theoretical instruction and practical application. To address these challenges, the study proposes a series of comprehensive practical approaches. These include refining the top-level design of educational programs, deeply leveraging ideological and political elements within core curricula, innovating practical teaching models through industry-academia collaboration, and fostering a vibrant campus culture that genuinely honors craftsmanship and dedication. Ultimately, this research aims to provide robust theoretical support and actionable practical guidance for nurturing outstanding, future-ready talents equipped with the "craftsman spirit" in vocational undergraduate education, thereby contributing to sustainable economic growth and industrial modernization.

Keywords: vocational education; craftsman spirit; ideological education; curriculum design; teaching models

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1. Introduction

Vocational undergraduate education plays a fundamental role within the higher education system, serving as a critical platform for cultivating high-level technical and skilled talents. This educational model emphasizes a balanced integration of theoretical knowledge and practical skills, aiming to develop applied professionals who possess both innovative thinking and practical competence to meet societal needs [1]. The concept of the "craftsman spirit," which embodies a professional ethos of unwavering dedication to excellence, is a driving force behind the advancement of China's manufacturing sector and the broader goals of industrial upgrading. By embedding the "craftsman spirit" into vocational undergraduate education, institutions can effectively enhance students' professional ethics and foster their capacity for innovation. This approach not only aligns with the demands of modern industry but also contributes to the holistic development of students. This paper explores the practical strategies for incorporating ideological and political education into vocational undergraduate curricula, with the goal of nurturing the "craftsman spirit" and equipping students with the skills and values necessary for their future professional endeavors.

2. The Significant Importance of Cultivating "craftsman Spirit" in Vocational Undergraduate Education

2.1. Implementing the Fundamental Task of Fostering Virtue and Nurturing Talent to Promote Students' All-Round Development

The core mission of vocational undergraduate education lies in "cultivating virtue and nurturing talent." The cultivation of "craftsman spirit" extends beyond the traditional focus on skill transmission by integrating the development of values, character, and comprehensive knowledge competencies. The essential qualities embodied in craftsman spirit—such as dedication to one's profession, the pursuit of excellence, focused commitment, and relentless striving—serve as tangible expressions of core values within the vocational education domain. By embedding craftsman spirit into professional education, students are guided to establish appropriate career perspectives, uphold professional ethics, and develop meaningful life philosophies [2]. This approach enables them to deeply appreciate the value of labor, the importance of creativity, and the responsibilities they bear in society. Such an educational framework not only equips students with the technical know-how to perform tasks but also inspires them to reflect on the deeper motivations behind their actions and the kind of individuals they aspire to become [3]. This effectively addresses the prevalent tendency to prioritize technical skills over moral and ethical cultivation in talent development. From the perspective of individual growth, exposure to craftsman spirit fosters a rigorous work ethic, intrinsic motivation for continuous innovation, and a heightened sense of social responsibility. This approach ensures the harmonious development of knowledge, skills, and personal qualities. Fundamentally, it integrates the instrumental and humanistic dimensions of vocational education, shaping individuals who possess both exceptional technical expertise and noble character. These individuals are not only capable of excelling in their professional roles but also embrace their broader responsibilities to society. This holistic approach to education ultimately fulfills the goal of cultivating well-rounded individuals who are prepared to contribute meaningfully to both their professions and the nation as a whole.

2.2. Enhancing Students' Professional Competitiveness to Achieve Long-Term Personal Development

In an era characterized by rapid advancements in knowledge and significant industrial transformations, the professional competitiveness of students is increasingly defined by their ability to adapt, engage in continuous learning, and strive for excellence [4, 5]. Static knowledge and isolated skills are no longer sufficient; instead, a holistic set of vocational competencies is essential. The ethos of craftsmanship, which emphasizes an unwavering commitment to quality and technical perfection, plays a pivotal role in shaping these competencies. By adopting this ethos, students can distinguish themselves in their careers, becoming not only skilled professionals but also trusted experts and benchmarks of quality within their organizations. The values of dedication, perseverance, and innovation inherent in craftsmanship enable students to resist superficial trends, focus deeply on specialized fields, and accumulate valuable practical experience. These qualities empower them to overcome challenges and progress from skilled workers to master craftsmen or even technical specialists. Individuals who embody the craftsmanship ethos often exhibit a stronger sense of professional identity, heightened responsibility, and adherence to ethical standards [6, 7]. These attributes enhance their ability to collaborate effectively in teams, build trust with clients, and achieve sustained career growth. Vocational undergraduate education that integrates the principles of craftsmanship equips students with both essential soft skills and core technical competencies, fostering their continuous self-improvement and supporting their sustainable development throughout their professional journeys.

2.3. Aligning with Industrial Development Needs and Serving the Strategy of Building a Manufacturing Powerhouse

Currently, China is undergoing a significant transition from being a manufacturing giant to becoming a manufacturing powerhouse. This transformation necessitates the optimization and upgrading of industrial structures, alongside a focus on high-quality development, which imposes new and stringent demands on the workforce. The industrial sector is in urgent need of a substantial number of highly skilled and technically proficient professionals who possess the ability to address complex process challenges, enhance product quality, and drive technological innovation. Vocational undergraduate education plays a pivotal role in cultivating the "craftsman spirit," which aligns seamlessly with these national strategic requirements. The principles of lean management and prioritizing quality, which are integral to the craftsman spirit, serve as the cultural bedrock for improving the overall quality of China's manufacturing sector and establishing a strong brand reputation. On the production front lines, technical talents imbued with this spirit are instrumental in ensuring meticulous precision in process parameters. Their expertise facilitates the continuous optimization of production workflows, leading to reduced losses, improved yield rates, and a direct contribution to the enhancement of economic competitiveness. In traditional manufacturing industries undergoing intelligent and digital transformations, as well as in strategic emerging sectors, overcoming critical process challenges and resolving technological bottlenecks require not only advanced knowledge but also profound practical experience. This includes repeated experimentation and an unwavering commitment to excellence, which are hallmarks of the craftsman spirit in modern society. By systematically fostering this spirit at the vocational undergraduate level, fresh talent can be directly injected into the industrial upgrading process, thereby supporting the nation's broader goals of economic and technological advancement.

3. Issues in the Cultivation of Craftsmanship Spirit in Vocational Undergraduate Education

3.1. Insufficient Integration of Educational Philosophies; Top-Level Design Requires Further Refinement

Although many institutions emphasize the importance of the "craftsman spirit" in their talent development initiatives or promote it as a guiding principle, their educational philosophies often fail to align with the practical needs of industries and enterprises. This misalignment leads to a disconnect between the training objectives of vocational undergraduate programs and the actual demands of the job market [8, 9]. For example, universities frequently focus on building comprehensive knowledge systems, while businesses prioritize qualities such as precision, practicality, dedication to excellence, and the ability to address complex engineering challenges. At the institutional level, the craftsman spirit has not been systematically incorporated into professional teaching standards, curriculum frameworks, or evaluation systems. Instead, its cultivation is often limited to sporadic integration within ideological and political courses, lacking a cohesive and coordinated mechanism that spans the entire educational process. This process should ideally include specialized disciplines, hands-on training, and the fostering of a campus culture that embodies these values. The absence of a well-defined strategic plan restricts the promotion of the craftsman spirit to a broad, conceptual level, without concrete implementation strategies or detailed roadmaps. As a result, educational practices lack the systematic coherence and continuity necessary to create a sustained and effective synergy. This deficiency hinders the ability of vocational undergraduate programs to instill the craftsman spirit in students, ultimately limiting their preparedness to meet the rigorous demands of modern industries and enterprises.

3.2. The Disconnect between Theoretical Courses and Practical Teaching, with Limited Integration Approaches

The cultivation of craftsmanship spirit is fundamentally rooted in the principle of "integrating knowledge with practice." However, vocational undergraduate education often reveals a significant gap between theoretical instruction and practical application,

with limited strategies for effective integration. In course delivery, the inclusion of craftsmanship principles frequently remains superficial, often limited to the addition of a few anecdotal examples or moral discussions within specialized courses [8, 10]. This approach fails to deeply explore the ideological dimensions inherent in professional knowledge and skill development, such as adherence to rigorous standards, fostering innovative thinking, and cultivating a strong sense of responsibility. Consequently, there is a clear disconnection between value-oriented guidance and specialized technical instruction. In terms of practical training, while students are provided with opportunities to engage in laboratory work or internships within enterprises, these activities predominantly emphasize skill replication and task completion. This focus often overlooks the deliberate development of advanced professional competencies, such as adherence to high work standards, heightened quality awareness, and the ability to optimize processes. Practical training environments frequently prioritize efficiency and immediate outcomes, neglecting the importance of instilling a commitment to precision and quality through a methodical and reflective approach. This lack of emphasis on iterative experimentation, critical reflection, and continuous refinement hinders students from effectively translating theoretical concepts of craftsmanship into tangible, real-world practices. As a result, the spirit of craftsmanship remains underdeveloped, failing to become an integral part of students' professional identities and long-term skillsets.

3.3. The Collaborative Educational Atmosphere Is Insufficient, and Concerted Efforts among All Parties Have Not Been Established.

Vocational undergraduate education currently faces significant challenges in fostering a collaborative atmosphere for talent cultivation, with various stakeholders operating independently rather than forming a unified effort. Internally, the lack of coordination among faculty members teaching specialized courses, ideological and political education instructors, and student affairs administrators hampers the effective integration of educational resources. This fragmented approach undermines the cultivation of the craftsman spirit, as there are no robust communication mechanisms to align their efforts. Additionally, university-industry partnerships often remain superficial, focusing primarily on student internships and job placements without deeper engagement from enterprises in the talent development process [11]. Enterprises rarely contribute their quality cultures, craftsmanship standards, or the expertise of master artisans to campus curricula, which limits the depth of vocational education. Furthermore, campus initiatives promoting the craftsman spirit often emphasize form over substance, failing to provide consistent platforms for students to actively experience and embody these values. This weakens the institutional culture of skill appreciation and respect for artisanship. Externally, the rapidly changing market conditions and the pursuit of short-term economic gains frequently conflict with the craftsman ethos, which emphasizes meticulous refinement and long-term dedication. This external environment does not offer sufficient positive reinforcement or support for cultivating the craftsman spirit within educational institutions. Addressing these issues requires a concerted effort to establish effective collaboration mechanisms, deepen university-industry partnerships, and create tangible opportunities for students to engage with the values of craftsmanship in meaningful ways.

4. Practical Approaches for Cultivating Craftsmanship Spirit in Ideological and Political Education Courses within Vocational Undergraduate Education

4.1. Deepen Top-Level Design and Integrate the Spirit of Craftsmanship into the Entire Talent Cultivation Process

Vocational undergraduate institutions must prioritize the cultivation of craftsmanship spirit as a fundamental educational goal, embedding it into their institutional frameworks and operational charters. This objective should guide all related educational strategies and initiatives. To achieve this, institutions need to systematically revise their talent development programs by translating the core principles of

craftsmanship spirit into specific, measurable graduation requirements. These requirements should then inform the design of curriculum systems and teaching methodologies. For example, in mechanical engineering programs, the principle of "meticulousness" can be operationalized through rigorous adherence to precision tolerance standards in component manufacturing. Similarly, in service-oriented disciplines, the principle of "pursuit of excellence" can be reflected in metrics such as customer satisfaction and problem-solving efficiency. To ensure cohesive implementation, cross-departmental collaboration mechanisms should be established. A "Craftsmanship Spirit Cultivation Steering Committee," led by university administrators and including representatives from academic affairs offices, student affairs departments, Marxist colleges, secondary colleges, and partner enterprises, can oversee strategic planning, resource allocation, and effectiveness evaluation. This committee would play a critical role in dismantling interdepartmental barriers and fostering a unified approach. Furthermore, institutional safeguards must be strengthened by integrating craftsmanship spirit cultivation outcomes into key evaluation systems. These systems could include departmental performance reviews, faculty promotion criteria, and comprehensive student assessments. By embedding these outcomes into institutional policies, vocational undergraduate institutions can create a robust framework of incentives and accountability, ensuring that all stakeholders are aligned with the overarching goal of fostering craftsmanship spirit throughout the educational process.

4.2. Incorporating Ideological and Political Elements into Curriculum to Achieve Synchronized Professional Education and Value Guidance

Professional courses serve as a vital platform for fostering the craftsmanship spirit, which is essential for both personal and professional development. Educators should undertake a comprehensive analysis of the scientific principles, professional ethics, and national commitment that are inherently embedded within the curriculum's knowledge points and skill sets. For example, engineering technology courses can highlight the importance of precision and dedication by using high-precision machining examples to illustrate the meticulous control of tolerances and the optimization of processes. Similarly, information technology courses can employ case studies focusing on best coding practices and system stability assurance to underscore the ethos of craftsmanship, emphasizing that "details determine success" and the importance of continuous iterative improvement. In service and management courses, professional values such as professionalism, meticulous attention to detail, and lean service can be explored through themes like humanistic care, customer experience, and process standardization. To enhance the effectiveness of teaching methodologies, case-based instruction should be widely adopted. This approach can incorporate authentic industry stories, narratives of technical breakthroughs, and reflections on quality incidents to stimulate student analysis and discussion. By doing so, learners not only acquire professional knowledge but also develop a profound understanding of the values underlying their disciplines. This method avoids the rigidity of traditional didactic teaching, enabling students to naturally internalize and appreciate the craftsmanship spirit. Through exploring the intrinsic logic and aesthetic appeal of professional expertise, students are encouraged to align their professional growth with a commitment to excellence and societal contribution.

4.3. Innovating Practical Teaching Models to Build an Educational Platform Integrating Philosophy and Skills

Practical teaching plays a crucial role in bridging the gap between understanding the "craftsman spirit" as a concept and applying it in real-world scenarios. To achieve this, it is imperative to innovate teaching methodologies and create educational platforms that seamlessly integrate theoretical knowledge with practical skills. The traditional approach of "simulated training" should evolve into a more dynamic model that incorporates "real projects, authentic environments, and genuine requirements." Schools can collaborate with enterprises to establish "teaching factories" or "enterprise studios," where actual production orders, research and development projects, and quality improvement

initiatives are brought into the academic setting. For example, a partnership with local auto parts manufacturers could involve a "defect-sharing agreement," where defective components with specific quality issues are delivered to classrooms on a weekly basis [12]. This allows students to engage directly with real-world economic challenges, performing tasks such as measurement, diagnosis, repair, and post-mortem analysis under realistic cost and time constraints. The teaching process should emulate corporate production rhythms and management workflows, employing a "project-driven, dual-mentor system" to guide students. Evaluations during these projects should extend beyond technical specifications of the final products to include assessments of work ethic, procedural rigor, quality awareness, and innovative thinking. Additionally, advanced information technologies like virtual simulation and digital twins can be utilized to create safe and cost-effective training environments for high-risk or high-cost operations. These technologies enable students to practice patience and precision through iterative trial-and-error processes, fostering the simultaneous development of technical expertise and professional values. By integrating these elements, practical teaching can effectively prepare students for the complexities of modern industry while instilling a strong sense of craftsmanship and responsibility.

4.4. Foster a Campus Culture That Reveres Craftsmanship and Establish a Collaborative Education Framework for Comprehensive Ideological and Political Development

Campus culture functions as an influential and silent textbook, shaping the values and behaviors of students. Establishing an immersive ecosystem that embodies craftsmanship culture is essential for transcending the traditional boundaries of classroom education and fostering collaborative educational initiatives. Schools should adopt a "three-dimensional integrated" cultural education strategy to achieve this goal. First, tangible cultural landscapes should be created across the campus. This can include the installation of sculptures, cultural corridors, and exhibition walls that highlight the achievements of distinguished alumni and craftsmen. Training facilities should prominently display industry standards and quality mottos, ensuring that the spirit of craftsmanship is consistently visible and perceptible throughout the campus environment. Second, behavioral cultural activities should be enriched by organizing flagship events such as the "Craftsmanship Culture Festival," "Face-to-Face with Skill Masters," and "Model Worker Lectures." These events can feature industry leaders, inheritors of intangible cultural heritage, and exceptional craftsmen who share their personal stories and experiences. Additionally, skill competitions, innovation workshops, and lean improvement projects should be regularly conducted to provide students with opportunities to actively participate and showcase their talents. Third, digital cultural platforms should be established through new media channels. Initiatives such as "Discovering Local Craftsmanship Stars" and "My Masterpiece of Craftsmanship" can be launched to highlight exemplary individuals among faculty and students, fostering a collaborative atmosphere that celebrates craftsmanship both online and offline. Furthermore, campus culture should serve as a bridge to connect with corporate and social resources. Schools can collaborate with industry associations and leading enterprises to establish "Practical Education Bases for the Craftsmanship Spirit" and create "Craftsmanship Funds" or host "Apprenticeship Ceremonies." These efforts bring societal reverence for craftsmanship into the campus environment. Strengthening the connection between schools and families is equally important. Platforms such as parent-teacher conferences and corporate open days can be utilized to showcase the achievements of vocational education and the growth trajectories of skilled craftsmen to parents and society [3]. This comprehensive approach aims to gradually eliminate societal biases and establish a collaborative education ecosystem. By integrating school-based education, fostering deep partnerships between schools and enterprises, and achieving broad societal recognition, a "grand ideological and political education" framework can be effectively realized.

5. Conclusion

Cultivating the "artisan spirit" in vocational undergraduate education represents a multifaceted and systematic initiative that demands synchronized efforts across various domains. These include strategic top-level design, the integration of ideological education within curricula, the adoption of innovative practical teaching methodologies, and the fostering of a campus culture that values craftsmanship and excellence. This endeavor is not merely a determinant of the quality of talent cultivation within vocational education but also serves as a cornerstone for advancing national industrial transformation and ensuring sustainable socio-economic progress. To achieve these objectives, it is essential to deepen the exploration of the fundamental principles and characteristics of the "artisan spirit," while simultaneously promoting its application through real-world practices. Furthermore, establishing a robust and comprehensive cultivation framework will be critical for equipping future professionals with exemplary technical expertise and unwavering professional ethics. Such efforts will contribute significantly to the development of a workforce capable of addressing complex challenges and driving innovation across diverse industries.

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