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An Analysis of Strategies for Deepening Industry-Education Integration in the Cultivation of Vocational Undergraduate Students in the New Era

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Abstract: In the context of the new era, this study focuses on the cultivation of vocational undergraduate students and conducts an in-depth exploration of strategies for deepening industry-education integration. The research clarifies the significance of industry-education integration for industrial development, student growth, and innovation in vocational education. It further analyzes existing problems, including deviations in conceptual understanding, imperfect cooperation mechanisms, imbalanced resource allocation, and insufficient talent-industry matching. Accordingly, optimization strategies are proposed from five aspects: conceptual guidance, mechanism improvement, resource optimization, model innovation, and faculty development. This study aims to provide theoretical support and practical guidance for improving the quality of vocational undergraduate education and promoting coordinated development between vocational education and industry.

Keywords: New era; vocational undergraduate students; industry-education integration; talent cultivation; optimization strategies

Introduction

Against the backdrop of industrial upgrading and the continuous improvement of the vocational education system, the cultivation of vocational undergraduate students has become a critical link connecting higher education with industrial demand, with industry-education integration serving as its core development model. However, in the new era, industrial demand for talent has become increasingly diversified, and industry-education

integration in vocational undergraduate education faces numerous challenges. In this context, Zhou Dan from Changde Vocational and Technical College explores the significance, existing problems, and optimization strategies of industry-education integration in vocational undergraduate education. This research holds practical significance for promoting synergy between vocational undergraduate education and industry and provides direction for related educational practices.



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1. The Importance of Deepening Industry-Education Integration in the Cultivation of Vocational Undergraduate Students in the New Era

Driven by both industrial transformation and educational development in the new era, deepening industry-education integration is of irreplaceable value in the cultivation of vocational undergraduate students, which is mainly reflected in three dimensions.

From the perspective of industrial development, rapid technological iteration in contemporary industries places higher demands on the knowledge structure and practical abilities of talent. As high-quality professionals oriented toward frontline industrial positions, vocational undergraduate students must be cultivated in close alignment with industrial realities. Deepening industry-education integration enables educational processes to accurately respond to industrial needs, allowing students to engage with cutting-edge technologies and industry standards during their studies. As a result, graduates can adapt quickly to job requirements, providing stable human resource support for industrial upgrading and alleviating talent supply constraints in industrial development.

From the perspective of student development, the core competitiveness of vocational undergraduate students lies in the integration of theoretical literacy and practical competence. Industry-education integration builds a bridge between theoretical learning and practical application. Through participation in industry-related teaching activities and projects, students can transform classroom knowledge into operational skills, while also cultivating professional ethics and job adaptability. This enhances employability and lays a solid foundation for future career development, effectively avoiding the dilemma of “theory divorced from practice” in talent cultivation.

From the perspective of vocational education development, deepening industry-education integration serves as a vital driving force for innovation in vocational undergraduate education. Through deep cooperation with industrial stakeholders, vocational institutions can promptly access industrial dynamics and adjust talent cultivation orientations and teaching content accordingly. This helps break the limitations of traditional education models, promotes innovation in curriculum systems and teaching methods, improves

educational quality, and ultimately contributes to the refinement of the vocational education system. In this way, the distinctive characteristics and advantages of vocational undergraduate education are highlighted, ensuring the sustainable development of vocational education ^[1].

2. Major Problems in Industry-Education Integration in the Cultivation of Vocational Undergraduate Students in the New Era

2.1 Deviations in Conceptual Understanding

Some vocational institutions and industrial entities lack a sufficiently in-depth understanding of industry-education integration and fail to fully grasp its core value in the cultivation of vocational undergraduate students. At the institutional level, traditional mindsets that emphasize theory over practice still persist. Industry-education integration is often regarded as a supplementary teaching approach rather than a core talent cultivation model, resulting in insufficient initiative and systematic planning in resource investment and teaching arrangements.

From the perspective of industrial entities, some enterprises view participation in industry-education integration as an additional burden, focusing primarily on short-term economic benefits while neglecting the supporting role of talent cultivation in long-term corporate development. Consequently, their willingness to participate deeply is limited, and cooperation often remains at a superficial level, such as merely providing internship positions, without genuinely integrating into the entire talent cultivation process.

2.2 Imperfect Cooperation Mechanisms

At present, industry-education integration in the cultivation of vocational undergraduate students lacks stable and efficient cooperation mechanisms, making it difficult to sustain and deepen collaboration. On the one hand, the division of rights and responsibilities between cooperating parties is unclear. There is a lack of unified planning in areas such as the formulation of talent cultivation objectives, curriculum design, and the arrangement of practical training, which often leads to responsibility shifting and fragmented actions. For example, vocational institutions expect enterprises to provide more practical guidance resources, while enterprises hope that institutions will cultivate graduates who directly meet their job requirements. These

differing demands are not effectively coordinated. On the other hand, effective communication and feedback mechanisms are insufficient. Information exchange between institutions and enterprises is often delayed or inefficient, making it difficult to adjust cooperation plans in a timely manner based on industrial dynamics and teaching realities. As a result, industry-education integration becomes disconnected from talent cultivation needs and evolving industrial development trends.

2.3 Imbalanced Resource Allocation

Imbalanced resource allocation severely restricts the deepening of industry-education integration, mainly manifested in two dimensions: hardware resources and faculty resources. In terms of hardware resources, training facilities and equipment in some vocational institutions are updated slowly, resulting in a generational gap between school-based training conditions and frontline industrial technologies. Consequently, students have limited exposure to the latest industry technologies during on-campus training. Although some enterprises possess advanced equipment, concerns over costs and safety often discourage them from opening these resources to students, leading to ineffective sharing of high-quality hardware resources. Regarding faculty resources, many institutional teachers lack practical industrial experience, causing a disconnect between teaching content and industrial realities. While enterprise technical experts possess rich practical experience, they often lack systematic pedagogical skills and find it difficult to undertake teaching responsibilities. As a result, the development of “dual-qualified” (theory-and-practice-oriented) teaching teams lags behind, failing to meet the instructional demands of industry-education integration^[2].

2.4 Insufficient Alignment Between Talent Cultivation and Industrial Demand

The core objective of industry-education integration is to achieve precise alignment between talent cultivation and industrial demand; however, significant mismatches remain. In terms of curriculum systems, course structures in some institutions are updated slowly and fail to incorporate cutting-edge industrial knowledge and technologies in a timely manner. The proportion of theoretical courses remains excessively

high, while practical courses lack targeted design, making it difficult to cultivate students’ abilities to solve real-world industrial problems. In teaching methods, traditional classroom-based instruction still dominates, with limited adoption of practice-oriented teaching models based on industrial projects. Students have few opportunities to participate in real industrial projects, which hinders the development of practical competencies and professional qualities aligned with industrial requirements. Moreover, mismatches exist between the cycle of talent cultivation and the pace of industrial demand changes. While institutional training follows a relatively fixed cycle, industrial technologies and job requirements evolve rapidly, resulting in gaps between graduates’ acquired knowledge and skills and actual job demands, thereby limiting their ability to adapt quickly to industrial development needs.

3. Optimization Strategies for Deepening Industry-Education Integration in the Cultivation of Vocational Undergraduate Students in the New Era

3.1 Strengthening Conceptual Guidance and Establishing a Consensus on Coordinated Development

Concepts guide action. To deepen industry-education integration, it is essential to first strengthen conceptual understanding among all stakeholders and build a consensus on coordinated development between vocational institutions and industrial entities. On the one hand, vocational institutions should transform traditional educational philosophies by embedding industry-education integration throughout the entire process of vocational undergraduate cultivation and clearly defining its core position. Through internal training programs, industry exchanges, and other initiatives, institutions should enhance teachers’ understanding of industry-education integration, encourage active participation in industrial cooperation, and promote the integration of industrial elements into teaching activities. At the same time, institutions should strengthen guidance for students by offering career planning courses and industry lectures, helping them recognize the importance of industry-education integration for their professional development. This can effectively stimulate students’ enthusiasm for participating in practical learning and industry-related

training. On the other hand, greater efforts should be made to guide industrial entities conceptually. Industry associations can play a facilitating role by establishing communication platforms and organizing enterprises to participate in industry-education integration seminars. Through the sharing of successful cases and best practices, enterprises can gain a deeper understanding of the long-term value of participating in talent cultivation, including enhancing corporate competitiveness and building talent reserves. This helps shift enterprises away from short-term profit-oriented thinking and strengthens their initiative and sense of responsibility in deeply engaging in industry-education integration, ultimately forming a collaborative development philosophy characterized by “co-construction, sharing, and win-win outcomes” between institutions and enterprises^[3].

3.2 Improving Cooperation Mechanisms to Ensure the Stable Advancement of Industry-Education Integration

Sound cooperation mechanisms are a crucial guarantee for the sustained deepening of industry-education integration and should be established from three key aspects: clarification of rights and responsibilities, communication and coordination, and dynamic adjustment. In terms of rights and responsibilities, vocational institutions and enterprises should jointly formulate cooperation agreements that clearly define their respective roles in talent cultivation. For example, institutions may be responsible for theoretical instruction and curriculum system design, while enterprises provide practical training venues, technical guidance, and internship or job placement opportunities. At the same time, the rights and interests of both parties in areas such as resource investment and outcome sharing should be clearly specified to avoid disputes arising from unclear responsibilities during cooperation. With regard to communication and coordination, a normalized communication mechanism should be established by setting up dedicated coordination departments or liaison units. Regular exchange meetings involving institutional teachers and enterprise technical experts should be organized to facilitate timely communication on teaching progress, student practical performance, and changes in industrial demand, thereby ensuring efficient and smooth information flow. In terms of dynamic adjustment,

cooperation plans, curriculum structures, and practical training content should be periodically reviewed and optimized based on industrial technological updates, changes in job demand, and teaching feedback. This ensures that industry-education integration remains consistently aligned with talent cultivation objectives and industrial development trends, thereby enhancing the relevance and effectiveness of collaborative efforts.

3.3 Optimizing Resource Allocation to Achieve Efficient Resource Sharing

To address the issue of imbalanced resource allocation, it is necessary to integrate resources from vocational institutions and industrial entities, establish a resource-sharing system, and improve overall resource utilization efficiency. In terms of hardware resources, vocational institutions and enterprises should be encouraged to jointly build training bases. Institutions can provide venues and basic infrastructure, while enterprises contribute advanced equipment and technical support. In this way, comprehensive training platforms that integrate teaching, practical training, and production can be established, enabling synchronous updates between training equipment and industrial technologies and allowing students to conduct practical learning in authentic industrial environments. At the same time, resource-sharing management systems should be established to clarify usage regulations and equipment maintenance responsibilities for training bases, thereby ensuring efficient and sustainable resource utilization. With regard to faculty resources, a two-way faculty exchange mechanism should be implemented. On the one hand, institutional teachers should be arranged to regularly participate in enterprise-based practical work so as to gain in-depth understanding of industrial technologies and job requirements, thereby enhancing their practical teaching capabilities. On the other hand, enterprise technical experts should be invited to serve as part-time instructors in vocational institutions, undertaking responsibilities such as practical course instruction and project supervision. Meanwhile, pedagogical training should be provided for part-time instructors to improve their teaching competencies. In addition, a shared faculty resource platform should be established to integrate outstanding institutional teachers and enterprise technical experts, forming a faculty pool that enables cross-institutional and cross-enterprise sharing of teaching resources. This approach

can effectively alleviate the shortage of “dual-qualified” teachers and provide high-quality faculty support for industry-education integration ^[4].

3.4 Innovating Talent Cultivation Models to Enhance Talent-Industry Alignment

Guided by industrial demand, it is essential to innovate talent cultivation models for vocational undergraduate students in order to achieve precise alignment between talent training and industrial needs. In terms of curriculum system construction, industry demand surveys should be conducted, and curriculum standards should be jointly formulated with enterprises. Cutting-edge industrial knowledge, technical specifications, and job competency requirements should be incorporated into course content, while the proportion of practical courses should be increased to establish an integrated “theory-practice” curriculum system. At the same time, industry project-based teaching should be introduced. Using real enterprise projects as learning carriers, students can be organized into groups to participate in project design, implementation, and problem-solving. Through the project completion process, students can acquire professional knowledge and skills while enhancing their ability to address practical industrial problems. In terms of teaching organization, flexible teaching arrangements should be promoted. Teaching time and locations can be adjusted according to enterprise production cycles and project schedules, adopting an alternating model of “classroom instruction + enterprise practice.” This enables students to learn while practicing, realizing the organic integration of learning and work. Furthermore, a diversified evaluation system should be established to replace the traditional exam-oriented assessment approach. Enterprise evaluation dimensions should be incorporated by including students’ performance during enterprise practice, project completion quality, and job adaptability in the evaluation criteria. In this way, students’ comprehensive qualities and practical competencies can be assessed more holistically, ensuring that cultivated talents effectively meet industrial demands.

3.5 Strengthening Faculty Development and Building a High-Quality Teaching Team

A high-quality faculty team serves as a key pillar for deepening industry-education integration. Faculty

development should be strengthened from three dimensions: cultivation, recruitment, and incentives. In terms of faculty cultivation, a structured “dual-qualified” teacher development program should be established to provide teachers with systematic industrial practice training and professional technical development opportunities. Teachers should be encouraged to participate in industry-oriented technological research and development projects so as to enhance their practical industrial competence and professional technical expertise. Meanwhile, pedagogical capacity-building initiatives should be carried out through teaching seminars, demonstration classes by exemplary instructors, and other forms of professional development, thereby improving teachers’ abilities in instructional design, classroom organization, and practical guidance. This ensures that teachers are capable of delivering both theoretical knowledge and hands-on practical instruction. With regard to faculty recruitment, recruitment channels should be expanded, with a particular focus on attracting technical and managerial professionals who possess extensive industrial experience, thereby strengthening the pool of “dual-qualified” faculty members. In addition, experts and scholars from relevant industries should be invited to serve as visiting or adjunct professors, offering students lectures on cutting-edge knowledge and providing specialized professional guidance. In terms of incentive mechanisms, a scientific faculty evaluation and incentive system should be established. Teachers’ performance in industry-education integration, enterprise practice experience, and teaching achievements should be incorporated into evaluation criteria. Outstanding faculty members should be rewarded through promotion opportunities, salary incentives, and other forms of recognition. At the same time, enterprise-based part-time instructors should be provided with reasonable remuneration and benefits to stimulate their enthusiasm and initiative in participating in industry-education integration. Through these measures, a high-quality teaching team that integrates strong theoretical foundations with solid practical capabilities can be cultivated ^[5].

Conclusion

Deepening industry-education integration is an inevitable choice for vocational undergraduate

education in the new era to respond to industrial demand and improve educational quality. This study clarifies the significant value of industry-education integration, analyzes four core categories of existing problems, and proposes five-dimensional optimization strategies. Looking ahead, it is essential to promote coordinated collaboration between vocational institutions and industrial entities, continuously improve the pathways of industry-education integration, and overcome developmental bottlenecks. By enhancing the comprehensive competencies of vocational undergraduate students, vocational education can cultivate more high-quality technical and skilled talents for industrial upgrading and ultimately achieve deep and sustainable integration between education and industry.

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