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Original Paper

Connotation, Development and Prospect of Network Education

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Abstract

Network education provides a new way for people to learn. Network education has the connotation of making the sharing of educational resources become reality, providing learners with personalized learning conditions, helping to achieve interaction, and promoting the socialization of education and learning. The development process has gone through three stages: correspondence education, radio and television education, and modern distance education. In the future, e-learning can be developed from four aspects: the design of e-learning activities, grasping the characteristics of disciplines in e-learning research, paying attention to learning evaluation and management research, and establishing a whole process data management system, so as to promote learners' learning.

Keywords

network education, development stage, future outlook, study

1. The Connotation of Network Education

Network education is a new type of education mode based on the development of computer technology and the reform of education concept. Network education shows people a new and broad learning world, and provides anyone who is willing to acquire knowledge with the right and opportunity to learn. Network education has the following connotations: First, it makes the sharing of educational resources become a reality. Educational resources are not only closely related to the economic level, educational system and cultural level of the country, but also affected by the degree of attention paid to education by the government and citizens. Therefore, from the perspective of the whole world, the distribution of educational resources among countries and regions is uneven. With the help of the Internet, the educational resources of various countries are linked for global sharing, so that people living in countries with poor educational resources can learn more knowledge.

Secondly, provide learners with personalized learning conditions. Traditional school teaching always revolves around teachers, classrooms and textbooks, which limits the cultivation and development of

students' autonomy. In the face of dozens of students at the same time and limited teaching time, it is difficult for teachers to provide targeted learning guidance, which makes it difficult to teach students in accordance with their aptitude and personalized learning. The establishment of the Internet has opened up a new way for teaching reform, providing a huge database that collects various information resources such as advanced schools, research institutes and libraries around the world. This is convenient for learners to learn and understand the latest knowledge of the current social development and scientific and technological progress, and can also get the "personalized" teaching guidance provided by experts.

Thirdly, it helps to realize interactive learning. The Internet organically integrates the advanced technologies of text, graphics, video, sound, animation and other multimedia teaching software, and can simulate the real environment. Its effect is incomparable in any single way, which is conducive to the acquisition and maintenance of knowledge by learners; Teachers and students do not need to meet. They can use information technology such as online lectures, online tutoring and Q&A to carry out course teaching; Learners can express their opinions at any time in the online classroom without affecting others' listening. At the same time, they can also receive education in two or more disciplines to achieve the purpose of learning.

Fourthly, it is conducive to promoting the socialization of education and learning. In modern society, science and technology are developing at an unprecedented speed. The traditional education model that only relies on the knowledge provided by school education for lifelong enjoyment of learners obviously cannot meet the needs of social development. People must move from one-time school learning to lifelong learning.

The network education has the following advantages virtually: Firstly, it is conducive to the cultivation of students' independent quality. Through the learning of online courses, students and teachers are separated, changing the traditional teacher centered learning environment. The learning process is completely realized through students' independent activities. When students are in a personal learning atmosphere, they must consciously restrict their personal behaviors and design their own learning progress (online courses provide learning suggestions through interaction) until they achieve their learning objectives. The learning process is carried out under the condition of active thinking, strong interest and inspiration. Through this way of learning, students have invisibly developed the ability to manage themselves and restrain themselves. Secondly, it is conducive to the development of students' individuality. Online learning can flexibly control time, and is not limited by any space, as long as the basic Internet access conditions can be achieved. The learning process is from individual behavior (initial learning stage) to group behavior (discussion stage) and then to individual behavior (self-test summary stage). Compared with the traditional learning process—group behavior (teacher's teaching stage) to individual behavior (homework examination), it highlights the role of individuals. Third, it is

conducive to the improvement of students' cooperative spirit. Various interactions of online courses enable students to break through the geographical and time constraints, participate in the communication between students and teachers as equals, avoid the phenomenon that some introverted students are shy to open their mouths, and enhance the flexibility of collaborative learning. The expansion of exchange areas enables students to learn from others' strengths in a wider range. Fourth, it is conducive to lifelong learning. With the rapid development of science and technology, the expansion of knowledge and the emergence of cross disciplines, school education alone can no longer meet the requirements of society for talents. Everyone is faced with an era that needs to constantly supplement and update knowledge. No matter what personal wishes, lifelong learning is the need for survival. Network education, with its advantages of cross region, cross culture and cross time and space, can meet the requirements of people to learn knowledge at any time to the greatest extent, which is unmatched by any form of education.

2. The Development of Network Education

Since the 1970s and 1980s, distance education has gone through three stages: the first stage is correspondence education produced in the 1970s and 1980s, the second stage is radio and television education produced in the 1950s and 1960s, and the third stage is modern distance education mainly based on network education produced in the 1990s.

The goal of developing online education in China is inseparable from the promotion of education informatization in China. As early as 1998, the Ministry of Education began to launch the "Action Plan for Revitalizing Education in the 21st Century", which has promoted the rapid development of modern distance education in China. Then, at the National Education Informatization Work Conference in June 2000, it was proposed to build a modern distance education network framework in China within three years. At the National Education Conference in 2000, the State Council made a decision to "deepen educational reform and comprehensively promote quality education". In the decision, it was mentioned that we should vigorously improve the modernization level of educational technology and the degree of educational informatization. The State supports the construction of a modern distance education network based on China Education Science and Research Network and satellite video system. At present, the country has built eight networks: China Education and Research Network (CERNET), China Science and Technology Network (Cs1ET), ChinaNET, China Golden Bridge Network (GBNET), China United Communication Network (UNINET), China Network Communication Network (CNCNET), China Mobile Network (CMNET), China Foreign Economic and Trade Network (c1ENET), and the two under construction are China Great Wall Internet and China Satellite Communication Network. The establishment of these networks has promoted the development of online education. In 1998, the Ministry of Education approved Tsinghua University, Zhejiang

University, Beijing University of Posts and Telecommunications and Hunan University to hold modern distance education pilot projects. By 2000, more than 30 colleges and universities in China had launched online distance education. By 2002, 67 schools had been approved to hold distance education pilot projects. According to the latest statistics, the number of students studying through these online colleges reached more than one million in the autumn of 2002. At the same time, a large number of websites have emerged in China, such as 101 Online School, No. 4 Middle School Online School, Jingshan Online School, Frontier Training Network, China Vocational Examination Network, China Vocational and Adult Education Network etc. The establishment of this website has greatly promoted the development of online distance education.

Some scholars analyze that there are four major research topics in the current application of online education. One is the study of learning methods in the online environment. Because the online learning process is no longer under the face-to-face guidance of teachers, and the network resources and content are extremely rich, facing too many choices, learners are prone to “confusion”, which will affect the learning effect and completion, so the research on autonomous learning in the network environment has always been a hot topic. In addition, online education teaching methods and open teaching models can not only enable learners to give full play to their subjective initiative, but also provide appropriate conditions for strengthening collaborative learning. Learners can achieve interactive communication through online forums, message books and other ways to broaden learning methods and channels. Collaborative learning and cooperative learning under the network environment have also been concerned by scholars. The second is the research of instructional design under the network environment. More and more colleges and universities, in combination with the talent training goal, innovate to create a sharing mode between schools, both inside and outside the school, through the combination of online learning and classroom teaching; In addition, the advantages of face-to-face and online learning are combined to make up for the disadvantages of low completion rate and high dropout rate in online learning, which has gradually developed into a trend of educational reform. The design of activities in mixed learning needs to pay attention to the exertion of autonomy and interactivity, promote learners’ in-depth interaction and enhance learning input. The third is education big data research under the network environment. The research on web-based learning behavior based on data mining has become an important research direction and research hotspot. For example, learners with different preferences may show different behavior patterns when accessing online learning resources, which will affect learning effectiveness. The fourth is the research on Mocha and e-learning community. The basic functions of the online learning community, or virtual learning community, are mainly embodied in two aspects: first, social reinforcement. Community members find learning partners with the same aspirations and common progress in the network environment, meet their sense of identity and belonging, and stimulate learning initiative and creativity; the second is information exchange.

Community members can communicate and cooperate beyond time and space to jointly build knowledge and realize information exchange and sharing on a large scale.

3. The Prospect of Network Education

From the perspective of the historical development of learning research under the network environment, technological development, social public events and government policies have had a profound impact on it. At present, whether the COVID-19 is causing a worldwide online course pandemic or the pace of entering the 5G commercial era, it is both an opportunity and a challenge for learning and research in the online environment.

3.1 Strengthening the Design of E-learning Activities

Research on instructional design in the network environment has always been an important research topic. At present, online teaching is booming and is reshaping people's understanding of education. In August 2018, the Ministry of Education issued the Notice on Strengthening the Implementation of the Spirit of the National Undergraduate Education Conference for Colleges and Universities in the New Era, which for the first time clarified the concept of "golden curriculum" and proposed the evaluation criteria of high-level, innovative and challenging. From the perspective of learning science, under the "Golden Course" environment, it is more necessary for college students to carry out learning in a deep way oriented to understanding, transfer and application rather than a shallow way of simple mechanical memory, and have good critical thinking ability to complete the curriculum tasks and achieve the "Golden Course" teaching objectives.

3.2 Grasping the Characteristics of the Subject in the Research of Network Learning

With the development of information technology in China, Internet and multimedia technology are more and more widely used in subject teaching to enrich teaching content and form to enhance learners' enthusiasm and attention. For example, in order to promote the reform and innovation of experimental teaching in colleges and universities, the Department of Higher Education of the Ministry of Education issued the Notice on Carrying out the Construction of National Virtual Simulation Experimental Teaching Center in 2013. The first batch of 100 ordinary undergraduate colleges and military colleges and universities won the title of "National Virtual Simulation Experimental Teaching Center", which covers geographic information, medicine and other disciplines.

3.3 Attach Importance to Study Evaluation and Management Research

Learning under the network environment is a complex system. It is urgent to establish an evaluation system, quality standards and management system from planning to design, development, implementation, monitoring and evaluation. The identification document of the national high-quality online open curriculum puts forward requirements from five aspects: curriculum team, curriculum teaching design, curriculum content, teaching activities and teacher guidance, and teaching effect and

influence, but it is still vague in terms of words, such as “the person in charge of the curriculum and the lecturer have good ethics and strong teaching ability”, so it is difficult to make an objective evaluation of the curriculum, and the operability is weak. At present, the learning evaluation under the network environment is mainly positioned in the assessment of learning, assessment for learning and assessment as learning activities. It is urgent to include a large number of student performance evaluation data into the evaluation system.

3.4 Establish the Whole Process Data Management System

In the study of learning in the network environment, there are still many difficulties in how to obtain, analyze, use and manage data in the network learning environment, such as the restriction of identity, the difficulty in obtaining background data, the institutional barriers to sharing among major network platforms, the mechanism for standardized dynamic collection and real-time update of data has not been established, and the risk of user privacy disclosure is high. In the face of big data constantly generated under the network environment, scientific data collection, organization, archiving and research are urgently needed to establish a sound management mechanism to ensure that these data can be reasonably used and effectively recycled by curriculum teachers and relevant researchers.

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