

Research and Implementation Path for the Construction of Teacher Practical Mobility in Higher Vocational Colleges Based on Industry-Education Integration

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ABSTRACT

Under the background of the national strategy of deepening Industry-Education Integration, the construction of teacher practical mobility has become the key to breaking the bottleneck of school-enterprise collaborative education. This paper systematically analyzes the profound dilemma of the two-way flow of teachers and enterprises in higher vocational colleges. It puts forward the core contradiction between the dislocation of the primary demand and the obstacle of the operation mechanism. By constructing innovative paths such as hierarchical target orientation, full-cycle operation mechanism, and substantive platform, and combining the three-dimensional guarantee system of policy coordination, resource integration, and dynamic evaluation, the sustainable development paradigm of the Industry-Education Integration in vocational education is formed, which aims to open up the obstruction link between the improvement of teachers' practical ability and the demand of industrial technology, it provides a systematic solution for the construction of "Double-qualified" team in vocational education in the new era, and promotes the organic connection of education chain, talent chain and industrial chain.

KEYWORDS

Industry-Education Integration; Higher Vocational Colleges; Teacher Practical Mobility

With the deepening of the National Vocational Education Reform Implementation Plan, Industry-Education Integration has been transformed from policy advocacy to in-depth development. As the leading position of technical and skilled personnel training, the quality improvement of vocational education is directly related to the kinetic energy conversion efficiency of industrial transformation and upgrading. In this context, the development path of higher vocational teachers' practical ability, as a key element connecting educational supply and industrial demand, must break through traditional models' shackles. At present, the construction of vocational education teachers is facing a significant "Dilemma": on the one hand, the acceleration of industrial digitization has led to the continuous compression of enterprise technology iteration cycle; on the other hand, the construction of vocational education teachers is facing a dilemma, the heavy teaching tasks of teachers and the slow updating of knowledge form a closed-loop contradiction, which leads to the structural deviation between the teaching content and the real production scene of enterprises^[1]. Although policies such as the implementation plan for deepening the reform of the construction of "Double-qualified" teachers in vocational education in the new era emphasize the mutual employment and recognition of school-enterprise personnel, it is still subject to the deviation of subject demands and the lack of operating mechanism at the practical level. There are some problems, such as "Hot school and cold enterprise" and "Separation of form and reality"^[2]. This paper studies the construction and implementation path of Teacher Practical Mobility in higher vocational colleges under the background of industry and education integration to provide some theoretical support and practical guidance for related fields.

1 The Theoretical Basis for the Construction of Teacher Practical Mobility in Higher Vocational Colleges

1.1 Integration Mechanism of Production and Education Resources from the Perspective of Synergy Theory

From the perspective of synergy theory, the construction of Teacher Practical Mobility needs to solve two core propositions: The trigger mechanism of factor synergy. The traditional school-enterprise cooperation often stays at the shallow level of resource exchange (such as facility sharing and talent supply) and fails to form a systematic linkage between teacher development, technology research and development, and teaching reform. Synergy theory requires breaking school and enterprise boundaries and establishing a technology-oriented collaborative community. Through cross-organizational knowledge sharing, capacity complementation, and role reconstruction, teachers' practice is systematically upgraded to iterate educational resources and industrial needs. Dynamic adaptive collaborative network. The integration of industry-education resources is faced with multiple barriers, such as spatial separation, target heterogeneity, and organizational culture conflict. Building a collaborative network with flexibility and stability through

mobile stations is necessary. The network is characterized by "Flow but not loose," which protects the boundary of interests between schools and enterprises through a contractual collaboration framework while retaining the ability to respond quickly to market changes relying on project-based operations^[3].

1.2 The Reconstruction of Practice Field by the Theory of Work Process Systematization

The theory of work process systematization takes the complete action logic of professional activities as the core. It emphasizes the organic integration of technical knowledge and action processes to build a systematic practical ability training framework. The construction of Teacher Practical Mobility is reflected in the deep transformation and functional upgrading of the traditional practice field, aiming to break through the shackles of the separation of school and enterprise scenes. Specifically, the traditional practical training mode usually deconstructs the practice link into an isolated skill module, which leads to the fragmentation of teachers' acquired technical ability. The theory of work process systematization requires the mobile station to take the complete workflow of enterprise production as the axis and construct a continuous practice module from task analysis and scheme design to evaluation and improvement.

2 Analysis of the Dilemma of the Two-Way Flow of Teachers and Enterprises

2.1 Dislocation of subject demand

The two-way flow of teachers and enterprises is a process of resource reciprocity and value co-creation. However, the core premise of its effectiveness is matching the motivation and goal of supply and demand. In reality, significant structural differences exist in the needs of school-enterprise subjects, making it difficult for cooperation to enter the deep water area. The starting point for promoting teacher mobility in vocational colleges is to enhance teachers' practical abilities, optimize the curriculum system, and achieve the transformation of scientific research results. This demand has distinct educational attributes, emphasizing the pedagogical reconstruction of technical knowledge and the adaptability of talent cultivation. The core appeal of enterprise participation focuses on obtaining technological solutions, reducing R & D costs, or directionally cultivating skilled talents, a cooperative logic dominated by economic rationality^[4]. This goal difference leads to the imbalance of the value expectation of the two sides: teachers hope to obtain the expansion of the technical vision and the iteration of the teaching ability. However, enterprises focus on improving short-term production efficiency or compressing staff training costs.

2.2 Operational mechanism obstacles.

Systematic defects in system design and operation further aggravate the practical difficulty of the two-way flow between teachers and enterprises, which manifests in the fracture of the cooperation chain and the high cost of collaboration.

The fragmented characteristics of institutional supply. Currently, the policy for the two-way flow of schools and enterprises mostly stays at the macro-advocacy level and lacks implementation rules and guarantee mechanisms. For example, key issues such as the assessment system during teacher mobility, rules for intellectual property ownership, and compensation mechanisms for enterprise resource input have not yet formed unified operational standards, leading to frequent deadlocks in the cooperation process due to unclear rights and responsibilities.

Weak synergy of platform functions. The construction of most school-enterprise cooperation platforms stays in the primary stage of "Listed Alliance" and has not yet formed the deep function of resource integration and value-added. It is difficult for colleges and universities to accurately identify the technical pain points and talent needs of enterprises, and enterprises also lack systematic cognition of teachers' professional directions, resulting in low matching efficiency.

The dilemma of compatibility of cultural concepts. There is a deep cultural tension between the orientation of discipline and theory in colleges and universities and the orientation of marketization and application in enterprises. Teachers are used to decomposing technical problems from the perspective of theoretical logic, while enterprise technical backbones pay more attention to quick solutions in practical scenarios. This difference in thinking will likely lead to a "Communication fault" in technical communication.

3 The construction path design of the practice flow station system

3.1 Layered target location

The construction of the practice flow station needs to eliminate the "Integration" goal, based on the value demands and practical ability differences of different subjects, to build a hierarchical, flexible, and compatible target positioning

system. At the strategic level, we should be guided by the deep integration of industry and education and position the mobile station as the core hub for the industrial upgrading vocational education. It simultaneously undertakes the composite functions of technical skills inheritance, application research, development transformation, and teaching innovation practice. It meets the needs of enterprise technology iteration for talent reserve and responds to the urgency of reshaping teachers' abilities in vocational colleges. The goal design at the meso level needs to focus on the precision of the docking of school-enterprise resources. By combining the characteristics of the regional industrial chain and the layout of the professional group of colleges and universities, the mobile station's radiation field and functional focus are clarified. To upgrade traditional industries, it is necessary to strengthen the practical orientation of process innovation and production process optimization. The goal at the micro-operational level needs to be visualized as a map of ability development. The step-by-step growth path from the strengthening of basic skills to the cultivation of compound innovation ability should be designed with the stage of teachers' professional development as the axis, at the same time, combined with the phased needs of enterprise technology research, the differentiated practical task modules should be matched.

3.2 Construction of Operation Mechanism

The effective operating mechanism needs to break through the traditional linear cooperation mode of school-enterprise cooperation and construct a multi-dimensional and closed-loop dynamic, collaborative system. The core is to establish a chain reaction mechanism of demand-driven, resource integration and value sharing through the joint establishment of technical needs research and judgment groups by schools and enterprises, regular scanning of industrial technical pain points and teaching reform blind spots, the scattered practical needs are transformed into a standardized cooperation project library. The intelligent matching algorithm realizes the accurate docking of teachers' expertise and enterprise needs. In resource integration, building a resource pool that covers equipment sharing, information exchange, and talent linkage is necessary. In the process of value sharing, it is necessary to design a benefit distribution model based on contribution degree, which integrates the benefits of technological improvement, personnel training results, and operation benefits of mobile stations into a unified evaluation framework, explore incentive mechanisms such as intellectual property co-ownership and technology dividend ratio negotiation.

3.3 Construction of materialized platform

The materialized platform is the material carrier for the landing of the function of the mobile station. Its construction must go beyond the primary form of physical space superposition and advance to the intelligent interconnection platform of technology empowerment and ecological co-creation. The distributed architecture of "Core site + satellite node" can be adopted in the physical space layout. The core site relies on the production base of leading enterprises or the construction of key laboratories in colleges and universities, undertaking the main hub functions of technology research and development and practical teaching. The satellite node is sunk to the workshop of small and medium-sized enterprises or the community skills service station, forming a practical network covering the whole scene of the industrial chain. The construction of a digital support system is critical. Integrating virtual simulation, digital twin, and other technologies is necessary to build a cloud practice platform to realize real-time access to production data, online collaborative R & D, and Remote Skills Assessment; teachers can still be deeply involved in enterprise projects without leaving their posts. The platform operation needs to introduce a professional management team, establish a whole process service chain including project incubation, risk control, and quality monitoring, and realize the traceability of the cooperation process through blockchain technology, enhancing the stickiness of trust between schools and enterprises.

4 Long-term implementation of the security system

4.1 Policy coordination mechanism

The core of long-term implementation is to break down policy barriers and build a multi-layer policy support network. The government departments need to strengthen the top-level design and bring the two-way flow of teachers and enterprises into the priority agenda of the policy system. The construction of the practice mobile station system is essentially a paradigm breakthrough of the traditional mode of integration of production and education., and clarifies the rights and obligations of both schools and enterprises in the flow process through legislation, for example, the regulations on the promotion of Industry-Education Integration should be formulated to regulate the ownership of intellectual property rights, risk sharing mechanism and the transformation path of achievements. Regarding financial support, a special fund pool can be established to provide tax credits, R&D subsidies, and other incentive policies to enterprises that actively participate in the construction of mobile stations.

4.2 Resource integration mechanism

To solve the problem of school-enterprise resource mismatch, it is necessary to construct an open resource integration system with the participation of multiple subjects. At the level of hardware resources, through the establishment of regional production and education resource-sharing platforms, the interoperability and sharing of enterprise production equipment, university laboratories, and scientific research data can be realized, for example, relying on industrial internet technology to build a virtual resource pool to support teachers' remote access to enterprise production lines for technical training. The integration of human resources needs to break through the limitation of traditional identity, explore the flexible employment mechanism such as the "Double employment system" and "Revolving door," and allow the technical backbone of the enterprise to participate in the curriculum design as part-time professors, at the same time, college teachers are embedded in the enterprise R & D Team through the project system, forming a closed loop of knowledge flow. The optimization of financial resources needs to introduce market-oriented operation thinking, adopt the mixed investment model of "Government guidance fund + social capital," carry out venture capital for cooperation projects with commercial potential, and clarify the ownership of assets between schools and enterprises through joint-stock transformation.

4.3 Dynamic evaluation mechanism

There is a significant conflict between the traditional evaluation mode and the dynamics and complexity of the flow process. Building an intelligent evaluation system embedded in the whole life cycle is necessary. The design of the evaluation framework should abandon the single result-oriented quantitative index and adopt the three-dimensional evaluation model of "Process-result-development": the process dimension focuses on tracking teachers' practice participation and enterprise resource openness, the result dimension focuses on the technology conversion rate and the improvement of talent suitability, and the development dimension evaluates the long tail effect of cooperation on the construction of specialty construction and industrial chain resilience. The diversification of evaluation subjects is critical. It is necessary to establish an evaluation committee composed of educational experts, industry representatives, and third-party institutions and improve the objectivity of evaluation results through multi-perspective cross-validation.

5 Conclusion

The construction of the Teacher Practical Mobility system is a paradigm breakthrough in the mode of traditional Industry-Education Integration. Its core value lies in the Trinity construction path of hierarchical target positioning, dynamic operation mechanism, and virtual and real integration platform, policy coordination, resource integration, dynamic evaluation of closed-loop security system, solving the structural problems such as goal generalization, resource mismatch and lack of sustainability in school-enterprise cooperation. The research shows that the flow station model realizes the deep engagement of the education chain and the industrial chain in the space-time dimension and accurately disassembles the macro-strategic appeal into operational practice units through the hierarchical design of goals, teachers' growth, technological iteration.

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