ISSN 2663-8169 Vol. 6, Issue 9: 108-112, DOI: 10.25236/IJNDE.2024.060916

Research on the education mechanism of integrating industry and education in local colleges and universities in the new era

Nan Ni

Communication University of China, Nanjing, China
316435705@qq.com

Abstract: *In the context of the new era, the rapid economic development and personalized advancements in science and technology present novel challenges for talent cultivation. In alignment with national strategic directives emphasizing science and technology-driven growth as well as talent enhancement, local universities assume a crucial role in the holistic advancement of scientific research, technological innovation, talent development, and education—bearing significant responsibilities and missions. Consequently, these institutions must adapt to the emerging requirements for talent cultivation articulated by this new era, adhere to national strategic guidance, respond proactively to prevailing trends in local development, and effectively promote diversification, practical application, and efficacy within educational models, curriculum content, and evaluation systems pertaining to industry-education integration. This approach will accelerate the establishment of innovative platforms that integrate industry with education as well as science with technology while fostering comprehensive talent integration.*

Keywords: *new era; local universities; integration of production and education; education mechanism*

1. Introduction

In the new era, the rapid upgrading of industries and the restructuring of China's economic framework have imposed increasingly stringent requirements for talent cultivation in higher education institutions. The report from the 20th National Congress of the Communist Party of China emphasizes the necessity to advance the integration of general and vocational education, foster collaboration between industry and academia, and promote synergies between science and education to enhance vocational education's positioning. This integration serves as a pivotal strategic initiative aimed at facilitating cohesive development across education, science, and talent cultivation, thereby delineating critical pathways for talent development within China's educational landscape. Local universities play a crucial role as platforms that adapt to regional characteristics while fostering new productive forces; they must align closely with societal and national needs by transforming existing educational models. By establishing mechanisms that integrate education with industry, these institutions can effectively cultivate high-quality applied talents capable of meeting societal expectations.

2. The necessity of integrating production, education and education under the background of the new era

The integration of industry and education primarily refers to an innovative educational model that emphasizes the close collaboration between educational institutions and industries.[1] Through deep cooperation, both parties jointly cultivate high-quality talents capable of meeting the demands of contemporary society and the evolving times. The essence of this model lies in dismantling traditional boundaries between education and industry, facilitating resource sharing and leveraging complementary advantages to enhance both educational quality and industrial competitiveness. Local colleges and universities serve as vital platforms for developing new productive forces tailored to regional conditions, acting as essential bases for achieving the integration of science, technology, talent, and education.

In the context of the new era, promoting the integration of industry and education by local colleges and universities is crucial for addressing the urgent demands of industrial transformation and upgrading.

ISSN 2663-8169 Vol. 6, Issue 9: 108-112, DOI: 10.25236/IJNDE.2024.060916

Currently, China's economic development is at a pivotal juncture characterized by industrial transformation, upgrading, and innovation-driven growth. However, the existing talent training system has not fully adapted to these changes, resulting in a mismatch between talent supply and demand; thus, the significance of 'integration of industry and education' continues to grow. In higher education, this integration serves as an effective link between academia and industry, fulfilling the objective of talent cultivation while providing cutting-edge practical platforms for institutions. While addressing employment challenges, it is essential to facilitate an 'enabling' upgrade within industries and reform the structure of talent supply. Promoting this integration stands at the core of optimizing the educational ecosystem's structure—an ecosystem encompassing various elements such as resources, information flow, and educational capabilities. The talents developed by local higher education institutions can significantly contribute to advancing regional economic development; however, many graduates face challenges in fully realizing their potential in professional settings due to a substantial gap between their acquired knowledge and actual industry demands coupled with a general lack of practical skills—highlighting insufficient alignment between industry needs and educational outcomes. As integral components of this educational ecosystem, higher education institutions have a vital role in fostering student development by enhancing students agency over their learning processes while encouraging comprehensive application of knowledge through innovative curriculum content that effectively integrates theory with practice.

3. The role and mission of local universities in the integration of industry and education

The integration of industry and education is an effective strategy to promote the coordinated development of education and local economy and society, and it is the only way for local colleges and universities to realize the transformation and sustainable development. Local colleges and universities focus on cultivating application-oriented talents and high-level skilled talents, which to a certain extent solves the structural lack of talent training in colleges and universities. As one of the key subjects of industrial integration, local higher education institutions should not only play their positive role in the fields of personnel training, scientific research and social service, but also play their core role in promoting local economic development and industrial upgrading. Therefore, local colleges and universities play a vital role in the integration of industry and education.

First of all, local universities have their own unique advantages in cultivating talents. Through in-depth cooperation with the business community, these institutions can have a deep understanding of the needs of enterprises and the development trend of the industry, so as to adjust the curriculum and optimize the teaching content. The purpose of this is to ensure that students can master the skills and knowledge necessary for their practical work during school, so that they can better adapt to their future careers. In addition, local higher education institutions can also use internship and practical training to provide students with a real working environment, so that they can accumulate valuable experience in practical operation. In this way, students can not only combine theoretical knowledge with practice, but also adapt to the workplace environment in advance, so as to enhance their competitiveness in the job market. This close cooperative relationship not only contributes to the development of students, but also provides strong talent support for the development of local economy.

Secondly, local universities promote innovative development in the field of scientific research. By cooperating with enterprises to carry out scientific research projects, the theoretical research results can be transformed into practical applications, thus promoting technological innovation and industrial upgrading. For local universities, enterprise cooperation not only provides practical opportunities for students to make the research results more targeted and practical, but also obtains economic support through project funds, and further promotes the in-depth development of scientific research work. For enterprises, with the cooperation of higher education institutions, they can obtain technical support and intellectual resources, so as to improve their market competitiveness. Therefore, the cooperation between local higher education institutions and enterprises can not only help to promote the progress of scientific research, but also promote the development of local economy and achieve a win-win situation.[2]

Finally, local universities play an important role in promoting local economic development and industrial upgrading. Through the integration of industry and education, higher education institutions can transform their scientific research achievements and talent advantages into a powerful driving force to promote the development of local economy, and promote the optimization and upgrading of the industrial structure. At the same time, higher education institutions can also drive the development of the relevant industrial chains through the cooperation with enterprises, and thus promote the prosperity

ISSN 2663-8169 Vol. 6, Issue 9: 108-112, DOI: 10.25236/IJNDE.2024.060916

of the local economy. These higher education institutions not only provide high-quality talent resources for the local authorities, but also promote technological innovation and industrial upgrading through close cooperation with enterprises. Through school-enterprise cooperation projects, higher education institutions can better understand the market demand, adjust the teaching content and direction, and cultivate professionals more in line with the market demand. In addition, higher education institutions can also transform their scientific research achievements into actual productive forces through the establishment of research and development centers and technology transfer centers to promote the rapid development of local economy.

4. Construction strategy of the education mechanism of integrating industry and education in local universities in the new era

4.1. Establish the "dual subjects" and promote the "diversified" development of the industry-education integration and education model

Since the issuance of the significant document Several Opinions of The General Office of the State Council on the Integration of Industry and Education, various sectors of society have actively engaged in promoting the implementation of this integration model. However, during practical operations, a notable mismatch persists between talent training and industrial demand. This discrepancy primarily arises from an insufficiently clear definition of the rights and responsibilities among all parties involved in this integration process. Given its inherent "crossover" characteristics, stakeholders include educational institutions, enterprises, and government entities. In this complex context, local universities and enterprises—integral components of the educational ecosystem—should collaboratively establish a dual-subject personnel mechanism characterized by "school + enterprise." By enhancing deep cooperation between universities and businesses while adhering to systemic concepts and establishing strategic partnerships, we can promote diversified development within industrial integration education models.

First, strengthen exchanges and cooperation between schools and enterprises. Local institutions of higher learning should deepen cooperation with enterprises according to their actual conditions, such as talent demand, technological innovation and social services. Colleges and universities should timely announce their development plans and the direction of the dynamic adjustment of their majors, so that enterprises can more accurately grasp the educational goals and directions of their schools. At the same time, colleges and universities should also break the traditional closed professional barriers, pay close attention to the market development trend and the needs of enterprises, and promote the in-depth development of discipline construction through the integration of industry and education.

Second, build a sound integrated ecosystem of industry and education. Under the framework of "dual subject" mode, colleges and universities should take active actions, and enterprises should also actively participate in the whole process of higher education talent training, so as to solve the problems in the process of school-enterprise integration, and coordinate resources from all aspects to form synergistic effects together. Enterprises can integrate the actual needs and industry standards into the talent training system by establishing practice and training bases, participating in course planning, and guiding students practical activities. At the same time, colleges and universities should also take the initiative to absorb the advanced technology and management knowledge of enterprises, to create the learning conditions for students closer to the real working environment.

Third, we will improve the relevant policy support and guarantee system. The "diversification" of the mode of integrating production and education means to participate in various parties and realize collaborative education. Therefore, the government should give full play to its guiding and coordinating functions, and formulate and implement relevant policies and measures to encourage and standardize the practice of the integration of industry and education. In addition, the government should give full play to the macro-control role of the government. It is also very important to establish and improve the evaluation and incentive mechanism, and stimulate the enthusiasm and initiative of all parties through the establishment of the effective evaluation and reward for the participation of enterprises and universities in the integration of industry and education. Through these measures, we will further promote the in-depth development of the integration of industry and education, and cultivate more high-quality talents to meet the needs of the industry.

ISSN 2663-8169 Vol. 6, Issue 9: 108-112, DOI: 10.25236/IJNDE.2024.060916

4.2. Grasp the "five elements" and promote the "practical" reform of the integration of industry and education courses

In the context of the integration of industry and education, the setting of course content should pay attention to the close combination of theory and practice, and strengthen the teaching of interdisciplinary knowledge, so as to improve students practical operation ability and problem solving ability. Therefore, local colleges and universities need to grasp the "practical" reform of curriculum content by "grasping the five elements" in constructing the education mechanism of integrating industry and education. Among them, the "five elements" refer to the "major, curriculum, teaching materials, programs and bases".

First, in-depth professional reform necessitates that universities closely monitor the developmental trends of relevant industries, analyze the characteristics of industry demand for talent, and subsequently integrate industrial development technologies and concepts into their curricula. Concurrently, collaboration with enterprises to conduct professional certification can enhance management practices and facilitate development initiatives. Second, curriculum reform involves updating the curriculum system by implementing a principle that combines theory with practice; this includes increasing practical course offerings so that practical instruction constitutes no less than 50% of total class hours. Students should be allowed to select courses independently while dynamically adjusting elective content based on industry trends and market demands, thereby addressing previous limitations in course selection diversity. To accommodate students' personalized engagement in 'mass innovation' projects, it is essential to fully understand the needs of educators, students, markets, and industries when selecting appropriate textbooks; leveraging educational digitization; integrating enterprise resources into curricula; mobilizing faculty research efforts; compiling institution-specific teaching materials or utilizing enterprise-provided resources; and establishing a comprehensive curriculum resource database to offer rich learning opportunities and support for higher education institutions.

Innovation entails a systematic overhaul of existing talent training programs. In the process of integrating industry with education, local colleges and universities must actively innovate their talent training frameworks to align with social and industrial development needs. This specifically includes adjusting curricula, strengthening partnerships with companies, and modernizing teaching methodologies to ensure that students acquire current knowledge and skills while enhancing their practical abilities as well as innovative capacities. Through such innovations, local universities can more effectively cultivate high-quality talents aligned with market demands—thereby promoting regional economic growth and social progress.

Furthermore, foundational reforms involve establishing new platforms for "industry-university-research cooperation" which actively promote cutting-edge developments within higher education institutions alongside actual industry requirements—facilitating close integration between knowledge innovation, technological advancement, and market demand. Simultaneously breaking down traditional disciplinary boundaries fosters deeper interdisciplinary collaborations while stimulating researchers innovative potential within universities—providing robust technical support as well as talent assurance for industrial advancement. This profound integration among industry entities along with academic institutions has accelerated both the transformation/application of scientific achievements while promoting industrial upgrades alongside improvements in economic structures ultimately leading towards sustainable socio-economic development.

4.3. Adhere the "four aspects" and promote the "effectiveness" innovation of the evaluation system integrating industry and education

The evaluation system of industry-education integration refers to a set of scientific and systematic evaluation mechanism established in the process of deep integration of education and industry.[3] The core purpose of this evaluation system is to evaluate and measure the effect of education and industry cooperation, and to ensure that the bilateral cooperation can achieve the expected goals and benefits. Through this evaluation system, the process of industry-education integration can be effectively monitored and guided, the precise connection between educational resources and industrial demand can be promoted, and the synergistic effect of education quality and industrial development can be improved. The evaluation system of industry-education integration covers many aspects, such as the implementation effect of cooperation projects, the quality of talent training, the achievements of technological innovation, and the ability of social services, etc. Through the comprehensive evaluation of these aspects, the actual results of the integration of industry and education can be fully understood,

ISSN 2663-8169 Vol. 6, Issue 9: 108-112, DOI: 10.25236/IJNDE.2024.060916

the existing problems and deficiencies can be found, and then the improvement measures and suggestions can be put forward.

In order to better solve the problems existing in the integration of industry and education in local colleges and universities, we must uphold the principle of "four aspects", namely, facing the industry, the world and the future, and continue to deepen the reform of engineering education. In this process, it is necessary to follow the principle of "goal oriented, demand oriented, effect oriented", the new requirements of production and education integration, to promote the integration of industry and education to achieve practical results. First of all, the diversification of evaluation subjects is the key to the implementation of industry-education integration. The implementation and design subjects of the integration of industry and education are diversified. Therefore, in the evaluation, it is necessary to introduce diversified evaluation subjects such as industry associations, leading enterprises and third-party institutions, and integrate the needs of universities and enterprises for innovative and applied talents into the whole process of talent training, so as to form a comprehensive and objective comprehensive evaluation.

Secondly, the diversification of evaluation methods is also an important part of the evaluation system of integrating industry and education. Various ways, such as social demand data, learning results data acquisition, modeling quantitative analysis and other multiple paths, are used to evaluate the talent training process and effectiveness of the integration of industry and education. This diversified evaluation method can more fully reflect the actual effect of the integration of industry and education, and provide strong data support for the improvement and optimization of the integration of industry and education.

Finally, the scientific evaluation effect is the key to ensure the effectiveness of the evaluation system of industry and education. With the help of artificial intelligence technology, we should strengthen the construction of professional connotation, and make the preliminary preparation for professional certification in advance, so as to make the evaluation indicators scientific, and make the reform of the talent training mode of integrating industry and education more targeted and predictive. Through the scientific evaluation effect, we can ensure that every step of the integration of industry and education is based on solid data and analysis, so as to promote the integration of industry and education to a higher level.

5. Conclusion

In summary, the rapid transformation and advancement of society have introduced more stringent and innovative requirements for the professional knowledge, skill application, critical thinking, and innovative capabilities of talents. As a crucial component of the higher education ecosystem, local universities play an essential role in fostering talent development while adapting to regional economic and social progress. To establish an effective talent training mechanism that integrates industry with education, local universities and enterprises must collaboratively develop a 'dual-subject' model that promotes diversified growth within this framework, emphasizes the integration of theory and practice, focuses on five key elements, and adheres to principles of effectiveness to ensure successful implementation.

Acknowledgements

This paper is the research result of the university-level research project "Research on the mechanism of education Integration between Production and Education in Universities" of Communication University of China, Nanjing, project number: 2023KY19.

References

[1] He Zhen. (2024). Insight and grasp of the essential connotation and basic law of industry and education integration. Vocational and Technical Education in China (15), 25-29.
[2] Li Shimei, Guo Fuliang, Di Zhenpeng. (2022). The collaborative education mechanism and innovation path of the integration of industry and education. Journal of Wuhan Metallurgical Management Cadre Institute (01), 45-48.
[3] Tang Weibing, Wen Hui, Peng Jianping. (2018). Construction of collaborative education mechanism under the concept of "integration of industry and education". China Higher Education (08), 14-16.