

Research on the Integration Path of Industry and Education in the New Business Science in the Digital Intelligence Era

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Keywords: Digital Age, New Business Science, Integration of Industry and Education

Abstract: Building an educational powerhouse requires education to take the lead. Deepening the integration of industry and education, as well as school enterprise cooperation, is an important way to achieve the connotative development of higher education. With the development of information technology and the arrival of the digital economy era, the government pays full attention to the industrial system of coordinated development of scientific and technological innovation, modern finance and human resources while building the real economy, and should promote the deep integration of the Internet, big data, artificial intelligence and the real economy. Vigorously developing vocational education and promoting its modernization are strategic measures taken by the country to achieve rapid economic and social development; Promoting the integration of industry and education in vocational education and deepening school enterprise cooperation is the implementation of strategies. The high-quality development of vocational education will provide more high-quality human resources for the development of regional economy and society, optimize the structure of human resources, improve the overall quality of workers, and provide talent guarantee for the sustainable development of regional economy and society. By deepening the reform of higher vocational education, leveraging the important role of enterprises, promoting the comprehensive integration of talent cultivation supply side and industry demand side, and cultivating composite and innovative new business talents, we can promote the construction of an industrial system with coordinated development of the real economy, technological innovation, modern finance, and human resources, artificial intelligence and the real economy [7].

1. Definition of Relevant Concepts

1.1 Integration of Industry and Education

"The integration of industry and education" is not a new concept, new approach, or new concept, but a constantly deepening cognitive and practical path of the government, education, and theoretical circles in the long-term interaction between education and industry, driven by the concept of resource symbiosis, and in the new situation of social and economic development in reality [1-2].

1.2 Deepening the Integration of Industry and Education

Firstly, the integration stage of industry education integration is to connect the demand for market talents and the supply of local university talents on the basis of existing school enterprise cooperation, so that the talent cultivation of local universities can change around market demand, change the closed, semi blood, and self-circulation situation, and integrate market demand and actual business ability cultivation into the entire talent cultivation process by accurately matching industrial development talent demand and social demand. Secondly, the integration stage of industry and education is based on the intelligence of local universities in talent cultivation, scientific research, social services, cultural inheritance, and international cooperation, connecting these functions to form a synergistic effect. Finally, in the integration stage of industry education integration, it realizes the convergence of interests among various subjects of industry education integration on the basis of integration and integration, achieving a situation of sharing and integration, integrating all subjects of industry education integration, reducing the transaction process between the market and various subjects, achieving smooth transformation and mutual support of various resource elements, and ultimately forming a benign interactive and sustainable development of industry education integration ecosystem, is shown in Table 1 [3].

Table 1: Strengthen infrastructure construction

Serial number	content
1	The Integration Stage of Industry Education Integration.
2	The integration stage of industry and education.
3	The Integration Stage of Industry Education Integration.

2. Overview of Relevant Theories

2.1 Resource Dependency Theory

The theory of resource dependence originated in the 1940s and proposed four important hypotheses: firstly, organizations are most concerned about survival; Secondly, organizations are generally unable to provide all the resources they need for survival; Thirdly, organizations cannot be detached from environmental factors, and therefore cannot avoid interacting with other organizations in the environment; Fourthly, the strength of an organization's survival ability is reflected in its ability to control its own relationships with other organizations. From the above four assumptions, the second assumption is the core of the theory. Therefore, this theory suggests that organizations need to maintain their survival by acquiring resources from the environment, which requires positive interdependence between organizations and establishing a good system of connections, ultimately achieving optimization of dependencies [4].

2.2 Triple helix theory

The triple helix in the triple helix theory refers to the close cooperation and interaction among universities, industries, and governments in innovation, while each party maintains its own independent identity, which is an innovative model. This theory, through a decentralized approach in subject research, emphasizes that the government, industry, and universities can all become leaders and organizers in the theoretical system, rather than just participants. Its core value lies in effectively unifying the government, enterprises, and local universities with different value systems in promoting regional economic and social development, forming a three force integration of knowledge, administration, and production, and laying a solid foundation for economic and social

development. In the integration of industry and education, the three helix theory helps to explain the problems existing in different industry and education integration models in China from the perspectives of various subjects, which is also extremely helpful for the analysis of industry and education integration models [5]. The schematic diagram of the three helix theory is shown in the following figure 1:

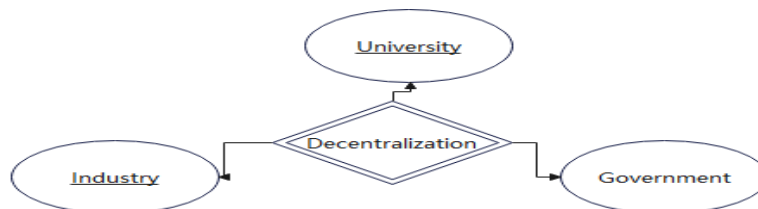


Figure 1: Three helix theory relationship diagram

3. Problems in the Integration of Industry and Education in the New Business Era of Digital Intelligence

3.1 Policy Issues

The provisions related to the integration of industry and education in some existing policies and laws and regulations are still relatively primitive, and need to be strengthened in terms of standardization, constraint, and operability. In practical implementation, all aspects related to the integration of industry and education is based on corresponding laws and regulations, without specific laws and regulations. For example, when the government promotes the integration of industry and education, in order to enhance the participation of enterprises in the integration, certain subsidies or tax reductions are given, which makes the policy of industry and education integration somewhat arbitrary, leading to the practice of industry and education integration often becoming mere formality.

3.2 Bottlenecks in funding sources

The source of funds is an important aspect of ensuring financial resources, and although the integration of industry and education in the New Business School is approached from the perspective of education and industry, the demand for education is actually more urgent. From the current policies that have been introduced, the education management department has provided various support to promote the integration of industry and education, including financial support. From the perspective of local and industrial sectors, various policies encourage various regions to improve relevant financial policies based on local actual situations, provide preferential support for reform pilot industries and projects, and increase support for industries that are urgently needed, technically strong, have high educational costs, and are in difficult industries. However, the actual situation is that many universities have not received relevant special education finance funds. Although many universities have established special funds through project approval and other forms, the amount of these funds is limited, especially for business majors, which have a small amount of funds and cannot provide effective support for the deep integration of industry and education in universities [6].

3.3 The flexibility of new business disciplines and professional settings is poor

From the perspective of the adjustment of new business disciplines and majors, although research on new business has begun, with the further advancement of the digital economy, the

requirements for new business disciplines and majors have also changed. If we want to ensure that the disciplines and majors of new business are in line with the market and industrial development, and cultivate new business talents that meet the needs of industrial development, local universities need to adjust and upgrade their disciplines and majors according to such changes. However, currently, the approval authority for the establishment of disciplines and majors in universities, especially for the establishment of new majors, belongs to the government's education administrative department. However, there is a certain degree of fragmentation between the education department, the labor and employment department, and industry associations, making it difficult to capture market changes and changes in new business related majors in a timely manner. This directly leads to local colleges and universities following the evaluation indicators of higher authorities, rather than following the demand of the job market, and the setting of new majors lags behind the market.

3.4 The professional skills of the "dual teacher" teaching team are not strong enough

There is a huge gap in the construction of the "dual teacher" teaching team in universities from the perspective of teacher-student ratio. In order to make up for this gap, various universities have made efforts. Some universities can basically meet the number of teachers, but from the perspective of professional skills, these teachers have weak overall professional skills. Although many universities organize a group of teachers to develop into "double qualified" teachers and provide practical training for all teachers in their respective majors to enhance their professional skills, knowledge, and level, many teachers only have a superficial understanding of this training process. At the same time, due to the poor effectiveness of the "dual teacher" teacher incentive system in most universities, bonuses are mainly given, with a certain amount of money, and it is a one-time reward or a certain degree of tilt during evaluation. However, from the long-term perspective of teacher growth, future development still needs to focus on scientific research, competitions, book compilation, etc. The assessment of professional practical ability is only a small part, which makes the efforts and rewards of many teachers to become "dual teacher" teachers unequal, and many teachers are unwilling to participate in the transformation of "dual teacher" teachers.

Some new teachers typically go from university to university, lacking professional work experience or limited experience, with strong theoretical knowledge and weak practical operation. Although there is certification in skills such as obtaining vocational skills certificates in the field of management, the overall trend of the "dual teacher" teaching team in terms of professional skills is showing a weak state.

3.5 Unreasonable teaching evaluation system

The integration of industry and education in the new business field has put forward new requirements for the teaching content and methods of business teachers. However, the evaluation system for teachers in existing universities still adheres to established norms, and even if there is progress, the results are not significant, which cannot reflect the performance and efforts of teachers in the integration of industry and education in the new business field. It is difficult to effectively motivate and supervise teachers to improve teaching content and methods, which is not conducive to enhancing the motivation of teachers to deepen the integration of industry and education in the new business field. Firstly, class hours rather than teaching quality are the main indicators for measuring teacher performance. The salary distribution and professional title evaluation of teachers are mainly based on the amount of class hours completed, teaching experience, and various teaching achievement awards received by teachers, rather than the level of teaching effort and teaching effectiveness of teachers; Secondly, teaching evaluation is merely a formality. The teaching

evaluation of universities generally adopts a three in one teaching evaluation model of student evaluation, teacher mutual evaluation, and university evaluation. On the surface, this model appears to be comprehensive and objective, but in practical operation, the teaching evaluation level provided by students, teachers, and universities is mostly at a medium to high level, and the results of teaching evaluation will hardly have a substantial impact on teachers. Thirdly, inadequate teaching supervision. The teaching supervision of universities is mainly implemented by the Academic Affairs Office or the Quality Office. Leaders and supervising teachers are usually grouped for supervision. Many universities, due to the lack of supervising teachers, do not allocate supervision according to their majors, resulting in the evaluation of outsiders and experts being meaningless. The problems with the integration of industry and education are shown in the following figure 2:

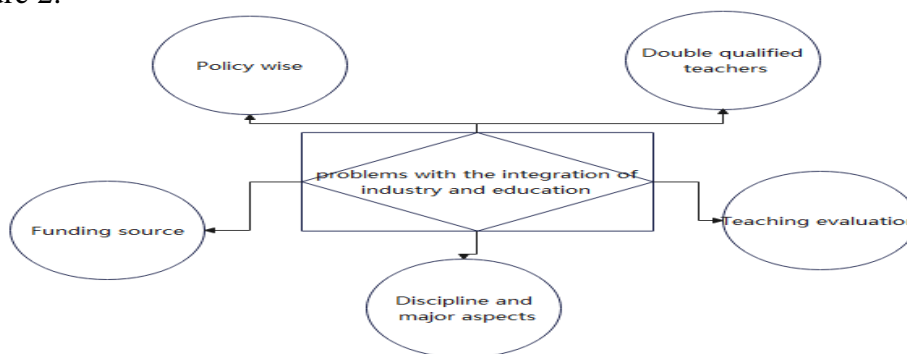


Figure 2: Problems in the Integration of Industry and Education

4. Experience and Inspiration from the Integrated Development of Industry and Education At Home and Abroad

From the development process of industry education integration at home and abroad, it can be seen that both domestic and foreign countries are continuously deepening industry education integration based on market demand and talent cultivation needs. Currently, deepening the integration of industry and education is one of China's national policies. The reason for deepening the integration of industry and education is that it has been implemented in China for many years. However, some universities, due to their inaccurate positioning and insufficient understanding, rely more on policies rather than education and market demand in achieving the integration of industry and education. This has led to unstable and insufficient cooperation, single cooperation models, insufficient resource allocation, and incomplete policies and regulations. To address these issues, an analysis was conducted on several recognized models of industry education integration both domestically and internationally, and successful models of industry education integration both domestically and internationally have the following characteristics.

4.1 Top level design provides assurance and gradually improves the legal and regulatory system

From the development process of industry education integration at home and abroad, it can be seen that it is not something that schools can solve on their own. Even if enterprises themselves have needs, because they are two entities in the market, according to Coase's property rights theory, their transactions and cooperation will incur transaction costs. In order to reduce transaction costs, they will make more favorable choices from the perspective of rational economic people, which can easily lead to conflicts and make it difficult for industry education integration to continue. Therefore, both domestically and internationally, the government has introduced corresponding

laws and regulations to safeguard the implementation of industry education integration. These policies and laws are based on the entities involved in the integration of industry and education, such as vocational colleges, students, enterprises, and third-party evaluation institutions. In combination with the development background of the times, legislation is enacted to clarify the status of each entity in the integration of industry and education. The responsibilities, rights, and interests of each entity are becoming increasingly clear in the deepening development of industry and education integration, in order to promote the smooth implementation of industry and education integration.

4.2 Improve third-party evaluation mechanism

Reforming the evaluation system and stimulating the enthusiasm and adaptability of all parties to participate in the integration of industry and education is also an important link in the integration of industry and education. As mentioned in the TAFF college model, its independent and effective third-party evaluation mechanism has become one of the key factors in the global typical industry education integration model. According to the experience of local universities in various countries, it is known that in the process of integrating industry and education, scientific research, teaching workload, and research achievement conversion rate can be counted, actively safeguarding the rights and interests of teachers and students, encouraging them to participate in the practice of industry and education integration projects, and promoting the sustainable development of industry and education integration.

4.3 The integrated development of industry and education should closely follow the development status of industries and take disciplinary construction as an opportunity

The integration of industry and education is one of the important ways to cultivate talents, and talent cultivation is an important way to meet the needs of economic development. From the experience of the integration of industry and education at home and abroad, it can be seen that promoting the development and model changes of industry and education integration needs to be in line with talent cultivation and market demand, in order to adjust the integration of industry and education. As the supplier of labor, both domestic and international perspectives believe that schools should rely on market demand and continuously promote the integration of industry and education with economic development. From the perspective of adjustment, the main body of adjustment should be schools rather than the market. The scope that schools can adjust is talent training models and programs, and the integration of industry and education is of utmost importance.

4.4 Cultivate "dual teacher" teachers

In the process of integrating industry and education, it is crucial to cultivate "dual teacher" teachers who meet both theoretical teaching and practical teaching needs. Although there is no direct introduction of support measures for "dual teacher" teacher resources in various models, based on the experiences of various countries, corresponding arrangements have been made to address the shortage of "dual teacher" teachers. In order to expand the integration of industry and education, countries have begun to dispatch teachers to participate in enterprise technology development and service guidance, and directly participate in enterprise production practice, so that teachers can help enterprises in daily life to carry out production practice and solve practical difficulties in practice. School teachers can also continuously improve and exercise themselves through this opportunity.

The experience and inspiration for the integrated development of industry and education at home and abroad are shown in the following figure 3:

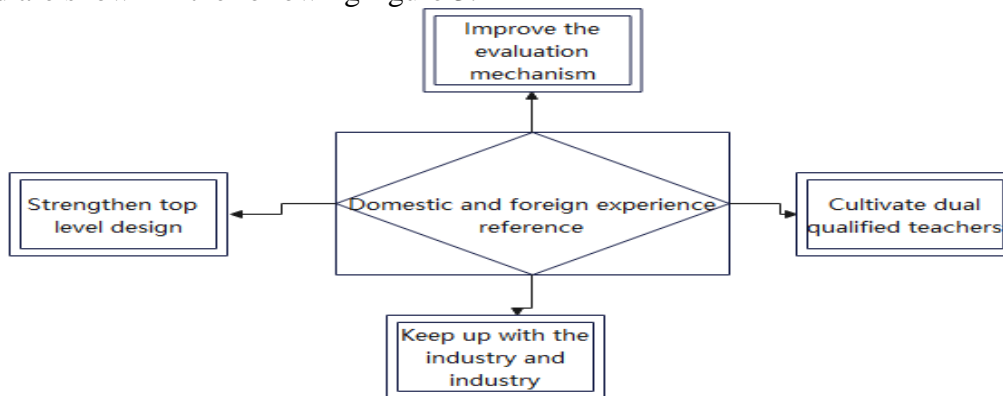


Figure 3: Experience and reference of industry education integration at home and abroad

5. Design of the Integration Path of Industry and Education in the New Business Era of Digital Intelligence

5.1 Construction of Virtual Simulation Platform and Training Base

In this study, a business big data experimental center was established to simulate the real economic and enterprise environment, and "enterprises were moved into the school", so that students could be immersed in the virtual business professional working environment, strengthen their understanding of the real enterprise environment, and realize the integration of different majors and professional knowledge through interdisciplinary comprehensive training. By connecting with the real scenarios of the enterprise, running through the overall business process, and supporting the sharing information platform, spiral progression is achieved to achieve "two uninterrupted lines of practical teaching", and the practical teaching content is truly internalized into the cultivation of students' comprehensive quality, knowledge transfer ability, and cross integration ability. At the same time, based on this practical system, we will build a personalized platform for college students to adapt to the development of their professional abilities. We will provide personalized development resources for students based on individual differences in their professional qualities, achieving a one-to-one correspondence between development content and ability model indicators. In terms of industry business capability training and improvement, we provide students with on-the-job practical opportunities through various models such as introducing enterprises into education and establishing integrated industry education enterprises [8]. Platform construction enhances training for students on the abilities included in the following table 2:

Table 2: Platform construction enhances training for students on the abilities

Serial number	content
1	Knowledge transfer ability.
2	Cross fusion capability.
3	Personalized professional abilities of college students.

5.2 Construction of a three-dimensional competition system for new business subjects

Competition is one of the effective ways to enhance students' comprehensive quality and ability, and it is also a powerful measure to test the effectiveness of teaching. At the school level, students should be actively encouraged to participate in various forms of skill competitions, such as

accounting practice, business finance and tax integration big data application, smart finance, innovation and entrepreneurship competitions, etc. Schools should provide platforms and opportunities for teachers and students to participate in various competitions, so as to achieve the goal of promoting teaching, learning, and reform through competitions. Supporting practical skills through a competition system during the training process is also one of the categories of industry education integration to meet new requirements for work complexity and interdisciplinary requirements. In the three-dimensional commercial competition system, we should organically integrate various competitions in regular teaching, and establish rules at the school and college levels. Top level design such as reward standards, fully tapping into the subjective initiative of teachers, and establishing a sound and standardized team of vocational skills competition guidance teachers.

5.3 Construction of New Business Majors

The deepening of the integration of industry and education in the new business field also requires the construction of professional clusters in the environment of industrial cluster establishment. The establishment of a new business major cluster needs to be open to society based on the actual situation of each university, promoting mutual communication and exchange among industries, enterprises, and local universities. In the era of digital economy, digital technology is deeply integrated with the real economy, especially in the process of digital industrialization and industrial digital development, new industries, new formats, and new models have emerged. The construction of a new business professional group is conducive to integrating new industries, new formats, and new models into traditional finance and commerce courses, providing students with comprehensive applied education for digital business careers. At the same time, the connotation and characteristics of new business provide new directions for the construction of professional groups. As a new concept that embodies the concept of business education in the digital economy era, "New Business" provides new construction logic for the connection, integration, and symbiosis between local university majors. Such connection, integration, and symbiosis are conducive to resource sharing and implementation of industry education integration [9].

5.4 Construction of Digital Service Platform

The rapid development of digital technology has led to the formation of new business models, and the original production, trading, and sales models have undergone significant changes. The new business model also requires increasingly high resources such as talent, information, and technology. The dissemination and management of information require significant costs, and establishing a professional digital service platform to manage information can greatly reduce information costs. Through this platform, accurate information on school enterprise cooperation can be collected through digital network technologies such as blockchain technology and big data, greatly improving the probability of successful docking and implementation of regional school enterprise cooperation projects. [10-11].

5.5 Construction of an evaluation and feedback system for the implementation path of the integration of industry and education in the new business field

In the design of the system, it should revolve around the academic and career development process of students, utilize the intellectual resources owned by the school according to their different stages of academic or career development, play the role of think tanks and consultants, and provide full service. This study establishes a dynamic adjustment mechanism of demand assessment

adjustment and adaptation. This study solves the contradictions between the rapid development of the industry and the lagging of school education, the inadequate integration of theoretical teaching and practice, the obstacles in the integration of industry education, and the organic combination of academic and professional development caused by factors such as new technology, new business models, refined division of labor, cross-border integration, and changes in the international situation. The path of industry education integration is shown in the table 3 below:

Table 3: Design Table for the Integration Path of Industry and Education

Serial number	content
1	Construction of Virtual Simulation Platform and Training Base
2	Construction of a three-dimensional competition system for new business subjects.
3	Construction of New Business Majors Group.
4	Construction of digital service platform.
5	Construction of an evaluation feedback system for the implementation path of the integration of industry and education in the new business field.

6. Conclusion

In the context of the digital economy, the goal of cultivating new business talents has put forward new requirements for the talent cultivation system of industry education integration. We need to reconstruct the path through internal and external dimensions, optimize the evaluation feedback mechanism, and continuously adjust various elements of the industry education integration system with the changes in the new environment to ensure the adaptability of the integration of new business science, industry education and the long-term development of the industry.

Acknowledgement

This work was supported by the Research on the Integration Path of New Business and Industry Education in Xi'an Vocational Education in the Era of Digital Intelligence, Xi'an Social Science Planning Fund Project, (Project No.24JY05);

This work was supported by the "Research on the Training Model of New Business Applied Talents in Higher Vocational Colleges under the Background of Digital Economy Transformation", Shaanxi Institute of Education Sciences,(Project No. SGH23Y3098);

This work was supported by the Research on the Development Strategies of Higher Adult Continuing Education in the Context of the "the Belt and Road", the general subject of 2023 of the "14th Five Year Plan" Adult Continuing Education Research Plan of the China Adult Education Association (Project No.2023-021Y);

This work was supported by the "Research on the Reform of Modern Distance Education Teaching Models under the Background of Digital Economy", Shaanxi Open University Education Teaching Reform Project, (Project No.sxkd2023yb01);

This work was supported by the Research on Countermeasures for the Development of Higher Continuing Education from the Perspective of the "the Belt and Road", Scientific Research Project of Shaanxi Open University (Shaanxi Vocational College of Industry and Commerce), (Project No. 2023KY-B14);

This work was supported by th Research on Deeply Integrating Innovation Chain, Industry

Chain, Capital Chain, Talent Chain in Xi'an, Xi'an Social Science Planning Fund Project, (Project No.24GL04)

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