The Application of Big Data Technology in the Construction of Smart Campus in Vocational Colleges

Xu Guofeng, Li Mingzhu
Naval Aviation University Qingdao Campus, Shandong, Qingdao, 266041
*Corresponding author's e-mail: somking218@alumni.sjtu.edu.cn

Abstract: Informational education is a new requirement for education in the information age and it is an inevitable trend in the development of education modernization. In the rapid development of the Internet, the use of cloud computing technology can play a greater role in the construction of smart campuses. It can not only improve the school's digital service management level, but also promote the progress of education. This article briefly introduces the concept and necessity of smart campus construction, analyzes the role of big data technology in the construction of smart campus, and proposes smart campus construction measures based on big data.

1. Introduction
Driven by information technology, especially with the advent of the era of big data, all walks of life have achieved very significant development. Of course, the education industry is not to be outdone. It adopts big data technology to carry out efficient and intelligent campus construction, and has achieved very significant application effect.

In response to the call for the reform of our modern education system, vocational colleges have also begun to devote themselves to the construction of informational campus. It is currently at a critical moment. If big data technology can be effectively applied, it will have a multiplier effect and help promote vocational colleges. The construction of a smart campus creates a good information-based learning environment for students. The construction of a smart campus in vocational colleges is not a simple task. It has certain complexity. It should be controlled from many aspects. It needs effective big data technical and comprehensive information management to truly reflect vocational colleges. The effectiveness of smart campus construction improve the level of informational education in vocational colleges.

2. The concept of smart campus
In the 12th Five-Year Plan, Zhejiang University first proposed the new teaching concept of "smart campus". According to relevant surveys, many well-known vocational colleges attach great importance to the construction of smart campuses. Smart campus mainly refers to the comprehensive integration of innovative network scientific research, diverse forms of campus cultural life, and efficient campus management and services. Utilizing campus activities in the ubiquitous network environment allows teachers and students to experience the convenience of an intelligent environment and a computing-based integrated information service platform on campus. The intelligent perception environment of the computer network is associated with integrated services, which makes it easier for the school to communicate with society outside the school. In the process of the current situation of smart campus construction, the application of cloud computing and virtualization technology allows
schools to share resources, makes teaching content more intuitively displayed in front of teachers and classmates, and can improve teaching efficiency. This is helpful to promote students, teachers, teachers and students. The exchanges between students and teachers make the school develop in a harmonious and good atmosphere, and the entire campus is in an intelligent and digital environment.

Figure 1 The technology involved in the construction of smart campus

3. The necessity of building a smart campus
The goal of smart campus construction is to create an intelligent environment for students, where students can carry out efficient learning. It has concentrated a variety of service systems, which can effectively integrate teaching activities, scientific research activities and management activities together for effective integration.

Figure 2 The necessity of smart campus
Strengthening the construction of smart campus is an inevitable requirement in the development process of modern education in my country, and it is in the rapid development stage. Nowadays, the education department has realized the importance of smart campus construction and believes that vocational colleges should make full use of computer information technology to build smart campus. Smart campus can provide students with a better learning platform, improve the education level of vocational colleges, and cultivate more and more professional and technical talents for the society. The current informational level of vocational colleges needs to be improved. Since the establishment of vocational colleges is not long, it needs to be further improved, and the construction of a smart campus is an important part of it. According to different business needs and job requirements, it is necessary to formulate a scientific talent cultivation system based on the development of the colleges and universities themselves. In addition, the development of big data technology provides important support for the construction of smart campuses, which can speed up the process of smart campus construction in vocational colleges, effectively manage various data in vocational colleges, and gradually realize data sharing and ensure data security. The construction of a smart campus has laid a solid foundation.

4. The role of big data in the construction of smart campus
The effective role of big data technology in the construction of smart campus in vocational colleges is mainly reflected in the following aspects.

(1) Based on the big data technology, the construction of a smart campus will promote the informational level of vocational colleges and gradually modernize its education system. The construction of a smart campus is inseparable from the support of data, and the application of big data technology can effectively create an integrated platform which can centrally manage the public data of vocational colleges, share the public data. The integrated platform is conducive to ensuring the work of vocational colleges Smooth development, strengthen the coordination and cooperation of various functional departments of vocational colleges. In addition, comprehensive information management can not only provide data support for the internal management of vocational colleges, but also improve the utilization of teaching resources in vocational colleges.

(2) The construction of smart campuses in vocational colleges will become more intelligent. Problems in campus management can be discovered in time through intelligent prompts, and targeted treatments can be implemented to reduce campus management risks. We can spread all kinds of information through smart platforms, it can improve the efficiency of information dissemination, allowing recipients to quickly grasp relevant information and process it scientifically. Moreover, big data technology can also select appropriate communication channels by analyzing the level of information to highlight the role of smart campus construction.

(3) The application of big data technology is conducive to improving the construction of smart campuses and cultivating more outstanding talents for vocational colleges. The intelligent management of vocational colleges requires the support of a large amount of data. Whether it is formulating enrollment plans, enrollment policies, effective management of vocational college finance, or adjustment of vocational college education strategies, all decisions should be made based on the results of current data analysis. Only in this way can the correctness of decision-making be effectively guaranteed, and the development of vocational college education can be avoided due to decision-making errors.
5. Smart campus construction measures against big data technology

5.1 Build an integrated data platform to realize data sharing

In the construction of smart campus in vocational colleges, the first thing is to build an integrated data platform to realize the sharing of public data. Through the construction of an integrated data platform, teachers and students can find all kinds of information about vocational colleges, and various businesses in the school can also be standardized and implemented in strict accordance with the relevant procedures of platform construction. Generally speaking, the design of the integrated data platform section should be based on the development of the vocational school itself, but it should include the school management section, service mechanism section, information processing section, and maintenance section. Each piece of data in these sections belongs to public information and is an effective integration of all resources of vocational colleges. Centralized management can be shared and used by all teachers and students of the school, effectively improving the utilization rate of teaching resources in vocational colleges and avoiding the waste of information resources. In addition, in addition to basic data and expanded data resources, the integrated data platform should also have data extraction and data cleaning functions. It must be able to effectively load and count data, and set up an automatic alarm system to strengthen the management of the integrated data-free platform.

5.2 Build an intelligent management platform to improve the level of intelligent service

Intelligent management platform is a key part in the construction of smart campus in vocational
colleges, which can effectively reflect the informational level of campus construction. The function of this platform is mainly to remind teachers and students based on the dynamic changes of new businesses and the large fluctuations in student performance. For example, if the information about teachers' teaching business changes, the platform will pass this information to teachers; the student's performance fluctuates too much, and the platform will pass this information to students. The school will also release some information to students and teachers at different stages. The intelligent management platform can make the information dissemination of vocational colleges faster and more accurate, improve the efficiency of information dissemination, make it real-time, and help ensure the quality of information management. In order to play more important role in intelligent management platform, a complete information level discrimination system can be established in it, so that the intelligent management platform can control differently according to the important level of information, and implement differentiated communication methods.

As far as vocational colleges are concerned, it not only provides a concentrated learning environment for students, but also provides a research place for teachers, so the environment it creates is very important for people. And big data technology can evaluate and improve the life service level of campus. In this regard, its intelligence level can provide convenience for the construction of smart campus in colleges and universities, thereby optimizing campus logistics services.

In addition, big data technology can also be used to establish a sound campus safety management system to prevent students from leaving the campus by themselves or strangers breaking into the campus, which is conducive to strengthening the safety management of the campus environment. Using big data analysis technology, it is possible to remind vocational colleges of study style, internships, etc. through the intelligent management platform, and can grasp the student's attendance rate and dormitory return rate in real time, and kill the bad school spirit in the cradle.

5.3 Build a management support platform to provide a basis for decision-making

The construction of smart campus in vocational colleges is not based on imagination, but needs the support of a large amount of data and information. The management support platform can be established from the following aspects to provide reliable data support for various decisions. First, collect the enrollment information data of various majors of vocational colleges in recent years to provide support for the enrollment plan. These information data should include professional category, student gender, region and specialty, etc., and according to scientific analysis these corresponding data, the platform can generate accurate data reports, and formulate enrollment policies for the next year accordingly; secondly, the management support platform should contain all the basic information of in-service teachers, and to ensure the authenticity of these data, it must conform to the actual situation. The management support platform analyzes these data, generates corresponding data reports, fully grasps the proportion of current vocational colleges’ teacher resources, and adjusts the structure of the faculty according to development needs; thirdly, the construction of the management support platform should pay attention to the financial management information data and the financial information contained in the platform. The school’s investment and expenditure over the years should be taken into consideration, and appropriate financial policies and development directions can be formulated based on the data in the financial statements. Finally, the management support platform should also focus on every student in every grade and every major. It should accurately understand their learning status, and the teaching feedback and evaluation information should be stored in this platform to provide data support for the adjustment of professional teaching strategies in vocational colleges.

5.4 Build a network communication platform to strengthen the interaction between teachers and students

Constructing a complete network communication platform is conducive to enhancing the communication and interaction between teachers and students. Both teachers and students can communicate in real time through the network platform. Teachers are no longer limited to classroom teaching, and integrate online teaching with traditional teaching. After the implementation of online
teaching, teachers can communicate with students online through the platform, solve problems in student learning in time, and also be able to care about students’ lives, understand the psychological state of students through mutual interactions, and give students corresponding help and guidance. In addition, in classroom teaching, teachers are mostly theoretical teaching, and it is difficult to show students actual work according to the professional characteristics of students. However, the network management platform can directly demonstrate post operations to students, which is helpful to improve students’ learning effectiveness and realize resource sharing.

6. Conclusion
The construction of smart campus is an inevitable trend in the modern development process of vocational colleges, and it is also the only way to construct informational education in vocational colleges. In order to improve the level of smart campus construction and promote the smooth development of informational education in vocational colleges, computer information technology should be used in the construction process to create a good smart campus environment based on big data technology and achieve the goals of smart campus construction. Only in this way, we can promote the improvement of the teaching efficiency of teachers in vocational colleges and guarantee the quality of students' learning.

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