

# A Holistic Model for Nurturing Talents through University-Industry Collaboration in the Era of Digital Economy

Ling Miao\*

*Henan Provincial Party School of the Communist Party of China, Zhengzhou, Henan, China*

*\* Corresponding Author*

**Abstract:** In the rapidly evolving era of the digital economy, there is a noticeable gap between the supply and demand of digital talents. From the perspective of the current path of economic construction in various countries, the importance of digital talents is gradually becoming prominent, and more and more countries are paying attention to the cultivation of digital talents and the reform of higher education systems. The school enterprise education cooperation model, as a new training model in the digital era, has attracted social attention. This paper, taking into account the current state of higher education, highlights the necessity of establishing a holistic model for nurturing talents through university-industry collaboration in future development. Furthermore, it provides a comprehensive understanding and definition of the university-industry collaboration model in the context of the digital economy. Building upon these insights, the concluding remarks emphasize the need to reexamine the model of university-industry collaboration in nurturing talents from a fresh perspective.

**Keywords:** Digital economy; Higher education; University-industry collaboration; Talent nurturing model

## 1. The Imperative of Establishing a University-Industry Collaboration Model for Talent Nurturing in Higher Education

In the current era of digital economy flourishing, it has become evident that the demand for digital talent is rapidly outpacing supply. The existing higher education system for talent development is facing various challenges, such as outdated curriculum content and knowledge systems, lengthy cycles for course design and adjustment, and the need for timely updates. To overcome

these challenges in the new era, it is necessary not only to expand enrollment and enhance the intensity of nurturing digital talents in higher education but also to strengthen the collaboration between universities and industries [1].

Within the context of the digital economy, it is crucial to nurture talents who align with the development trends in this field by focusing on both foundational knowledge and skills [2]. However, several key challenges exist in the current establishment of university-industry collaboration models for talent nurturing: limited awareness among enterprises regarding the significance of digital economic development; universities have yet to offer majors that cater to the demands of the digital economy; insufficient collaboration efforts between universities and industries; urgent need for innovation in university-industry collaboration models; some universities fail to prioritize the establishment of long-term partnerships with enterprises, instead focusing on short-term cooperation models aimed at exploiting policy benefits for a limited period [3].

Hence, based on the aforementioned practical issues, in order to bridge the supply-demand gap quickly and effectively and cultivate a larger pool of digital talents suited for local digital economic development, it is necessary to optimize and adjust the existing talent development programs in higher education [4]. This can be achieved by nurturing a new type of digital talent with strong theoretical foundations, high levels of knowledge, and the ability to immediately apply their skills to meet the talent demands of enterprises. During the actual research process, it becomes evident that the most critical aspect of the university-industry collaboration model in higher education is the need for both parties to have a comprehensive understanding of the characteristics of digital economic

development and its impact on talent demands. By integrating the educational training system with information technology, it becomes possible to cultivate technically proficient talents with digital literacy [5]. This, in turn, facilitates the development and innovation of talent development models that combine professional skills and the integration of university-industry collaboration.

## **2. The Definition of University-Industry Collaboration Model for Talent Nurturing in Higher Education in the Context of Digital Economic Development**

The university-industry collaboration model for talent nurturing is a novel cooperative approach that has gained significant attention in recent years, particularly with the emphasis on the strategy of promoting science, technology, and education for national development. This model requires universities to adopt a customer-centric approach, taking into account the manpower, business, and technological needs of enterprises [6]. Through the dual roles of universities and industries, they work together to fulfill the task of talent supply. In developing talent training standards, it is essential for both universities and industries to engage in comprehensive consultations to devise the most efficient talent development plan. This plan then serves as the benchmark, subject to further improvements based on practical considerations. This collaborative model encompasses the establishment of curriculum systems and the achievement of win-win situations through shared benefits [7].

The historical development and natural evolution inevitably entail the interplay, conflicts, and coexistence of old and new forms of civilization. Within the context of the data-driven economy, data has become an indispensable social productive force, carrying a wealth of vital resources. The progress of society always accompanies the advancement and innovation of technology. However, the traditional educational system built by universities for “physical” individuals can no longer meet the demands of the current era, which increasingly relies on “virtual” talent. As civilization continues its shift towards virtualization, the significance of university-industry collaboration models for talent nurturing in higher education has garnered

increasing attention from society. In the process of establishing future models, both universities and industries need to embrace an open and collaborative educational philosophy. They should adopt a perspective on higher education development rooted in the context of the digital economy [8]. With a thorough and comprehensive understanding of the nature and characteristics of the digital economy, proactive innovation in the paths of university-industry collaboration should be pursued. Guided by the principles of mutual assistance and symbiosis, the collaborative relationships between universities and industries should evolve in diverse directions, breaking away from the constraints of traditional cooperation models. This will facilitate the extension of the boundaries of university-industry collaboration, fostering new connections between businesses and schools, students and students, teachers and students, and schools and teachers [9].

Moreover, both parties should actively engage in the construction of information infrastructure and enhance the information technology training of teachers within the university. This will elevate their proficiency in utilizing information technology, enriching the digital learning resources related to mobile learning. By collaborating, universities and industries can create a networked cooperation platform that facilitates the sharing of diverse knowledge [10]. They can employ a networked mindset to carry out teaching, assessment, and management activities, leveraging modern information technology as a springboard to explore new teaching formats and expand instructional content. This approach aims to meet the diverse learning needs of students and fundamentally enhance the quality of talent cultivation.

## **3. Building a Framework for University-Industry Collaborative Talent Development in Higher Education Based on Digital Economic Development**

Focusing on the development of digital competencies is poised to become a major direction in the future of higher vocational education. This will enable the provision of a capable workforce, well-versed in information technology, to meet the demands of our technologically advanced society. Digital literacy encompasses both knowledge and skills in digitized domains, as well as the

utilization of digital assessment methods to evaluate students. It represents a combination of general and specialized skills, essential for future career development. In the present, higher education institutions should concentrate on understanding the characteristics of the digital economy and the needs of businesses, crafting specific talent development plans, and strategically designing programs and courses accordingly [11].

### **3.1 Achieving Dynamic Designation of Majors and Curriculum Systems through University-industry Collaboration in the Context of the Digital Economy.**

#### **3.1.1. Aligning talent development goals and positioning with enterprise needs**

Currently, as industries undergo restructuring and transformation in the context of the digital economy, the demand for talent from enterprises is evolving. Specifically, what enterprises require are individuals with strong occupational skills, versatile capabilities, high professional and comprehensive literacy—a combination of skills. Consequently, higher education institutions must adopt a dynamic perspective on curriculum management and development, making timely adjustments based on practical circumstances.

On one hand, higher education institutions need to focus on meeting the actual demands of enterprises, particularly those related to industries, in order to establish a curriculum system that aligns with these needs. By setting talent development goals and formulating specific strategies and plans, institutions can cultivate professionals who meet the market's requirements.

On the other hand, higher education institutions should leverage various internet technologies such as big data and modern information technology. They should actively gather and integrate information on recruitment needs from enterprises as well as leading technological advancements in relevant industries. By classifying and analyzing this data and focusing on user demands, institutions can construct a highly matched data center for occupational competency information. Additionally, by analyzing and predicting trends in enterprise preferences and talent demands, institutions can formulate specific talent development programs based on professional knowledge,

comprehensive capabilities, and specialized skills. This approach enables institutions to understand industry characteristics, timely engage with enterprise demands, establish a connection between talent needs and industry development, and ensure that curriculum and program offerings are closely aligned with industry talent demands and professional standards. This in turn enhances the effectiveness and adaptability of university-industry collaboration in talent cultivation within higher education.

#### **3.1.2. Establishing a cooperative platform and building a dynamic curriculum system through university-industry collaboration**

In the era of the digital economy, it is crucial for universities and enterprises to establish close collaborative relationships in student enrollment and talent development. Together, they can forge a “dual-subject” approach to education that combines theoretical knowledge with practical application. This is achieved through a mentorship model, where industry experts provide “hands-on guidance” and mentorship to students, fully harnessing the roles and value of both university teachers and industry mentors in the education process.

During the collaborative education process, universities and enterprises join hands to explore pathways of cooperation. They adopt a “blended learning” approach, combining online and offline modes of operation for information sharing and maintaining close connections. The goal is to align talent development programs with the needs of the industry, ensuring that all practical teaching and training activities are closely linked to the required competencies for different job positions. Both university and industry partners work together to construct talent development objectives and curriculum systems. Leveraging modern information technologies as a springboard, they collect and organize diverse information accurately, enabling precise forecasting of job market demands. Based on these insights, they make adjustments and revisions to the professional catalog and curriculum systems, reflecting an ever-evolving approach that keeps pace with the times.

Furthermore, both universities and enterprises have the responsibility to supervise the curriculum design of vocational colleges. They collaborate to revise teaching and management

plans, making dynamic adjustments to the professional programs and courses in line with market demands. Outdated programs are promptly discontinued, and clear admission criteria are established for newly added majors to ensure their relevance and effectiveness.

### **3.2 The Contents and Organizational Forms of Innovative Courses of University-industry Collaboration under the Background of Digital Economy**

Rapid advancements in information technology, propelled by the digital economy, have accelerated the pace of knowledge renewal, consequently reshaping its composition and content. As a result, educators are called upon to swiftly adapt to the evolving objectives and requirements of vocational education and talent development.

First and foremost, it is crucial to expedite the integration of the curriculum framework with technology knowledge relevant to the digital economy. It is imperative to persist in innovating the organizational forms of courses, enriching the formats and contents of teaching activities. By leveraging digital teaching resources as a catalyst, we can expand the scope of instructional content and revitalize the teaching process. Moreover, employing diverse information technology teaching models and delivering tailored, exceptional digital instructional content will better serve students and facilitate the enhancement of their knowledge and skill levels.

Furthermore, it is essential to select and refine course materials by filtering the contents of the curriculum framework, with a particular focus on the knowledge and skills required for specific job positions. This entails integrating textbook content with real-world case studies from industry workplaces. Additionally, consideration should be given to comprehensive and general knowledge relevant to the positions that students may take up upon graduation. Maintaining alignment with market demands, the curriculum content should be regularly updated. Furthermore, vocational qualification education should be integrated into the talent development process by infusing relevant content. This integration should encompass the combination of theoretical knowledge, job responsibilities, practical knowledge, and work processes related to specific job positions. In addition to

granting academic degrees, higher education institutions should also issue vocational qualification certificates to students who pass the assessment, ensuring the congruence between the professional configuration, course content, and teaching process of universities and the demands, vocational standards, and production processes of the industry.

### **3.3 University-industry Collaboration to Achieve Interactive and Open Teaching Process under the Background of Digital Economy**

Supported by internet technology and modern distance education, both universities and enterprises should make joint efforts to integrate internet information technology with educational instruction. This entails intensifying the construction of an informationized education system and collaborating in the development of diverse digital teaching systems, instructional resource platforms, and teaching platforms. Together, both parties should strive to create diverse digital teaching systems, instructional resource platforms, and teaching platforms, aiming to facilitate the digital transformation of disciplines, courses, and classroom teaching.

On one hand, leveraging the support of digital teaching platforms, the construction of a new teacher-student relationship can be accomplished through a “blended learning” approach combining offline classroom instruction with online web-based teaching. This model encourages frequent cross-temporal and cross-spatial information communication and interaction between teachers and students, enhancing the efficiency and convenience of interaction during classroom teaching. Efforts should be made to explore various communication channels between teachers and students, extending the interactive space beyond the physical classroom to virtual environments created through the utilization of virtual technologies. This ensures that students have a sufficient understanding of work positions and environments, facilitating the openness and interactivity of teaching activities. Both universities and industry must maximize the value of digital information technology in order to improve the effectiveness of classroom teaching and strengthen their teaching service capabilities.

On the other hand, through collaborative efforts, universities and industry should work together to build a digitalized teaching platform, establishing a teaching resource repository driven by big data. Embracing a spirit of innovation in learning channels, diverse learning methods should be introduced, such as cloud-based courses, interactive micro-courses, and Massive Open Online Courses (MOOCs). These initiatives aim to create conditions that enhance the openness of teaching and the proactivity of student learning. By adopting a learning model that combines online and offline elements, as well as theoretical and practical components, the maximization of the synergistic effect of cooperation between universities and industry in nurturing talents can be achieved.

### **3.4 Digitization of Teaching Evaluation in the Context of the Digital Economy: the Implications of University-industry Collaboration**

In the assessment of student academic achievement, it is crucial to diversify the evaluators and break away from the traditional pattern of solely relying on teachers as the sole evaluators. Additionally, adopting multifaceted evaluation criteria is essential, moving beyond simple numerical scores. The establishment of educational goals should not be overly narrow, but rather emphasize the cultivation and elevation of students' overall qualities.

In order to ensure vocational colleges possess clear, scientific, systematic, and practical directions and objectives for talent development, it is essential for educational institutions and industries to work hand in hand in constructing an internet-based, digitized monitoring and evaluation system. This collaborative effort enables maximum utilization of teaching evaluation feedback and adjustment functions. In the context of digitization, it becomes crucial to break free from the constraints of traditional evaluation models and embrace a digitally-oriented approach that encompasses evaluation goals, processes, and outcomes. This transformation entails a shift away from a sole emphasis on academic performance and towards a more comprehensive evaluation philosophy.

On one hand, higher education institutions should align their educational philosophies, styles, and characteristics with technically

mature big data enterprises to establish stable, long-term, and harmonious collaborations. Together, they can create a big data center capable of recording and evaluating the talent development process. Collaboratively, they can develop a comprehensive competency recording and evaluation system based on big data processing and application technologies. This system will collect, process, and analyze all data and information from teaching activities, allowing for a more objective and comprehensive recording, tracking, and evaluation of students' learning processes and examination results. This approach enables a holistic understanding of students' learning and behavioral habits, providing valuable references and guidance for adjusting their learning plans and strategies. Furthermore, to ensure the effectiveness of the teaching process and its evaluation, teaching methods should be adjusted based on feedback results. Consistently optimizing the teaching process aligns it with the objectives and directions of talent development.

### **5. Conclusion**

On a theoretical level, this article, based on a deep understanding of the meaning of the cooperative education model between schools and enterprises in higher vocational education, takes into account the digital economy dimension.

Starting from this, we will explore a new approach to the development of the school enterprise cooperative education model in higher vocational education, focusing on building a new model of school enterprise cooperative education with the core of cultivating technical talents with digital literacy, guided by promoting the organic integration of vocational education training system and information education technology, guaranteed by the effective integration of enterprise management and school education, and using modern digital technology application as a means.

At the practical level, this article aims to take the new demands for talent development proposed by the characteristics of the digital economy development as the starting point, and based on the current survey results of the talent training system in higher vocational education as the factual basis. With a new approach, it studies and explores the

innovation of professional skilled talent training models and school enterprise integration models, in order to cultivate new talents that adapt to the development of the digital economy, Promoting the close connection between talent cultivation in vocational colleges and social needs is also the innovation of this article. There are still some areas that need to be improved and supplemented in future practice.

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