The Direction of Network Education Reform in Colleges and Universities in the New Era

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Abstract. Network education in colleges and universities, especially the pilot work deployed in the modern distance education project, is the earliest distance education carried out by using modern information technology in China, that is, the third generation of distance education, referred to as "network education". In the new era, the construction of a high-quality education system and a lifelong learning education system serving the whole people have put forward new requirements and challenges for online education. The main contents of the paper include: the analysis of the main contradictions in the development of network education; new concept and new mode of network education in personnel training; new system and mechanism of network education. I hope this paper can help readers understand the opportunities, main contradictions, reform impetus and innovation direction of the development of network education.

Keywords: Network education, personnel training, system and mechanism, contradiction.

INTRODUCTION

Network education in colleges and universities, especially the pilot work deployed in the modern distance education project, is the earliest distance education carried out by using modern information technology in China, that is, the third generation of distance education, referred to as "network education". On January 13, 1999, the State Council officially approved and transmitted *the ministry of education's action plan for the revitalization of education in the 21st century*. The document proposes to "implement the modern distance education project, form an open education network and build a lifelong learning system". Based on this, since 1999, the Ministry of Education has approved 68 colleges and universities as pilot institutions to carry out the pilot work of modern distance education, and explore the talent training mode and management mode of the third generation of distance education based on modern information technology. After more than 20 years of pilot exploration, network education, as a typical representative of the third generation of distance education in China, has become an important form of continuing education in colleges and universities. It can be said that

network education is the most innovative and dynamic form of continuing education in colleges and universities, and has accumulated rich innovation experience in practice. In the fight against COVID-19 in colleges and universities, online education has become an important support for online teaching in colleges and universities in terms of platform, technology, resources and professional teams.

After entering the 14th five year plan, China has comprehensively opened a new journey to build a high-quality education system and a lifelong learning education system for the whole people. The new journey not only provides a broader space for the development of network education, but also puts forward new requirements for the positioning, personnel training, supply services and system mechanism of network education. Network education should seize the historical opportunity, continue to give play to its innovative vitality, strive to become an important force in building a lifelong learning education system serving the whole people, and become an important support for the modernization of talent training in colleges and universities. I will face the new historical opportunities and new

challenges of network education in the new era, from the analysis of the main contradictions in the development of network education, expounds the development direction and reform and innovation focus of network education in the new era.

THE MAIN CONTRADICTIONS IN THE DEVELOPMENT OF NETWORK EDUCATION

The contradiction between open enrollment and imperfect quality assurance system

The contradiction between open enrollment and imperfect quality assurance system is the main reason that restricts the healthy development of online education. The experience of the development of international distance higher education has proved that the opening degree of distance education enrollment must adapt to the quality assurance ability. In the initial stage of a new form of distance education, we should control the enrollment scale, actively strive for the recognition of its quality level by the society and the market, and gradually expand the scale after establishing a relatively complete quality assurance system. For example, the UK Open University strictly limited the enrollment scale at the initial stage of running the university, and gradually expanded the scale until the first graduates were recognized by the society.

At the initial stage of the pilot project, problems frequently occur in China's online education. On the one hand, because the enrollment scale of the pilot universities exceeds the service supply capacity of online education, the lack of learning support services restricts the teaching quality of online education, thus causing a relatively negative social impact on universities (Cheng 2004). On the other hand, because governments at all levels neglect the construction of quality assurance system and directly hand over the responsibility of quality assurance to pilot universities, there is a lack of corresponding system guarantee and standard basis in quality management (Cheng 2012). The practice shows that the construction process of the quality assurance system of network education in China lags behind the process of open enrollment, which is the key to the quality of running schools. Therefore, to promote the further development of network education in the new era, we must establish and improve the quality assurance system of network education in advance.

The contradiction between the orientation of applied talents training and the traditional view of subject knowledge

The contradiction between the cultivation of applied talents and the traditional view of subject knowledge is the main reason restricting the connotation development of network education. In the pilot of network education, the orientation

of talent training is applied talents. Through consulting the website of the network education pilot institutions, enrollment publicity materials and training programs, it is found that the pilot universities have formed a high degree of consensus on the orientation of applied talents training. However, through in-depth review of training programs of colleges and universities, I found that personnel training of the network education still continues the knowledge view of ordinary higher education. First, the major setting is mainly full-time education, and only a few are for adult continuing education (Ding 2005). Second, the training program still follows the "subject centered orientation", taking subject knowledge as the main source of curriculum objectives and contents, the logic of subject structure as the main basis of curriculum content organization, and lacks the latest content of development frontier of the industry (Ding 2006). Third, the teaching strategy is still based on cognitive strategy, the teaching design based on adult learners is insufficient, and the cultivation of practical ability is not enough. Practice has proved that the talent training model based on the subject knowledge system is difficult to meet the learning needs of adult continuing education and cannot achieve the goal of practical talents training. Therefore, in the face of the application-oriented talent training, we should establish a new knowledge concept and explore the major setting, training plan, curriculum content and teaching methods that adapt to the orientation of talent training.

Contradiction between supply driven education service mode and flexible learning needs

The contradiction between the traditional supply driven education service mode and the diversified flexible learning needs is an important reason restricting the improvement of the quality of online education. The learners of network education are mostly the new generation of learners who grow up with new technologies such as computer and Internet. They have the new characteristics of technology dependence, personalization, freedom, multi task parallel processing and so on. Compared with other forms of continuing education, the concept and service of online education should be more open. The traditional service mode driven by supply has been difficult to meet the needs of the new generation of learners for personalized, free and flexible learning, and the contradiction between supply and demand has become increasingly prominent.

In recent years, China's manufacturing industry and other fields have vigorously promoted supply side structural reform. By using modern information technology, government system norms, social active intervention and other ways to improve supply, the accuracy of resource supply has been improved, the market needs are better met, and the problems such as overcapacity in China have been solved effectively. Network education should learn from the experience of supply side reform in other industries, establish the service concept of "learner

centered", and innovate the service supply mode of network education by using modern information technology.

NEW CONCEPT AND NEW MODE OF NETWORK EDUCATION IN THE NEW ERA

In the new era, China's education will enter the era of "Internet plus". The Internet will become a normal educational and teaching space. The connotation, production, dissemination and evolution of knowledge in cyberspace have changed (Feng and Lu 2013). The new essence of "connecting" education has emerged, and the effective way of learning is no longer the simple acceptance of teachers' explanation. Therefore, network education needs to keep pace with the times, make full use of modern information technology, and actively explore the concept of "Internet plus" and the mode of talent training.

Knowledge is the wisdom of human production and life. Before the advent of the Internet, books were the main carrier of knowledge, and the content of dissemination was the standardized knowledge contributed by social elites. The Internet provides learners with information sharing space free from the constraints of time and space, which makes knowledge no longer only exist in limited books, but gradually return to all human wisdom, and presents new features such as massive, dynamic, contextualized, comprehensive and personalized. The main body of knowledge production has expanded from a few intellectuals to the public, the way of knowledge acquisition has extended from books to network multimedia, the mode of knowledge production has evolved from elite programmed production to social multi-agent networked group intelligence collaboration, and the knowledge classification system has changed from a fragmented subject classification system to a comprehensive classification system. In view of this dynamic, networked, problem oriented and personalized knowledge, the most effective way of learning is to establish a connection relationship with valuable information sources, that is, connectivism learning. Its knowledge production and dissemination follow the law of "connection is learning, learning is production, production is dissemination". Practice has proved that regressive view of knowledge and connectivism learning are the ideal basis and effective way of adult learning in the network environment of the new era. Therefore, network education should establish the concept of regressive knowledge, update the teaching concept, not only to spread the contents of books, but also to spread the fresh knowledge of production and life. We should not only rely on the teachers in colleges and universities, but also rely on all kinds of front-line practitioners, and even rely on the existing experience of students to promote the organic connection between students and production and life practice.

At present, network education mainly adopts the "subject centered" training program and curriculum development system, which is difficult to meet the diversified needs of adult in-service learning. The cultivation plan and curriculum system development of continuing education in colleges and universities should adopt the comprehensive value orientation based on the demand of social practice, that is, the ability demand of society for talents should be given priority to, and the needs of students and subject system should be taken into account. In the new era, the network education for continuing education should practice the development concept of "social practice oriented, ability oriented, taking into account the needs of subjects and students", follow the principles of diversity, flexibility and adaptability, and adhere to the orientation of applied talents training.

Community based curriculum is a new form of curriculum in the form of community interaction and sharing in the network environment. In the community-based curriculum, learners are the important contributors and creators of the curriculum content. Different types of individuals form a community with "problems" as the link. In the community, learners realize the production of knowledge and expansion optimization through the process of resource routing, interaction, reflection precipitation and connection network building (Feng and Lu 2013). The research finds that the learning network generated by community-based curriculum has the characteristics of "multi center" and "self-organization", which forms a rich social network relationship in topic interaction. Unicom learning promotes the cognitive development of learners. In the era of "Internet plus", online education should be based on the theory of connectionism learning, and guided by the concepts of "open", "sharing", "interaction" and "innovation", so as to promote community based courses and explore new curriculum forms suitable for the "Internet plus" era.

We should establish a correct concept of talent and improve the way of learning evaluation. Research shows that the examination can only evaluate some valuable development and change of students, and students' progress in the learning process cannot be investigated in the examination. The orientation of adult continuing education is to improve students' employability and quality of life. Therefore, the limitation of examination on the evaluation of their learning effectiveness is more obvious. The development of students is not necessarily reflected in the level of knowledge acquisition. Network education should make full use of big data and artificial intelligence to further innovate the learning evaluation mode. Network education should use network teaching platform, online teaching tools to achieve accompanying data collection, carry out the whole process evaluation of learning, so as to accurately grasp the learning status of students and provide timely guidance and help. Learning designers can use students' total factor learning data to accurately depict students' portraits, and recommend personalized and adaptive learning resources according to students' characteristics and learning situation. Network education should also make use of teaching process data to improve the monitoring of

teachers' teaching ability and teaching level, so as to realize the accurate management of curriculum teaching design and teaching process.

COVID-19 has speeded up the application of modern information technology in higher education. Both continuing education in universities and ordinary higher education are paying more attention to the role of information technology and conducting extensive online teaching. In the new era, we should establish the evaluation mechanism of the classification of network education teachers. For the lecturers, we should focus on the evaluation of the quality of teaching design and teaching activities. For teachers who provide learning support services, we should focus on the evaluation of teachers' ability to solve students' learning difficulties and promote effective learning. Network education should make full use of big data, artificial intelligence and other new technologies, develop evaluation tools, and carry out the evaluation of the whole teaching process. At the same time, the feedback information from employers and learners should be taken as an important basis for teaching evaluation.

NEW SYSTEM AND MECHANISM OF NETWORK EDUCATION IN THE NEW ERA

Many innovations in the pilot process of online education have not been widely applied and promoted due to the lack of institutional guarantee. For example, due to the lack of institutional guarantee, the construction and sharing of high-quality MOOC resources is limited to individual institutions, and most universities do not recognize the MOOC course credits of other schools. In the new era, to expand the scope of online education and promote the results of online education pilot, it is urgent to build a new system and mechanism, build an open organizational system and flexible management mechanism, so as to meet the requirements of lifelong learning for flexible learning.

The construction of the quality assurance system of higher education is an important guarantee to release the vitality of online education and international practice. At the same time, the third party institutions of higher education quality certification of continuing education should be established, which will be regarded as the organization of the quality certification of the continuing education of higher education. We should establish and improve the quality certification process of continuing education in colleges and universities, and step up the certification work at the above three levels. On the basis of the implementation of the certification system, gradually decentralize the certification autonomy to the certification institutions. Through the external quality certification, we can promote the establishment and improvement of the internal quality assurance system of online education institutions.

Establishing the quality concept of "identity", that is, the talent training level of network education is the same as that of ordinary higher education, and should be included in the same quality standard system. The task of network education pilot is mainly reflected in two aspects. The first is to explore a new talent training mode of higher education by using cyberspace and modern information technology. Second, facing adult learners, taking professional needs as the guidance, focusing on knowledge updating and ability improvement, we should train applied professional talents. Its value is mainly reflected in the sharing of high-quality educational resources, providing convenient learning methods for learners, providing lifelong learning opportunities for working adults, expanding the popularity of higher education, and promoting the reform of higher education personnel training mode. The quality view of online education is actually the judge's judgment on the choice of the value of online education and the degree of its effectiveness. Network education and general higher education belong to the same category of higher education. There are only differences in training types and teaching methods, but there should be no differences in talent training level. Therefore, China's online education should adhere to the quality concept of identity, bring online education into the overall framework of higher education quality management at the macro level, and establish quality standards in line with the law of online education at the micro level. At this time, the same school, the same profession, as long as the network education personnel training to achieve certification standards, can be considered as the same level of personnel training as ordinary higher education. Therefore, we should have high standards and strict requirements for online education. Only in this way can online education achieve the effect we want.

With the development of Internet technology and the promotion of lifelong learning concept, the existing general higher education and vocational education majors have been difficult to meet the growing and changing personalized learning needs of diversified learners. Therefore, it is urgent to establish the professional catalogue of continuing education. At present, network education can only set up majors from the specialty catalog of general higher education and vocational education and the supplementary specialty catalog of continuing education for higher academic qualifications. From the perspective of function orientation and learning needs, it is not difficult to see that continuing education is different from general higher education and vocational education (Guo *et al.*, 2020). We should not simply use the professional catalogue of general higher education and vocational education to restrict the continuing education, but encourage the continuing education to establish the professional catalogue in line with its own situation, so as to better improve the quality of education. Thus, network education can better play the role of continuing education in serving lifelong learning, and promote the complementary and dislocation development of general higher education, vocational education and continuing

education. Network education is mainly based on ubiquitous and flexible learning mode, which combines online teaching and face-to-face teaching. The teaching process mainly includes three links: curriculum resource development, learning process support and examination evaluation, and each link is responsible by different institutions. In the pilot process of online education, the public service system of modern distance education has been explored, and the teaching organization mode that universities are responsible for curriculum and resource construction and public service system is responsible for learning process support has been formed. Practice has proved that this teaching service mode of assembly line gives full play to the advantages of universities and public service system, and can better provide high-quality teaching service for learners. In the new era, network education can further develop this teaching service mode of division of labor and cooperation, and explore cooperation with special examination institutions to build a school running organization system with high-quality resources provided by colleges and universities, public service system responsible for learning process support, and examination institutions providing examination evaluation services.

CONCLUSION

In short, the Internet plus era has given the new mission of online education. Online education should be good at judging the situation and take the initiative to seize the historical opportunities and establish a new orientation of "two services". Network education should strive to be the mainstay of continuing education in colleges and universities, and promote the transformation and upgrading of continuing education in colleges and universities. Network education should strive to support the reform of talent training mode in colleges and universities and promote the modernization of higher education. Therefore, in view of the contradictions in development, network education should thoroughly implement the new development concept, grasp the Internet and system mechanism, persist in reform and innovation, explore the talent training mode to meet the needs of adult lifelong learning, innovate the education service supply mode, and build the organizational system and system mechanism suitable for the cultivation of industrialized talents. We will promote the high-quality development of continuing education and higher education. In the future, network education should still promote the high-quality development of continuing education and higher education.

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