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**RESEARCH ON THE DEVELOPMENT OF HIGHER EDUCATION  
INFORMATIZATION**

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**Abstract**

In the process of information construction in Colleges and universities, the emergence and development of new technologies such as big data and cloud computing, as well as the reform of teaching mode and management mode in Colleges and universities also bring new opportunities and challenges to the information construction in Colleges and universities. It not only promotes the sharing of high-quality educational resources, but also promotes the professional development of teachers, the improvement of teaching effectiveness and teaching innovation in the era of educational information. At the same time, digital technology realizes the seamless connection between teachers and data, content, resources, expertise and learning experience, thus endowing teachers with new abilities in the era of educational information. In this article, it mainly describes about the development of higher education informatization from two aspects, first, the changes brought by informatization to higher education; second, the challenges faced by higher education informatization.

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*Keywords:* Higher education informatization, information technology, educational Change, education challenges



## **1. Introduction**

With the in-depth application of information technology in Colleges and universities, remarkable achievements have been made in the construction of information technology in Colleges and universities. However, in the process of the construction of information technology in Colleges and universities, the emergence and development of new technologies such as big data and cloud computing, as well as the reform of teaching mode and management mode in Colleges and universities also bring new opportunities and challenges to the construction of information technology in Colleges and universities (Jingdong & Xu, 2018). How to effectively construct the digital application environment of modern education and teaching, and how to use digital technology to carry out teaching and management, is an important research topic in front of educators (Weilei et al., 2014). This article talks about the development of higher education informatization from two aspects: first, the changes brought by informatization to education; second, the challenges faced by education informatization.

## **2. Problem Statement**

The rapid development and wide application of educational technology promote the reform of education and teaching, especially in recent years, the open online education represented by MOOC enriches and changes the values, teaching modes, means and methods of higher education institutions from the concept and practice, promotes the sharing of high-quality educational resources, and makes personalized learning, teaching and learning more convenient. Mobile learning and lifelong learning become reality to a greater extent, and also promote the professional development of teachers, the improvement of teaching effectiveness and teaching innovation in the era of education information. At the same time, digital technology realizes the seamless connection between teachers and data, content, resources, expertise and learning experience, thus endowing teachers with new abilities in the era of educational information. In addition, the application of technology also strengthens the cooperation ability of teachers, students and other parties in the learning community. It not only helps all parties to easily obtain various educational resources, but also gives people the ability to create, manage and evaluate different educational resources. (Tao et al., 2016).

## **3. Research Questions**

The development and application of big data, cloud computing and other technologies, and the innovation and development of information technology are accompanied by the rapid growth of data and information. The integration of Internet, artificial intelligence and big data also provides new ways and ideas for the development of education and Teaching (Xingping et al., 2019). Using big data technology is of great significance in promoting the information management of colleges and universities, integrating a variety of new teaching methods, realizing the network intelligence and digitization of college education and teaching, and ultimately promoting the modernization of college education and cultivating more modern talents for the development of society. Under the background of the development of big data era, the total amount of information data is large, and the data presents a variety of forms, the efficiency of data

processing is higher, the value of data information is greater, and the ways of obtaining and transmitting information are more flexible (Jun & Xinying, 2019). It not only brings great convenience to the development of social information, but also brings great challenges to the current social development.

#### **4. Purpose of the Study**

The information construction of colleges and universities has experienced the era of network, digitization and information as the rapid development of information technology, and now it is entering the era of smart campus. Many colleges and universities strive to achieve ubiquitous network learning, integrated and innovative network scientific research, transparent and efficient school administration, rich and colorful campus culture, convenient and thoughtful campus life (Xiaoyu, 2014). This paper analyzes and summarizes the characteristics, changes and problems of digital technology in the development of higher education through various aspects in the process of teaching and management informatization construction.

#### **5. Research Methods**

This paper mainly uses two research methods. First, observation and analysis. By comparing the observation and analysis of students' learning situation before and after the use of information teaching, the feedback information of many school teachers and students is integrated as the basis. Second, literature analysis. A large number of literature study and analysis of the literature study.

#### **6. Findings**

##### **6.1. Characteristics of Higher Education in the Context of Digital Learning**

In today's digital era, traditional education has been unable to meet people's expectations of higher education. At this time, the new characteristics of higher education began to appear, mainly in the following three kinds.

First, it can serve a wider range of learners. Large scale online open courses appear in front of people. The new mode of technology-based teaching and learning can let learners around the world get rid of the traditional education costs and enrollment restrictions, and can learn at will at any time and any place.

Second, it can provide high return of learning investment for learners and society. An important role of higher education is to provide high-quality learning opportunities for learners to acquire valuable knowledge and skills. These knowledge and skills are very useful to the society, which can lead learners to succeed in their work, obtain economic benefits, and ultimately achieve a higher rate of return on investment. Learning experience based on new technologies, such as online learning, mobile learning, MOOCS and other digital learning, can greatly reduce learning costs. New technologies can make learning more efficient no matter from the entry threshold or the grasp of learning time.

Third, it can get continuous progress through research and continuous feedback. New technology can provide a mechanism, which can not only collect and analyze large-scale data of all aspects of learning experience, but also make continuous diagnostic evaluation of a learner's set goals and existing

understanding. This kind of diagnostic assessment can effectively guide the follow-up education and learning, improve the learning effect and efficiency of every learner. In addition, it can collect all the data and evidence of learning experience, and comprehensively show the evolution process of learning experience. New technology can better improve the existing education, can better answer the learners in which stage of learning, how to learn in order to more effectively achieve the ultimate learning goal. (Chouyun & Rong, 2010)

## **6.2. Changes from Digital Technology to Higher Education**

Digital learning and new technologies do make a lot of changes in higher education. The main changes can be divided into two aspects: educational objectives and educational process.

### **6.2.1. Change in educational goals**

The goal of education before technology investment in education is to enable students to learn the knowledge of experts in the subject field. After technology investment, it gradually changes to let students think like experts and have this thinking ability. In addition, the goal of education is shifting from the knowledge and skills solidified in students' minds to the distributed understanding and execution. Now people can collect the professional knowledge they need through new technologies. What they need to do is to decide when to use these resources, and understand how to apply the distributed knowledge and skills on the Internet in the real world and virtual situations. Therefore, learners can adopt different strategies for different complex situations, integrate and sort those distributed knowledge and skills to better deal with the complex real environment, which is very different from the traditional way of rote learning and following the rules. In addition, there is a change from focusing on the cultivation of students' memory and application of facts, simple concepts and simple processes to the cultivation of students' adaptive processing ability, high-level abstract conceptualization ability and analytical ability in diversified situations. By increasing learning experience, students' ability to solve high-level problems and make complex decisions can be improved. These abilities are very important for the development of professional knowledge and the improvement of students' creativity.

### **6.2.2. Changes in the educational process**

The educational process is changing from class hour based school teaching mode to ability based student learning mode. Educational research and practice have changed from whether technology should be used for learning to how to use technology to promote learning, so as to ensure that all students can obtain high-quality learning experience (Tao & Yu, 2016). Technology is more and more used in personalized learning, which enables students to choose what to learn and how to learn independently, and can set their own learning schedule, which lays the foundation for lifelong learning. The progress and breakthrough in the study of learning science make people understand more about how to achieve effective learning, and reveal the personal and environmental factors that affect learning performance.

### **6.3. The challenges of educational informatization can be divided into the following three situations**

First, data sharing. Due to the lack of overall planning and unified data standards, the construction mode of information system in Colleges and universities is basically decentralized development, with their own operation and maintenance. As a result, the data of each information system in Colleges and universities is just an information island, the utilization rate of data is not high, and the coding of the same attribute data before each system is also different, High redundancy. If we want to solve this problem, we must develop data standards that meet the requirements of the school level, and establish a data sharing platform to realize the data sharing and interaction between the school level systems (Xiaoyu, 2014).

Second, the utilization rate of network teaching resources is not high. With the rapid development of network application technology and the convenience of network information sharing, the use and sharing of network teaching resources in Colleges and universities is the general trend. Although colleges and universities have invested a lot of human and material resources in the construction of network teaching resource platform, due to the platform software itself has many functions to be improved, the university information resources are scattered, lack of interactive function, and the university educational administration management is out of touch, "teaching" and "learning" are out of touch, students' participation is not high; Due to the limited investment in the construction of teaching resources in Colleges and universities, the lack of follow-up secondary construction, management, maintenance and promotion after the completion of teaching resources, the lag of updating and the lack of sustainability of construction, the utilization rate of network teaching resources is low, and many university network teaching resources have not really played their role.

Third, university network security. With the wide application of computer network technology in Colleges and universities, it has penetrated into all aspects of university teaching management, such as OA office automation, network examination system and so on. There are a variety of potential insecurity factors hidden in the campus network, which involves the information of teaching materials, teaching management information, students, teachers and administrators and other personal privacy information issues. Due to management defects or malicious attacks, the information security of colleges and universities is faced with different degrees of security problems from the internal and external (Shixian, et al., 2020). In addition, the research on information system security is still in the underdeveloped stage, and many colleges and universities do not pay too much attention to network information security, which also causes multiple obstacles to the development of information security level protection in Colleges and universities. Therefore, the cultivation of informatization talent team is the main supporting factor and fundamental guarantee to improve the informatization construction of colleges and universities.

## **7. Conclusion**

In the next 10 years, colleges and universities can make use of the booming technology to make learning more efficient and provide more support to more students with less cost "Large scale learning experience is going beyond MOOCS based on representation teaching method, which provides further opportunities and challenges for e-learning (Yihuan & Hongtao, 2020). In short, the construction of

university informatization is a continuous and complex project. We must adhere to the principle of proceeding from reality, considering the overall situation, planning as a whole and implementing step by step, fully rely on the opportunities brought by the development of information technology, increase capital investment, and promote the comprehensive improvement and development of the level and quality of university teaching, scientific research and management informatization.

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