

Research on the Cultivation Path of Craftsmanship Spirit in Application-Oriented Undergraduate Universities Based on Industry-Education Integration

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Abstract: In the context of industry-education integration, the craftsmanship spirit has become a core element in talent cultivation at application-oriented undergraduate universities. Cultivating the craftsmanship spirit is pivotal for enhancing the quality of talent cultivation and driving industrial transformation and upgrading. This paper analyzes the intrinsic connection between industry-education integration and the cultivation of the craftsmanship spirit, explores the theoretical foundations and practical dilemmas faced by application-oriented undergraduate universities in fostering the craftsmanship spirit. It constructs a “Five-Dimensional Integrated” model for the cultivation path of the craftsmanship spirit: system construction, curriculum system, cultural infiltration, faculty development, and industry-education integration. Furthermore, it delves into innovative models for cultivating the craftsmanship spirit in application-oriented undergraduate universities in the new era.

Keywords: Industry-education integration; Application-oriented undergraduate universities; Craftsmanship spirit; Cultivation path

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1. Introduction

Under the strategic context of “Made in China 2025”, the craftsmanship spirit has emerged as a core driving force for high-quality development in the manufacturing industry. As key training bases for high-caliber technical and skilled talents, application-oriented undergraduate universities play a crucial role. Cultivating the craftsmanship spirit through industry-education integration can help drive China’s industrial transformation and upgrading, as well as sustain economic development. Against the backdrop of industry-education integration, how to integrate the craftsmanship spirit into the entire process of higher education in application-oriented

undergraduate universities has become an urgent issue to deal with.

2. Core connotation and contemporary value of the craftsmanship spirit

As a professional value system, the craftsmanship spirit encompasses rich layers of connotations. From a historical perspective, the ancient Chinese craftsmanship spirit was embodied in occupational ethics such as “striving for excellence, dedication to work, and respecting teachers and valuing education”^[1]. In the modern context, the craftsmanship spirit has been imbued with new connotations, evolving into occupational qualities characterized by “perseverance and focus, striving for perfection, meticulousness, and the pursuit of excellence.” Specifically, the craftsmanship spirit comprises four core elements: professional dedication is the foundation, manifesting as reverence and passion for one’s occupation; the spirit of excellence is the essence, reflected in the relentless pursuit of product quality; the spirit of concentration is the key, demonstrated by decades of unwavering commitment and investment; and the spirit of innovation represents the contemporary development of the craftsmanship spirit, evident in the continuous improvement of craftsmanship and technology^[2].

3. Research Status and challenges faced by application-oriented undergraduate universities in cultivating the craftsmanship spirit

3.1. Research Status

In recent years, with the increased emphasis on vocational education, the cultivation of the craftsmanship spirit has become a hot topic. Domestic scholars have predominantly explored the cultivation paths of the craftsmanship spirit from perspectives such as curriculum system reform, faculty development, and campus culture cultivation^[3]. However, systematic research on the practical implementation of cultivating the craftsmanship spirit among students in application-oriented undergraduate universities, integrated with the concept of “industry-education integration,” remains inadequate. In particular, research on how to infuse the craftsmanship spirit into ideological and political education courses, professional courses, and daily ideological and political education is relatively weak. The main existing problems are as follows.

3.1.1. Disconnection between theory and practice

The cultivation of the craftsmanship spirit often remains confined to theoretical dissemination, lacking deep integration with professional practice. Vocational institutions generally prioritize skill training, but the cultivation of the craftsmanship spirit tends to stay at the theoretical level. For instance, some universities incorporate the craftsmanship spirit into ideological and political courses but fail to establish a link with professional courses, making it difficult for students to turn the spiritual connotations into practical actions.

3.1.2. Insufficient depth of university-enterprise cooperation

Enterprises lack the motivation to participate deeply, making it challenging for students to experience the craftsmanship spirit in real production environments. Due to cost considerations, enterprises are often reluctant to provide long-term practical opportunities for students. For example, in a collaboration between an electronics enterprise and a vocational college, the enterprise only offered short-term visits rather than in-depth participation, preventing students from truly experiencing the craftsmanship spirit in real scenarios.

3.1.3. Lack of evaluation system

Existing evaluations predominantly focus on skill assessment, neglecting soft indicators such as occupational attitudes and innovative literacy. Current evaluations primarily emphasize skill assessment, overlooking spiritual qualities. This is manifested in the inadequacy and slow updating of evaluation content, as well as the lack of diversified evaluation subjects. Existing evaluations are predominantly university-centric, lacking the participation of enterprises, industries, and other diverse stakeholders, resulting in a lack of effective feedback and improvement mechanisms during the cultivation process.

3.2. Facing challenges in cultivating the craftsmanship spirit

3.2.1. Inadequate conceptual understanding

The craftsmanship spirit emphasizes the unity of “craft ethics, craftsmanship mindset, and craft techniques”, requiring the educational process to focus on the coordinated development of students’ professional ethics, innovative thinking, and technical skills ^[4]. Universities should prioritize the teaching and cultivation of application-oriented talents, integrating the craftsmanship spirit throughout the entire talent cultivation process.

3.2.2. Insufficient resource allocation

Some application-oriented undergraduate universities face issues of inadequate resource allocation in cultivating the craftsmanship spirit, such as lagging construction of training bases, weak faculty, and imperfect curriculum systems. These problems constrain the effective implementation of the craftsmanship spirit cultivation.

3.2.3. Low engagement of enterprises in talent cultivation

Although university-enterprise cooperation is a crucial form of industry-education integration, in practical operations, some collaborations remain superficial, lacking in-depth cooperation and substantive content. This makes it difficult to integrate the cultivation of the craftsmanship spirit into the entire process of school-enterprise cooperation, thereby affecting the cultivation outcomes.

3.2.4. Lack of “dual-qualified and dual-competent” faculty

The cultivation of the craftsmanship spirit requires “dual-qualified and dual-competent” teachers who possess both theoretical knowledge and practical skills ^[5]. However, currently, some application-oriented undergraduate universities face problems such as an irrational faculty structure and insufficient practical abilities among teachers, making it challenging to meet the demands of craftsmanship spirit cultivation.

4. Path Construction for cultivating the craftsmanship spirit in application-oriented undergraduate universities

Based on theoretical analysis and practical exploration, this study proposes a “Five-Dimensional Integrated” model for cultivating the craftsmanship spirit in application-oriented undergraduate universities. This model encompasses five dimensions: evaluation system, curriculum immersion, cultural nurturing, faculty development, and industry-education integration, forming a systematic and sustainable cultivation framework.

4.1. Construction of a diversified evaluation system

According to students’ actual circumstances, a multi-faceted and multi-dimensional evaluation system should

be established to assess students' moral qualities, professional skills, comprehensive literacy, and developmental outcomes. A multi-subject integrated evaluation system under the framework of industry-education integration should be constructed, involving both educational experts from universities and technical experts from enterprises. These stakeholders will jointly determine evaluation criteria and indicators. The evaluation standards should encompass both educational and teaching evaluation indicators. This ensures a comprehensive and multi-angled evaluation of collaborative education goals. By promptly identifying and addressing issues in the collaborative education process of industry-education integration, a stable collaborative relationship can be maintained, fostering a positive cycle of collaborative education.

4.2. Creating a curriculum ecosystem and fostering an integration of the craftsmanship spirit

Incorporate the cultivation of the craftsmanship spirit into talent cultivation plans, clearly defining requirements for cultivation goals, curriculum settings, and practical teaching ^[6]. Utilize campus websites, WeChat official accounts, short video platforms, etc., to open "Craftsmanship Spirit" columns, publishing content such as craftsman stories, skill demonstrations, and event reports. Organize online essay contests, photography competitions, live lectures, etc., with the theme of the "Craftsmanship Spirit" to enhance participation among teachers and students. For instance, invite master craftsmen to interact online with teachers and students through live platforms, answering career doubts and sharing growth experiences.

4.3. Strengthening faculty development and building a "craftsman-type" teaching team

In terms of faculty development, explore mechanisms for mutual employment of faculty between enterprises and institutions, promoting the establishment of positions such as "industry mentors" and "technology leaders" between universities and enterprises ^[7]. Jointly share and utilize industry-academia-research resources: Led by industrial demands, collaboratively formulate teaching goals, develop courses, refine teaching content, and ensure practical conditions through industry-education synergy to precisely meet the needs of enterprises and industries. Enterprises and universities should jointly establish laboratories and training bases, where enterprise production sites serve as practical teaching venues, production equipment as practical teaching tools, and enterprise work tasks as practical teaching assignments.

4.4. Deepening industry-education integration and innovating collaborative education models

Innovate talent cultivation models by constructing a "multi-party collaborative education" model that integrates the cultivation of the craftsmanship spirit into various stages of education and teaching, including curriculum design, classroom teaching, and practical internships ^[8]. Strengthen practical teaching by increasing the proportion of practical teaching hours, allowing students to experience the craftsmanship spirit in real enterprise production scenarios, and enhancing their practical abilities and professional literacy. Invite industry enterprises to deeply participate in the revision of talent cultivation plans, integrating enterprise elements and occupational standards into the plans, and implementing the "dual-subject" education of universities and enterprises.

5. Conclusion

The cultivation of the craftsmanship spirit based on industry-education integration requires system innovation

as a guarantee, curriculum reform as the core, practical platforms as carriers, and cultural nurturing as support. In the future, application-oriented undergraduate universities should further deepen collaboration among universities, governments, and enterprises, explore the “multi-party collaborative education” model, and promote the upgrade of craftsmanship spirit cultivation from “single-point breakthroughs” to “systematic integration,” providing talent support for the high-quality development of the manufacturing industry.

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