Informatization Strategies of Education and Teaching Management in the Era of Cloud Computing and Big Data

Ma Xiaona
DALIAN VOCATIONAL&TECHNICAL COLLEGE (DALIAN RADIO AND TV UNIVERSITY), Zip code: 116035
tg667788@xzcstudio.com

Abstract: In the era of cloud computing and big data, the integrated processing of information and data has become the trend of various industries. College education and teaching management should be actively innovated and optimized, change traditional models and methods, build education and teaching management system, and improve management level. Based on this, this article will analyze the importance of the informatization of education and teaching management in the era of cloud computing and big data, and propose ways to construct the informatization of education and teaching management to help the relevant.

1. Introduction

With the advent of the era of cloud computing and big data, the traditional education and teaching management model can no longer meet the needs of the current. The establishment of education and teaching management model is the general trend. If universities achieve sustainable development and improve management level, they need to fully understand the importance of information management model, combine their own teaching status, formulate scientific and reasonable education and teaching information management goals and plans. The informatization mainly includes innovating teaching methods, developing teaching resources, training outstanding teachers, and informatizing teaching data management. In the process of informatization construction, colleges and universities need to discover and solve problems in time, so as to fully guarantee the smooth development.

2. The importance of informatization of education and teaching management

Education and teaching management in colleges and universities is important, including teaching plans, students’ files, teaching environment, etc. In this process, a large amount of management data will be generated. Collecting and processing are complicated processes and the traditional teaching management methods cannot guarantee the effective analysis of the internal connections. By using cloud computing and big data technology, this information can be collected, sorted, processed and analyzed centrally, to realize the sharing of education information and reduce resources waste. The system structure is as follows (figure 1). In the context of the connotative development, the informatization of education and teaching management has become an important symbol of the running level and comprehensive strength. Colleges should attach importance to the informatization of education and teaching management, take it as the top priority, use information technology to construct a system compatible with development, and realize the network of teaching management. Education and teaching management reduces workload and pressure, and improves the efficiency and management. In addition, the construction of information-based education and teaching management
can link and penetrate various links and processes, and formulate teaching plans and curriculum arrangements that meet the common development of teachers and students, which will help improve the quality and become more standardized.

![System Structure](image)

**Figure 1. The structure of system**

### 3. An effective approach to the construction

#### 3.1 Strengthen the update speed of education and teaching management system

Currently in the era of rapid development of cloud computing and big data, the education and teaching management system should advance with the times and be deeply integrated with big data technology, so that it can adapt to the times. Education and teaching management personnel should also fully understand the information technology and the status quo of teaching, conduct detailed investigations on the actual teaching situation of teachers and the needs of students, and integrate all factors together. It needs to complete the update of the teaching management system according to their actual needs, build an information management platform, meet the actual needs of university and promote the improvement of the teaching level.

Colleges and universities should start from their own actual teaching situation and work out a set of education and teaching management systems that conform to the development. The system should be based on the current situation of talent training and teaching resources, and the system should be innovative in some important aspects. Colleges can use questionnaire surveys to investigate the vast number of teachers and students to meet the laws and needs as much as possible. When the education and teaching system has a certain scale, it can be implemented in a small scale first. During this period, according to the feedback of teachers and students, the system will be optimized to improve the reliability of the system. Through the construction of the management system, the relationship between the various department is strengthened, and the exchange and cooperation are promoted. Information education and teaching system can be carried out in an orderly and comprehensive manner. In view of the technical problems that appear in the system, it can also draw up elite forces from the technical teachers to set up an education teaching management system coordination group to be responsible for the daily maintenance and update. As for the system itself, colleges and universities should view the system from the perspective of development. After the system development is
completed, the system should be upgraded according to the fixed time, so as to make the system more suitable for the education and teaching. If the system construction has not yet been achieved or updated, the same type will have large gap against the current higher education teaching management informatization degree in eastern China (as shown in figure 2). The characteristics can apply to the good in eastern region, conduct exchanges and cooperation, absorb advanced informatization education teaching management experience of other universities, optimize the system to implement the mechanism, promote the university informationization reform.

![Figure 2: Educational and teaching management informatization in the eastern region](image)

3.2 Construction of educational and teaching evaluation system

After the establishment of the education and teaching information management system is completed, the construction of the evaluation system should also be put on the agenda. Although the construction of the management system is important, the role of the evaluation cannot be ignored. The construction of the evaluation system allows administrators to better discover loopholes and solve them in time to avoid serious consequences caused by simple problems. At the same time, the evaluation system also has the function of assessing teachers and managers. For the evaluation of the teaching system, the main body should be the students, followed by the teachers. Therefore, administrators should grasp the opinions of students and teachers in a targeted manner to better promote the development of the college.

Colleges and universities can bring the traditional teaching into the evaluation system and carry out it on time to promote the good operation. At the same time, administrators should combine students’ learning outcomes with the mechanism according to their daily performance in periodical examinations, mid-term and final examinations, etc. It needs to set the percentage of each project, analyze each indicator and obtain the final score of students, and automatically generate evaluation report for each student. Through the information in the report, teachers can use cloud computing to analyze various indicators and calculate the weak links of each student, so as to carry out more accurate education and improve their performance. In the teaching evaluation part of the evaluation system, each student and teacher has a fixed account, through which the system can distinguish between teachers and students. The evaluation of teachers and students are summarized, and problems are found timely. It can take targeted measures to solve so that the information technology and teaching quality evaluation effective combination. The establishment of evaluation mechanism is not only to find and solve problems but also have the function of reward. Colleges should establish a sound reward policy and evaluation system. It needs to determine its score to solve the evaluation time of comprehensive quantization and avoid the possibility of problems through artificial quantization. It can adapt to management informationization of evaluation system and teachers and programs according to the score to distinguish through the reward mechanism. It can improve the teaching enthusiasm and stimulate students’ interest in learning.
3.3 Strengthen the information team of education and teaching management

In the process of informatization construction of education and teaching management, a large amount of manpower, complete facilities, and sufficient funds are required as the foundation. Among the resources needed, talents are the most important. High-quality talents are the key to the success of the construction of educational and teaching management information. In today’s era of cloud computing and big data, colleges and universities need highly professional technical personnel to develop and construct the teaching management system. At the same time, the informatization of education and teaching management also puts forward higher requirements on the literacy of college teachers. The education and teaching management informatization team of colleges and universities mainly includes the management personnel and teaching informatization, the personnel who use information technology for daily teaching, and the maintenance personnel of the education and teaching management system. They play an important role in the information construction of education and teaching management.

Colleges and universities can adopt three kinds of management models to combine with each other to optimize the team. The first is the education and teaching information management personnel training. As big data and cloud computing are new concepts proposed recently, traditional personnel do not have relevant knowledge. In view of this situation, it should regularly organize personnel to participate in the training, arrange them to visit and learn. It can be used for education and teaching management system to record the learning situation of the staff. At the end of the training, the staff should be assessed and input into the management. In this way, it can analyze the learning situation of each manager with a more profound understanding of the use of information management system. Thus, it is helpful for the staff to better use the information management system of education and teaching.

Secondly, in the era of cloud computing and big data, teachers must not only possess professional theoretical knowledge and skills but also master the management and application of information resources. Therefore, the training of teachers should be closely integrated with informatization to improve the ability, and realize the processing of information resources. The third is the maintenance personnel of the education and teaching information management system. Any good system will have problems. For high-precision technologies such as cloud computing and big data, management and maintenance personnel are required to perform daily maintenance. Therefore, colleges should also conduct scientific training for such personnel to improve their information technology. When a problem occurs, the system can be put into normal operation as quickly as possible.

3.4 Provide security

Campus network is the foundation of the construction of educational and teaching information management system in colleges and universities. If the campus network can’t run well, the management system can’t be put into work well. Therefore, in view of the actual development, it is necessary to effectively construct the campus network. It can provide security guarantee for the construction of information management system. Although many colleges have invested a lot of money in the construction of the system and the software, the problem of network security will not appear easily, so the investment in network security is still at a low level. There is also a lack of contingency plans for network security. Network security directly affects the operation of campus network. Therefore, the administrators should base themselves on the college and increase the investment of funds to provide guarantee.

Colleges and universities should strengthen campus network security management to provide guarantee for the effective operation of the education and teaching management system. First of all, it can strengthen the funding of campus network security, not let the shortage of funds become an obstacle. Professional computer software engineering and network talents can be recruited and used as the backbone of the maintenance and upgrade. Managers must assess the security of the campus network on time. If the current campus network does not pass the assessment, then the network must be repaired immediately to ensure the smooth progress of data transmission. At the same time, in order
to avoid the next accident, the administrator must set up a more comprehensive emergency plan. Problems can be solved faster when they occur. System administrators can also subdivide the management team, clarify the division of labor between different staff, build a campus security management department, specialize in protecting the campus network, update the anti-virus software on time, and use anti-virus software to prevent viruses, avoid system failures caused by viruses, and attach importance to the security certification of campus networks. Only by ensuring the security of the campus network can the implementation effect of the information management system be fully utilized, so that the system information storage, information maintenance, and data update can be carried out in an orderly manner. The normal operation of the university education and teaching management system can be promoted.

4. Conclusion
To sum up, the establishment of educational and teaching management information can effectively improve the efficiency and the quality of students and internal potential with a very practical significance. In order to achieve the information management, it is necessary to integrate the idea into the management to innovate teaching methods and models, and innovate teaching environment, teaching system and teaching philosophy. In the era of cloud computing and big data, colleges and universities should definite target in accord with its own development education teaching information, make scientific solutions, build a perfect information management system, improve the education teaching management informatization level unceasingly, and cultivate high-quality talents for the society.

References:
[1] Zhou Yijing. 2019. Research on the informationization of five-year higher vocational business English major education and teaching management under the background of big data[J]. Industry and Technology Forum, Volume 18 (21): 255-256.
[2] Tan Zheng, Sun Zeyu. 2018. Informatization strategies of university education and teaching management in the era of cloud computing and big data[J]. Enterprise Technology and Development, (10): 149-150.
[3] Zhang Jing, Miao Shuqing, Huang Changjun. 2019. Research on the informationization strategies of university education and teaching management in the big data era[J]. Science & Technology Economic Guide, (28): 142, 141.