The Realistic Dilemma and Implementation Countermeasures of the Integration of Industry and Education in the Big Data Era

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Abstract: The integration of industry and education in the era of big data is not only a policy requirement, but also in line with the development trend of technological change. However, from the perspective of colleges, teachers and enterprises, there are many practical difficulties in the integration of industry and education in the current big data era: the level of informatization construction of vocational colleges needs to be improved; the informatization capabilities of teachers cannot meet the development needs of industry and education integration; enterprises there is insufficient motivation to promote the integration of industry and education. This article uses research methods of literature and questionnaire survey, based on big data thinking: use user thinking, centering on the needs of industries and enterprises; use cross-border thinking to promote cross-border integration of talent training; use social thinking to reshape the relationship between industry and education; use iterative thinking to constantly innovate; use platform thinking to build a cloud service platform for integration of industry and education.

Keywords: big data, integration of industry and education, school-enterprise cooperation

1. Introduction

At present, in the wave of world technological revolution and industrial transformation, there is huge potential for the integration of big data technology and various fields. Big data technology is a new driving force for economic development, a new method of improving social governance, and a new technology that promotes social progress. In recent years, the state has repeatedly proposed "prioritize the development of education, improve the vocational education and training system, and deepen the integration of industry and education, and school-enterprise cooperation". Big data technology has penetrated into all aspects of the economy and society, and vocational education shoulders the function of serving economic and social development, and must actively meet the real needs of big data technology and intelligent manufacturing. This urgently requires vocational education to meet the needs of economic and social development, continue to accelerate the construction of vocational education informatization, further promote the integration of industry and education, and vigorously cultivate high-level, compound and application-oriented talents urgently needed in the fields of big data technology and intelligent manufacturing.

2. The real dilemma of industry-education integration in the era of big data

The era of big data has promoted the transformation of the integration model of industry and education. However, under the current development background, there are still many difficulties to realize the integration of industry and education in the era of big data. At the macro level, it faces the lag of policy support and system construction, and there is management at the meso level. In the absence of institutions and development guidance, there are still unsound platforms, institutional mechanisms, and training models at the micro level. From the perspective of schools, teachers, and enterprises, the reality of the integration of production and education in the era of big data is reflected in three aspects.

2.1 The level of informatization construction of vocational colleges needs to be improved urgently

In the context of the continuous development of big data technology, all parts of the country attach

great importance to the construction of vocational education informatization, continuously increase investment in software and hardware, and effectively improve the level of informatization of vocational colleges and school-enterprise cooperation. For example, some vocational colleges use big data technology to jointly build remote interactive classrooms with schools and enterprises, including "remote interactive digital transmission classrooms", "network-based professional teaching resource libraries", "3D virtual reality technology application centers", "3G real-world classrooms" and so on. In addition, a public service platform for school-enterprise cooperation informatization has been established. However, on the whole, due to the uneven level of running schools of different types and levels of vocational colleges, the level of informatization construction is also uneven, the overall level of informatization construction of vocational colleges across the country still needs to be improved urgently. The insufficiency of informatization infrastructure construction will greatly limit the construction of informatization teaching resources and software platforms related to the integration of industry and education, which is not conducive to the convenient and high-speed use of information technology by both schools and enterprises to promote the integration of industry and education in the era of big data.

2.2 The informatization ability of teachers cannot meet the development needs of the integration of industry and education

The integration of industry and education in the era of big data puts forward higher requirements for the informatization ability of teachers in vocational colleges. In addition to solid basic teaching skills, teachers should also be able to screen out useful correctness from the massive amount of Internet information. The ability of information[1], master the information technology of processing and displaying Internet information, and be proficient in the application of virtual simulation training teaching software, school-enterprise distance interactive teaching system and other information software or tools. At the same time, in the era of big data, teachers should also master the ability to use big data technology to analyze and process all types of data formed in the process of integration of industry and education, correctly understand the value of all types of data to the long-term development of integration of industry and education, and mine data the potential problems in the school-enterprise cooperation model and content are exposed to reflect on the behavior of integration of industry and education and promote the sound development of integration of industry and education. However, the survey found that teachers' informatization ability is far from insufficient, which is related to the fact that teachers have not updated their traditional teaching concepts, have not taken the initiative to improve their own informatization capabilities, and lack the corresponding informatization ability training.

2.3 Insufficient motivation for enterprises to promote integration of industry and education

Although the current industry-education integration has become increasingly popular and has been highly recognized and supported by both industry and education, due to the pragmatic utilitarian nature of companies in the increasingly fierce market competition, companies have concerns about promoting big data technology industry-education integration, and they worry about " The cost of informatization construction and other aspects exceeds the expected benefits", "it is difficult to achieve immediate results", "enterprise personnel are busy with their daily work, and it is difficult to participate in depth", "the relevant incentives and preferential policies are missing". From this point of view, although companies have the willingness to promote the integration of industry and education in the era of big data, they have little actual participation and lack of motivation to promote integration of industry and education. The reason is that since the integration of industry and education in the era of big data is a new thing, there is still a lack of specific laws and regulations regarding the rights, responsibilities and obligations of both parties, especially the lack of policies for enterprises to promote the integration of industry and education in the era of big data. Incentive measures make it easy for companies to participate in the integration of industry and education as a formality and lack long-term guarantees and planning.

3. Implementation path of integration of industry and education in the era of big data

3.1 Use user thinking and focus on the needs of industry enterprises

In the past, relevant studies paid more attention to the needs of schools, and paid too little attention

to the needs of industry enterprises, leading to the "fireplace phenomenon" of school heating and enterprise cooling in the integration of industry and education [2]. In the context of the era of big data, the concepts of "scale" and "individualization" of manufacturing enterprises' production and operation will be organically unified. Under the development trend of "mass customization", the industrial workers in the future will no longer be ordinary workers who only work on the workshop in the past, but must grow up to be responsible for the entire industry chain such as product development, sales and service, and promotion. Compound talents should not only have certain professional core technical capabilities, but also be familiar with big data-related technologies and be able to flexibly respond to various tasks in the entire industry chain[3]. The integration of industry and education in vocational education trains students and serves enterprises. The transformation and upgrading of enterprises puts forward higher requirements for high-quality technical and skilled talents. This requires vocational colleges to focus on the needs of industry enterprises and closely focus on the needs of industry enterprises. In-depth implementation of industry-education integration, school-enterprise cooperation, construction of industry-specific professional groups, and establishment of a talent training system that meets the dynamic changes of corporate job requirements, so as to drive dynamic adjustments of majors and update and perfect courses, while satisfying students to master the new "Internet +" the technical skills required by the business format meet the goal of ready-to-use graduates on duty, which in turn provides the company with a large number of high-quality human resources, and stimulates the company's enthusiasm for participating in the integration of industry and education.

3.2 Use cross-industry thinking to promote cross-industry integration of talent training

Under the new situation of the rapid development of big data technology, the integration of industry and education can open up the "middle zone" between schools and enterprises [4], unify various subjects such as government, industry, enterprises, colleges, and students, and integrate industry and education. With high-quality resources from both parties, schools and enterprises collaborate to build virtual simulation training platforms, career experience platforms, etc., to cultivate students' hands-on practical skills and employment and entrepreneurship abilities across borders, and encourage graduates to flexibly adapt to different types of work in related industries. At the same time, the integration of industry and education in the era of big data uses cross-border thinking to break boundaries, not to break the normal teaching order. First, break the boundaries of skills learning, break the learning boundaries of students mastering a single skill through the integration of industry and education, and guide students to master multiple skills and become compound talents. Second, break the boundaries of educational resources and use big data technology to effectively integrate and share various high-quality educational resources of both the industry and education parties. Third, break the boundaries of work scenes, use big data technology, establish a channel between school teaching and enterprise production, realize the docking of internship training bases inside and outside the school, and implement cross-border and mixed-mode real-world teaching.

3.3 Use social thinking to reshape the relationship between industry and education

Socialized thinking is a brand-new way of thinking that advocates openness, freedom, equality, democracy, cooperation, and innovation by using socialized tools, media, and networks to transform the interrelationship and operation of subjects[5]. In the context of the era of big data technology, the industrial structure is constantly being transformed and upgraded, and the communication and interaction methods between industry and education have also changed. The boundary between industry and education has become increasingly blurred, making the integration of industry and education a multi-level and open the new form of cooperation structure has greatly demonstrated the respective advantages of the government, industry, enterprises, and universities, creating a multi-party collaborative community of interests, solving the complex problems of integration of industry and education, and ultimately establishing a good situation of win-win cooperation.

3.4 Use iterative thinking to constantly innovate

Iterative thinking is to continuously feedback, modify, improve and innovate the old version to get a better version. Big data technology has given great innovation power to the integration of industry and education, requiring it to continue to iteratively develop, innovate, maximize strengths and avoid weaknesses, and pursue perfection under the situation of rapid development of big data technology and industrial transformation and upgrading. As the ultimate destination of talent training in colleges and universities, enterprises are most familiar with technological development trends and employment

needs, and can dynamically adjust their business scope according to technological updates and iterations in a timely manner, and make predictions on the requirements of talents. This is exactly the "professional training" of integration of industry and education. "People" must guide the direction, and enterprises cannot do without the real-time follow-up of talent training in colleges and universities. Increasing the iterative speed of talents needed by enterprises is an important criterion for determining whether the integration of industry and education is in place. This requires the integration of industry and education in the era of big data to use iterative thinking to prompt colleges and universities to keep up with objective changes such as social trends and market development[6]. Industry and education integration participates in subjective changes such as willingness to cooperate and cooperative experience, continuous iteration, rapid adjustment of training goals, dynamic update of training content, and flexible training methods. In particular, we must closely follow the development of big data technology, continue to accelerate the pace of information construction, gradually explore new education and teaching models, and use big data technology to rapidly transform and iteratively update traditional talent training models. This requires continuous promotion of college teaching, modernization and informatization of management and services, strengthening of the software and hardware construction of smart campuses, optimizing the allocation of various resources, constructing teachers' informatization ability training, evaluation, assessment, and incentive mechanisms, and cultivating "meeting in class, being able to leave the factory, and being good at in the new era of "network and technology" teachers, "dual-professional" teachers will improve the informatization construction level of colleges and universities as a whole and the informatization ability of teachers. At the same time, the development of college brand courses, starting from the promotion of the integration of big data technology and teaching, building national, provincial, and school-level professional teaching resources and boutique online open courses, and implementing individualization in the context of the big data era teaching.

3.5 Use platform thinking: build a cloud service platform for integration of industry and education

Through the construction of a cloud service platform integrating industry and education, the mutual connection between schools and enterprises is enhanced, the rights and obligations of both parties are clarified, high-quality resources are shared, and the real scene of the enterprise is integrated into the teaching. At the same time, the distribution of benefits is constructed through advertising and result transformation platform to achieve a win-win situation for all parties. First, build an industry-education integration communication and collaboration platform to review and update the supply and demand information of each subject of industry-education integration in a timely manner, avoid misalignment of supply and demand, and realize real-time communication and interaction among multiple subjects. Second, build a resource sharing platform for the integration of industry and education, organically integrate educational resources, corporate resources, industrial resources, market resources, and social resources to realize the co-construction and sharing of resources. Support the development of "big data + education and training", build three-dimensional and optional industrial technology courses and vocational training packages, and realize the co-construction and sharing of industry and education resources. Third, build an internship training platform for the integration of industry and education to simulate the real working scenes of the enterprise, allowing students to experience the real production process of the enterprise firsthand, and use big data technology to reproduce the appearance features and internal details of the complex equipment of the enterprise, so that students can experience the training the fun, improve the effect of internship training, and improve the quality of talent training. Fourth, build an advertising publishing platform integrating industry and education, regularly publish corresponding industry products and services, and provide intelligent pushes to different types of intentional users such as college teachers and students, corporate employees, and social personnel to improve the accuracy of advertising. Fifth, build an information service platform for the integration of industry and education, and adopt cloud computing, big data, artificial intelligence and other information technologies to proactively release, recommend, query and disclose various supply and demand information such as talent supply and demand, technology research and development, and school-enterprise cooperation. The open communication of information from all parties serves as a bridge for close exchanges between all parties in the integration of industry and education. Sixth, build a platform for the transformation of scientific research results of the integration of industry and education, transform the scientific research results formed by the joint scientific research between the subjects of the integration of industry and education, generate certain social benefits and economic profits, and further stimulate the enthusiasm of all participating subjects.

4. Conclusion

The main characteristics of big data are its large size, wide variety, and rapid turnover. The use of big data thinking can implement the whole process and all-round monitoring of the training of vocational education talents. Through the whole process of big data integration, mining and analysis, it can reflect the cooperation behavior, cooperation needs, cooperation trend, cooperation value, etc. of the two parties in the integration of industry and education, so as to adjust the form and content of the integration of industry and education in a targeted manner, and dynamically change the training of talents program, curriculum system, teaching resources. Establish a big data platform, and colleges and universities will open and share relevant data to meet the needs of multiple participants in the integration of industry and education, and realize the intelligent push of multi-dimensional information through personalized data mining, so as to achieve the use of big data to drive the quality of talent training the purpose of promotion. Using big data technology, colleges and universities deeply connect, develop, collect and accumulate industry demand data, and take the improvement of the job adaptability of the trained talents as the guide, from the training plan of the interconnection of the teaching content and the job demand, the curriculum content and the industry standard courses. The system, the faculty team that interacts between school teachers and corporate mentors, the evaluation system that integrates process assessment and real-time feedback, transforms the production-education integration talent training model, so that the trained talents can meet the needs of the development of big data technology for compound technical skills talents, improve the quality and efficiency of training. It is necessary to promote the participation enthusiasm, multi-dimensionality of cooperation and smooth communication of the diversified subjects of the integration of industry and education, pay attention to the analysis and application of big data, and dynamically monitor the behaviors of the diversified subjects of the integration of industry and education in order to make a full forward-looking grasp.

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