

Study On the Value Connotation, Dilemma and Path of the Integration of Industry and Education in the Open University in the Intelligent Era

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Abstract: The intelligent age puts forward new requirements to the education industry. As an important part of the lifelong education system, the Open University faces challenges in the adaptability and effectiveness of its production-education integration model in the intelligent age. This paper analyzes the value connotation of the integration of industry and education in the Open University under the background of the intelligent era and deeply discusses the core dilemma encountered in the integration of industry and education, including poor policy response, incomplete feedback mechanism, unclear school-running positioning, lack of characteristics of the integration of industry and education, increasing demand for cooperation between enterprises, lack of cooperation ability of schools, lack of learning motivation, and lack of effective external incentives. On this basis, this paper puts forward targeted path optimization strategies, aiming to realize the effective promotion of the integration of industry and education in the Open University through integrated and coordinated development, improving feedback mechanism, clarifying school-running positioning, co-building cooperation platforms, clarifying enterprise needs, increasing on-campus investment, taking students as the center, strengthening external incentives and other solutions. The research in this paper not only guides for the Open University to carry out the integration of industry and education in the intelligent era but also provides decision-making reference for relevant policymakers.

Keywords: Intelligent age; Open University; Integration of industry and education; Dilemma; Path optimization

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1. Introduction

In any period, even in the current intelligent development society, the integration of industry and education has been regarded as an effective means to improve the quality of education and promote industrial development. The development of intelligent technology promotes the transformation of industry and teaching, and the state has constantly introduced policies to encourage schools and enterprises to jointly carry out the integration

of industry and education. However, the particularity of the Open University, including the students and teachers are different from the traditional vocational colleges and universities, the model of the integration of industry and education is still superficial, and the lack of its characteristics to adapt to the integration of industry and education. To play the role of the integration of industry and education in the Open University, it is necessary to recognize the situation and find win-win cooperation between open education and enterprises. The Open University's high-quality integration of industry and education provides a strong guarantee for the improvement of the quality of open education and teaching and is of great significance for optimizing the supply structure of human resources and promoting the formation of new quality productivity.

2. The value connotation of the integration of industry and education in the Open University in the intelligent era

2.1. It is the necessary demand for cultivating new quality productivity

New quality productive forces are productive forces that meet the requirements of high-quality economic development in China, and they are also productive forces that are more integrated and reflect new connotations in the digital era. The formation of new quality productive forces requires a large number of personnel with high-quality technical skills. Education is very important to train the high-quality skilled personnel needed by the new quality productivity. Open education carries out the integration of production and education based on practicability, professionalism and lifelong characteristics. Flexible learning time and diversified learning paths can help the existing skilled talents to update their knowledge and skills in time, respond quickly to technological progress, adapt to the transformation and development of the industry, and promote the formation of new quality productivity^[1].

2.2. It is the actual demand of optimizing the supply structure of human resources

As our society enters the digital age, China is committed to adapting to the new needs of economic development by optimizing its industrial structure and upgrading the skills of its labor force. As a key element supporting industrial modernization, human resources are an important part of promoting structural adjustment, transformation and upgrading of relevant industries^[2]. Under the current situation, it is urgent to optimize the supply structure of human resources. In addition to the continuous output of human resources by undergraduate and higher vocational colleges, it is also the key to optimizing and reorganizing the existing human resources. Open University degree and non-degree education provides an important platform for current employees to reinvent themselves and advocate learners to keep learning throughout their careers to adapt to job changes and technological updates. The Open University's integration of industry and education and cooperation with enterprises to educate people can more directly respond to market changes, make education closer to the actual needs of on-the-job students and industrial enterprises, optimize the knowledge and skill reserve of professionals for different industries, to optimize the existing human resource structure and accelerate the construction of a modern socialist country.

2.3. It is a realistic requirement for improving the quality of education

The emerging information technology in the intelligent era has gradually developed and matured, the industrial transformation and upgrading strategy and the adjustment process of the internal structure of enterprises have accelerated significantly, and the optimization and upgrading of the industrial structure has forced the

transformation and upgrading of modern vocational education colleges and universities and the optimization and upgrading of disciplinary construction. At present, the Open University needs to use intelligent technology to improve the quality and efficiency of education, and at the same time, it shoulders the task of training high-quality talents to meet the needs of the intelligent society. The Open University has trained tens of millions of outstanding talents for the society. However, it is undeniable that the Open University still has different degrees of disconnection and Angle between the type, structure and quality of talent training and the diversified needs of social development. The integration of teachers in the Open University system is not enough, and the shortcomings of practical teaching still exist, and the teaching and research levels need to be improved ^[3]. Through the integration of industry and education, the Open University deeply integrates the industrial chain with the education chain and the talent chain, directly connects the needs of enterprises, directly introduces the latest industry knowledge, skill requirements and working standards into the teaching process, and closely links open education with professional practice, which is crucial to improving the quality of education and teaching.

3. The practical dilemma of the Open University's integration of industry and education

In the tide of the smart era, open universities, as an important part of higher education, carry the mission of cultivating highly skilled personnel who can adapt to social development. However, in the practice of the integration of industry and education, the Open University has encountered a series of dilemmas, which not only affect the quality of education but also restrict the comprehensive development of students.

3.1. The policy response is poor and the feedback mechanism is still not perfect

The policy of integration of industry and education has accelerated the process of integration of industry and education through various measures, promoted the close cooperation between education and industry, and provided talent guarantee and innovation impetus for high-quality development ^[4]. At present, government departments at all levels have successively issued relevant policies to promote the in-depth integration of production and education between enterprises and colleges. The education model of integration of production and education has become the focus of attention in the education sector. In 2023, the "Implementation Plan for Enhancing the Integration of Production and Education in Vocational Education (2023–2025)" will further deepen the integration of production and education. For the Open University, while promoting the construction of an open education system, it is necessary to explore the integrated development of higher education, vocational education and continuing education, so it is duty-bound to respond to the policy of integration of industry and education. However, compared with higher education institutions and vocational colleges, open universities are relatively poor in policy response. Due to the huge Open University system, the uneven level of economic development in different regions, and the differences in local management systems and mechanisms, some branch schools of the Open University lack sufficient flexibility and innovative consciousness when facing policies, fail to fully consider local characteristics and actual needs, and appear to be "unadapted to the soil," which further affects the in-depth promotion of the integration of industry and education. In addition, the Open University system lacks an effective quality control and evaluation mechanism to ensure the quality and effect of cooperative projects, making the effect of the integration of industry and education difficult to measure, and the implementation of the integration of industry and education policies is often superficial.

3.2. Unclear school-running orientation and lack of characteristics in the integration of industry and education

Clear school-running positioning can not only enhance the competitiveness of the Open University in the education market, but also provide a solid foundation for the integration of industry and education, guide all aspects of curriculum development, teaching strategies and industry cooperation, and realize the optimal docking of educational resources and industry needs. With the release of the “National Open University Comprehensive Reform Plan,” the problem of unclear positioning of the Open University is gradually improving, but there is still a problem of unclear positioning of the Open University, which will directly lead to the lack of characteristics and depth of the integration of industry and education. The integration of industry and education in the Open University is different from traditional universities and vocational colleges^[5]. Some studies show that in the integration of industry and education in the Open University, the industry and the enterprise have no ability to provide the scene environment for the integration of industry and education, which is the difference between the Open University and ordinary universities and vocational colleges^[6]. However, without fully considering their uniqueness, many open universities just mechanically copy the traditional mode of integration of industry and education between undergraduate and vocational colleges, ignoring their characteristics and the specific needs of student groups. This lack of innovation and personalization not only limits the quality of the integration of industry and education but also affects the long-term development of schools and the effectiveness of industry services, resulting in a waste of educational resources.

3.3. The increasing demand for cooperation among enterprises and the lack of school cooperation ability

The main body of the integration of production and education is universities and enterprises. The driving force of the implementation of the integration of production and education is not consistent between the two subjects. As for enterprises, with the development of the market economy and the intensification of competition, enterprises pay more attention to the quality and efficiency of cooperation when seeking cooperation between industry and education. They expect to obtain more innovative resources and technical support through cooperation, and train professionals according to the specific needs of enterprises, rather than just being satisfied with providing internship positions. The cooperation projects of enterprises put more emphasis on practicability, hoping to realize resource sharing and two-way interaction and achieve mutual benefit and win-win situation. For the Open University, the increasing demand from enterprises means that they need to continuously improve their teaching quality and research capabilities to meet the growing expectations of enterprises. However, at present, open universities lack advanced technical resources, and it is difficult to meet the needs of high-end talent training. Moreover, the phenomenon of lack of in-depth research on the industry and superficial integration of industry and education still exists, and the structural contradiction between talent supply and demand is prominent^[7]. As a key force in the integration of industry and education, Open University teachers have an insufficient investment in teacher professional development and continuing education, resulting in structural problems in the practical experience and industrial background of the teachers, who are unable to deeply understand the latest industry trends and enterprise needs. The school has insufficient investment in building school-enterprise cooperation platforms and lacks effective incentive mechanisms to encourage teachers to participate in the integration of industry and education, which makes the integration of industry and education more difficult for teachers and greatly affects their enthusiasm.

3.4. Lack of learning motivation and lack of effective external incentives

The difficulty of the integration of industry and education in the Open University lies not only in the subject of the integration of industry and education. In the design of the integration of industry and education, students are the main training objects, so it is necessary to consider the actual situation of students and carry out the integration activities of industry and education. Students' willingness to integrate production and education is affected by various factors^[8]. For Open University students, as the choice of major is more subject to market demand than personal interest, students lack natural interest and enthusiasm in the field of study, which will affect the initiative and depth of learning, and willingness to participate in the integration of industry and education is not strong. Open education mainly relies on independent learning, and students often need to divide their time between work, family and study. Without effective self-management ability, it is difficult to leave enough time for study. Moreover, many students fail to fully realize the close relationship between practice and training and career development, and neglect the role of practice in skill improvement and knowledge application. They are more inclined to the traditional classroom learning mode, and naturally, they will not actively participate in the integration of production and education. In the absence of students' intrinsic motivation, the Open University's relaxed attitude towards students' learning process and the evaluation method based on performance are more unable to stimulate students' learning desires. In addition, the practical teaching mode often adopts a non-customized unified mode, which lacks consideration of individual students' needs and backgrounds. Some course designs require students to devote a large amount of offline time to study, which affects the balance between work and study students to a certain extent, and reduces the flexibility and operability of learning programs. It is not conducive to stimulating students' learning interest and active exploration spirit, thus affecting students' participation in production-education integration activities and learning effectiveness.

4. The path of Open University's integration of industry and education in the intelligent era

4.1. Integrated and coordinated development and improved feedback mechanism

In the face of the differences in policy promotion in different regions, the Open University should give full play to the advantages of the system of "two-level overall planning and four-level education," and The Open University of China should assume the responsibility of guidance and management of the business related to the integration of production and education. The Open University of China can set up a joint research group to conduct in-depth research on the implementation of policies related to university-enterprise cooperation of open universities in various regions, provide sufficient support for the integration of industry and education policies of open universities in various regions, strengthen the communication and exchange of experience within the system, form an atmosphere of mutual help among open universities in various regions, and narrow the differences between open universities in different regions. Promote the integrated and coordinated development of the open education system, and form an integrated school-running pattern of "a national chess game." Local open universities should make full use of the policies of the national Open University and the government, conduct in-depth research and understand the specific needs of local enterprises and the market, realize the close integration of educational content with the local economy, and regularly collect feedback information from students, enterprises and schools through the establishment of a continuous tracking

feedback mechanism, to timely adjust educational strategies and ensure that educational services are in sync with market demand. Finally, a project quality control system must be established to ensure the teaching quality and the effectiveness of cooperative projects through regular evaluation and feedback, and to track the effectiveness of the integration of production and education with quantitative indicators, so as to effectively promote the deepening and practical integration of production and education.

4.2. Clear school-running positioning and co-construction of cooperation platforms

According to the “National Open University Comprehensive Reform Plan,” the National Open University is directly under the Ministry of Education, with the mission of promoting lifelong learning, supported by modern information technology, and characterized by “Internet +,” and carries out open education for the whole country. The open education of the National Open University, including academic and non-academic education, is an important force for lifelong learning and a strong support for the society of skills. Therefore, the Open University is different from vocational education colleges in terms of training objectives, training standards and training methods. The integration of industry and education in the Open University should be rebuilt based on the practicability, vocational and lifelong characteristics of open education^[1], and the advantages of lifelong education platform and online education built by the Open University should be used to explore possible ways to meet the needs of enterprises. Local open universities can work with enterprises through learning centers, workshops, characteristic colleges and enterprise universities to build the necessary cooperation environment, form a stable cooperation platform, and eliminate the lack of environmental conditions for the integration of industry and education^[9].

4.3. Clarify the needs of enterprises and increase school input

The key to the integration of industry and education lies in finding the cooperation points between enterprises and universities. The Open University should organize teachers and managers to conduct in-depth research on relevant enterprises to understand the latest industry dynamics and the real needs of enterprises. Based on the analysis of the needs of enterprises, the Open University should find the meeting points and build a platform to achieve win-win development. The improvement of enterprises’ requirements for cooperation also reflects the lack of the university’s capacity to a certain extent^[6]. Therefore, through understanding the needs of enterprises, schools should also improve their cooperation ability. The improvement of cooperation ability depends on the support of school policies and funds^[10]. Adhering to the principle of strengthening teachers first, the Open University needs to strengthen the training of teachers’ professional skills and industrial knowledge, encourage teachers to participate in industrial projects, and provide temporary training for new teachers to enhance their practical teaching ability^[11]. The university can also encourage teachers to actively participate in production-education integration projects by setting incentives, such as financial support and preferential evaluation of professional titles.

At the same time, as a new type of university characterized by “Internet +,” the Open University needs to pay more attention to digital construction in the intelligent era, accelerate digital transformation, and carry out the integration of production and education through more intelligent ways such as virtual reality technology and artificial intelligence technology, simulate the real production environment, allow students to practice learning in the virtual environment, and improve the efficiency and quality of the integration of production and education^[12].

4.4. Student-centered and enhanced external incentives

The ultimate goal of the integration of industry and education is to improve the quality of education through the integration of industry and education and cultivate talents that meet the needs of the industry. Therefore, the effectiveness of the integration of industry and education at the Open University also depends on the degree of students' active cooperation in learning^[13]. Any learning, if it cannot mobilize the learners' internal learning motivation, is not independent and active learning, it is difficult to say that it is real learning. The methods to mobilize students' internal learning motivation include their internal drive and external effective motivation. Open education is aimed at adult education. Adult learning theory holds that adult learning follows the law of preparation and chooses to learn only when needed. Adults always want to learn what they want to learn, hear what they want to hear, and see what they want to see, which is the drive of adult learning. Therefore, the characteristics of adult learning require adult education, in the course setting, teaching method selection, etc., must be student-centered^[14]. Through artificial intelligence and big data technology, schools can provide customized teaching programs according to each student's learning situation and ability to achieve personalized teaching to meet the needs of adult social role development. Effective external incentives are more dependent on the guidance of government, schools and enterprises' policies, such as the government's study subsidy policy, schools' strengthening of learning process management, enterprises' raising salaries and so on. At the same time, schools should actively use intelligent technology to conduct real-time assessments of students' learning processes and results, provide timely feedback, help students improve learning methods, improve learning results, and stimulate learning drive through positive feedback. Through both internal and external driving, improve the motivation of students' participation in learning, so that the integration of production and education can achieve the desired effect^[15].

5. Conclusion and prospect

This paper deeply discusses the value connotation of the integration of industry and education in the Open University in the era of intelligence, the difficulties it faces and the possible ways to break out. The research finds that the integration of industry and education in Open University can cultivate new quality productivity, optimize the supply structure of human resources, and improve the quality of education in the intelligent era. However, in the process of implementation, there are some problems such as poor policy response, imperfect feedback mechanism, unclear school-running positioning, lack of characteristics of the integration of industry and education, increasing demand for cooperation among enterprises, insufficient cooperation ability of schools, insufficient motivation for learning, and lack of effective external incentives. In response to these problems, this paper proposes solutions such as integrated and coordinated development, sound feedback mechanism, clear school-running positioning, co-construction cooperation platform, clear enterprise needs, increasing school input, student-centered, and strengthening external incentives. Future research can further explore the integration model of industry and education in different types of open universities, and analyze its success factors and replicability. At the same time, with the continuous development of intelligent technology, research should focus on the application of new technology in the field of education and its impact on the model of integration of industry and education.

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