

# Exploration and Practice of the "Tailor-made" Talent Cultivation Model under the Mode of Deepening School-Enterprise Cooperation

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**Abstract:** In the development process of higher vocational education, the "tailored" talent cultivation model through deeper school-enterprise cooperation is crucial. This paper analyzes the talent dilemma faced by enterprises and the issues in school-enterprise cooperation under the background of the transformation of the steel industry. It explains the connotation and significance of the "tailored" talent cultivation model, introduces various school-enterprise cooperation practices and their outcomes, summarizes experiences and insights, and proposes strategies to address existing problems. This paper aims to provide a reference for the talent cultivation of higher vocational institutions and promote the continuous development of school-enterprise cooperation and the improvement of talent cultivation quality.

**Keywords:** higher vocational education; school-enterprise cooperation; customized talent cultivation

## 1. Introduction

With the rapid development of the economy and the deep adjustment of the industrial structure, higher vocational education faces both significant opportunities and challenges. In the critical period of transformation and upgrading of traditional industries like steel, enterprises have an urgent demand for suitable talent, which prompts closer cooperation between higher vocational institutions and enterprises to innovate talent cultivation models. The "tailored" talent cultivation model has emerged under the framework of deeper school-enterprise cooperation, precisely matching the talent needs of enterprises, integrating both sides' resources, and cultivating applied talents that meet social demands. This model plays a significant role in cultivating high-quality technical and skilled talents that align with industrial development needs, making it a key force in promoting the development of higher vocational education and industry upgrading.

## 2. School-Enterprise Cooperation in the Context of Steel Industry Transformation

### 2.1 Current Status of School-Enterprise Cooperation

The school-enterprise cooperation model is diverse, with some enterprises actively participating in higher vocational education. They collaborate with schools to integrate resources, technology, and management experience, providing internship and training bases, and participating in course design to meet enterprise needs. Cooperation methods include "order-based" and "co-building" models. The former aligns talent cultivation with enterprise needs, while the latter integrates resources to co-build training bases and research centers, achieving complementary advantages. However, there are issues such as low enterprise participation, limited investment and support, poor communication, imperfect coordination mechanisms, information asymmetry, and conflicts in cooperation goals and profit distribution. In summary, schools and enterprises need to strengthen communication and cooperation, increase enterprise involvement, improve cooperation mechanisms, and promote the healthy development of school-enterprise cooperation.<sup>[1]</sup>

## ***2.2 Existing Problems in School-Enterprise Cooperation***

Currently, school-enterprise cooperation mainly focuses on providing students with internship opportunities and has not yet deeply integrated into teaching content reform and talent cultivation model innovation. Enterprises show low enthusiasm for participating in the educational process, lacking deep integration with the strategic development of schools. Furthermore, there is a lack of effective communication and coordination mechanisms between both parties, which largely affects the depth and breadth of cooperation and limits the improvement of cooperation outcomes. Resource integration between enterprises and schools is challenging, making it difficult to complement each other's strengths. The rapid technological updates in enterprises are hard to integrate into school teaching in a timely manner, and the match between practical projects and teaching plans is low, affecting student practice. The talent cultivation goals of vocational institutions do not align with enterprise needs, and course content lags behind, failing to meet the diversified and personalized demands of enterprises, especially in the cultivation of technical talents. School-enterprise cooperation lacks effective protection and incentive mechanisms, with unclear rights and obligations, absence of standardized contracts, and low enterprise participation due to lack of incentives. The quality of faculty in vocational institutions needs improvement, as teachers lack practical experience and teaching content is disconnected from enterprise needs. Furthermore, there is insufficient investment in teacher training, and communication and cooperation between enterprises and schools are not close enough.<sup>[2]</sup>

## **3. The Connotation and Significance of the "Tailored" Talent Cultivation Model**

### ***3.1 Connotation***

The "tailored" educational model focuses on enterprise job requirements, conducting a precise analysis of the knowledge structure, skill demands, and professional qualities needed for each position. Through close school-enterprise cooperation, a talent cultivation plan is jointly customized to meet actual needs. At the initial stage of recruitment, strict selection criteria are applied to choose students based on the standards set by the enterprises. Course content is designed in close alignment with job tasks and workflows, integrating real enterprise cases and industry standards to ensure that students acquire knowledge and skills that match actual work environments. The teaching process involves a joint team of school and enterprise instructors who provide students with practical opportunities and professional guidance, simulating real-world work scenarios. The assessment methods are constructed based on the specific standards of enterprise positions, forming a scientific evaluation system to ensure a seamless connection between talent cultivation and job requirements. This educational model ensures that students can quickly adapt to their job roles after graduation, meeting the talent needs of enterprises.

### ***3.2 Significance***

For enterprises, this model precisely delivers talents that match their needs, effectively alleviating the talent shortage. Additionally, it reduces the costs associated with recruiting and training new employees, accelerates technological innovation, and facilitates the conversion of achievements. Through this approach, enterprises can improve production efficiency and product quality, gaining a competitive edge in the market and ensuring their steady progress amid industrial transformations. For vocational higher education institutions, this model helps align the institution closely with the practical needs of industries, optimizing the curriculum setup and deepening reforms in practical teaching. It promotes the enhancement of teachers' practical capabilities and strengthens the construction of a "dual-teacher" faculty team, thereby increasing the institution's social service capabilities and industry influence. By promoting the connotative development of vocational education, this model improves the relevance and effectiveness of talent cultivation, producing more high-quality professionals who meet market demands.<sup>[3]</sup>

## **4. School-Enterprise Cooperation "Tailored" Talent Cultivation Practice Cases**

### ***4.1 Hebei Jingye Steel Concentrated Training Model***

#### ***4.1.1 School-Enterprise Joint Recruitment and Source Characteristics***

The school cooperates with Jingye Group to offer Metallurgical Engineering and Metal Materials

Engineering programs, targeting graduates from local colleges in Pingshan County and internal employees of the enterprise. This strategy aligns closely with the enterprise's regional talent resources and internal staff development needs. Local graduates are familiar with the enterprise's geographical environment, providing higher stability after employment. Employees from within the enterprise enhance their professional skills, preparing talent for key positions. For example, in 2021, 180 outstanding students were selected from over 600 applicants, with another 130 selected in 2022, laying a solid foundation for subsequent customized training.<sup>[4]</sup>

#### ***4.1.2 Customized Training Plan Development and Features***

The school and enterprise collaborated closely to formulate a practical and feasible talent cultivation plan, analyzing the foundational skills of students and the specific job skills required by the enterprise. Cutting-edge steel industry technologies, such as green metallurgy processes and intelligent production control technologies, were integrated into the curriculum. For example, in metallurgy courses, students learn about metallurgy principles and operations related to new production line processes, ensuring that the training plan is closely aligned with enterprise production needs.

#### ***4.1.3 Work-Study Alternating Implementation and Effects***

The first three months focus on professional foundation courses, followed by a work-study alternating phase. Students spend approximately three weeks per month on theoretical learning and one week on practical job experience. After studying steelmaking theory, they immediately apply their knowledge in the steelmaking workshop. On-site guidance from enterprise technicians helps solve real-world problems, and after returning to school, students deepen their theoretical knowledge. This model effectively improves students' practical skills and shortens their adaptation period to the job, increasing productivity and product quality after graduation.<sup>[5]</sup>

### ***4.2 Henan Jiyuan Steel On-the-Job Employee Training Model***

#### ***4.2.1 Selection System Rigor and Reasonableness***

A strict selection system is implemented, requiring employees to have worked for the enterprise for at least three years and demonstrated good performance to qualify for training. This system considers employees' familiarity with the enterprise's production process, allowing them to better integrate theoretical knowledge with practical work. In 2021, 84 frontline technical backbones were selected from over 250 applicants. These employees quickly understand the professional theories and enhance their skills, meeting the enterprise's need for high-end technical talent during its transformation.

#### ***4.2.2 Layered Modular Teaching System Construction***

A layered modular teaching system was built to match students' characteristics. The first semester focuses on basic courses, while the second semester divides into steelmaking and rolling directions, using virtual simulation training centers to conduct specialized courses. In the third semester, the teaching is divided into modules based on different job requirements. This teaching system caters to the knowledge structures of the students and the diverse needs of enterprise positions, enhancing the precision and effectiveness of the training.<sup>[6]</sup>

#### ***4.2.3 Role of Teachers in Enterprise Lesson Preparation***

Teachers were sent to Jiyuan Steel to familiarize themselves with enterprise production lines and processes, allowing them to adjust the teaching content based on the latest industry developments. By introducing advanced industry technologies, such as steel surface treatment techniques, the teaching content was directly linked to practical production needs, improving the quality of teaching and enhancing the integration of education and industry.

### ***4.3 Commissioned Training Models by Jinding, Yongyang, and Other Steel Enterprises***

#### ***4.3.1 Process and Features of Commissioned Training for College Students***

Enterprises such as Jinding and Yongyang select 25-30 new employees each year for commissioned training. For the first two years, students study theoretical knowledge and virtual simulation skills. In the third year, they engage in on-the-job practice, solidifying their skills in real work environments. This model ensures a smooth transition from academic learning to practical work, meeting the enterprises' need for technical talent in grassroots positions.<sup>[7]</sup>

### ***4.3.2 Innovative Measures in Commissioned Training for Vocational Undergraduates***

Shandong Taishan Steel recruits students who did not pass the college entrance exam and offers them vocational undergraduate training. Students learn tailored courses based on their foundation and enterprise needs, enhancing practical training and innovation skills. Graduates receive a certificate and are offered top salaries for their designated positions, supporting the enterprise's need for high-end technical talents.

### ***4.3.3 Order Classes and the School-Enterprise Cooperation Mechanism***

Puyang Steel signed an agreement with the school to fund students' tuition and participate deeply in the talent cultivation process. The school and enterprise jointly design the curriculum, which aligns with the technical requirements of the enterprise, ensuring that graduates can directly enter the workforce, enhancing recruitment efficiency and lowering training costs.

## ***4.4 Other Specialized Training Models***

### ***4.4.1 Early Employment Class Talent Cultivation Innovations***

Sophomore or junior students are grouped into early employment classes, where the school and enterprise collaborate to tailor a training plan based on core product processes. This model allows students to gain insights into industry trends and apply their knowledge more effectively in subsequent studies, fostering high-level technical talents with a strong understanding of market needs.

### ***4.4.2 Skills Enhancement Workshops for Frontline Technicians***

Workshops aimed at improving the skills of frontline production technicians are organized, with experienced teachers providing training on management and technical skills. These workshops help improve team-building, communication, and time management skills, addressing issues in enterprise management and enhancing the overall production process.

## **5. Effectiveness of the “Tailored” Talent Cultivation Model**

### ***5.1 Student Skill Enhancement***

Through various school-enterprise cooperation models, students' professional skills and overall qualities have significantly improved. In terms of knowledge, they have systematically learned professional theory and practical knowledge. For example, students in the Jiyuan Steel program have gained a deep understanding of the entire steel metallurgy process. Regarding practical operations, students are proficient in using equipment and technologies, such as students in the Jingye Steel program accurately operating steel-making and rolling equipment. In terms of innovation, students have been inspired by cutting-edge industry technologies and enterprise practices. Some have even participated in enterprise technology improvement projects and proposed innovative solutions, such as helping optimize rolling process parameters to improve product quality and production efficiency. As a result, graduates rapidly develop into technical and managerial talents within the enterprise.

### ***5.2 Support for Enterprise Development***

The structure of the enterprise's talent pool has been optimized, with an increase in the number of skilled technical personnel and an improvement in employee quality. For example, after training, Jiyuan Steel's technical backbone played a key role in the application of new technologies and process improvements, enhancing the enterprise's technological innovation capability and core competitiveness. In terms of talent stability, the commissioned training and order-based programs have strengthened employees' sense of belonging to the enterprise, reducing turnover rates and ensuring stable production operations. This contributes to the enterprise's sustainable development and enhances its position and market share in the industry.

### ***5.3 Promotion of School Education***

The school's professional development closely aligns with industry needs, optimizing the metallurgy curriculum based on feedback from enterprises and updating the teaching content. Teachers have enhanced their practical abilities by gaining experience through enterprise training and project

cooperation, improving their teaching levels. The proportion of "dual-qualified" teachers has increased. The school's social influence has expanded, with industry recognition of its cooperation results attracting more enterprises and students to participate. This has created a positive cycle of school-enterprise cooperation, driving the reform and quality improvement of vocational education and undergraduate teaching.

## **6. Experience Summary and Insights**

### ***6.1 Deep School-Enterprise Integration is Key***

Close collaboration and mutual respect between schools and enterprises are the foundation of success. Schools should thoroughly study the characteristics of enterprises, understand the positions required by the enterprise, and accurately set up programs that can integrate deeply with enterprise needs. Collaboration should be close in areas such as curriculum design, teaching implementation, and evaluation. A clear division of responsibilities and objectives should be established, along with an effective communication and coordination mechanism. For instance, AVIC Shanghai High-Temperature Alloy Technology Co., Ltd. and the school jointly built a research platform and team to solve technical problems, ensuring that talent cultivation and research cooperation align with the enterprise's development strategy, thus achieving mutual benefit for both parties and providing strong support for talent cultivation.

### ***6.2 Precise Demand Positioning is Core***

In-depth research into enterprises and accurate analysis of job requirements is the core of the "tailored" model. The training plan should be customized based on the skill, knowledge, and quality requirements of the position, ensuring that the teaching content and methods align with practical needs. For example, in the steel industry training, courses and practical projects are set according to different positions and production stages, ensuring that what students learn matches exactly what enterprises need, thus enhancing the relevance and practical value of talent cultivation and achieving a seamless alignment between talent development and job requirements.

### ***6.3 Integration of High-Quality Resources is the Support***

Integrating resources from both schools and enterprises, including facilities, equipment, teachers, and technology, is crucial. Enterprises provide practice bases, equipment, and technical cases, while schools offer teaching theory, research outcomes, and teaching staff. For example, in the co-construction of training bases, the combination of enterprise equipment and school teaching resources creates an authentic and efficient practical teaching environment. The sharing of high-quality teaching and technical resources through mutual hiring of teachers by both parties enhances the quality and efficiency of talent cultivation.

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