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Research on the Construction of Smart Campus in Vocational Colleges in the Era of Big Data

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Abstract: ***This paper discusses the construction of smart campus in higher vocational colleges in the era of big data. Under the background of the big data, analyzes the management of higher vocational colleges face the problem, and discusses its connotation and characteristics, and on how to optimize the construction and management, give full play to the supporting function of big data, building intelligent learning environment, optimize the teachers and students oriented management wisdom campus construction strategy and countermeasure, etc.***

Keywords: Big Data Era; Higher Vocational Colleges; Wisdom Campus**.**

1. Introduction

At present, our country's higher vocational colleges are building smart campuses to realize the transition from digital education to intelligence. This not only updated and upgraded the school's management and service system, but also played an important role in promoting the reform and innovation of education and teaching. Based on big data technology, an intelligent campus is constructed. This is the inevitable outcome of educational informatization. Based on the visual grammar proposed by Kress and Leeuwen, this paper analyzes the multimodal discourse of pandemic discourses in my country, and finds that the construction of pandemic discourse meanings is carried out from three aspects: reappearance meaning, interactive meaning and compositional meaning. The participation of the vector in the words promotes the construction and expression of the meaning of representation. The interactive meaning is mainly expressed by the interaction between the participant and the viewer. The meaning of composition is the saliency and information value reflected by the different positional relationship between the source and the image. In the analysis process, this article also found that in the process of interpretation of the pandemic discourses, the interaction between images and words is indispensable. Image modalities and textual modalities complement each other. Based on different positional relationships, the main information of a discourse can be expressed by image modalities or textual modalities. Another mode is in an auxiliary position, but the overall meaning of the discourse is conveyed and construction is carried out by two modes. Compared with the research on publicity advertisements and picture books, there are few domestic studies on the pandemic image and words. Therefore, this article provides an effective way for the pandemic image and words research. However, this article only analyzes and interprets the pandemic situation in my country, and the research on the pandemic situation abroad still needs to be explored. The following research can also make a comparative analysis of the pandemic discourses at home and abroad, and find out the differences between the domestic and foreign interpretations of the pandemic discourses.

2. Problems Faced by Higher Vocational Colleges in Building Smart Campuses in the Era of Big Data

During the epidemic period in 2020, colleges and universities have made corresponding measures and arrangements to "stop class but not stop teaching, stop class but not stop learning". The epidemic situation makes students unable to return to school, which forces teachers and students to use the application virtualization software platform (cloud) for online teaching, that is, cloud-based teaching.

Teachers can take live, recorded, rain classroom, MOOC and other ways to teach online, but for practical courses with strong applicability, how to carry out online teaching, how to design teaching courseware, how to carry out teaching interaction, and how to receive and master students? This is a common problem for teachers and students. Practical courses are closely related to theoretical courses. It is an important link of integrating theory with practice, training students to master scientific methods and improving practical ability [1].

Teachers assign tasks to students in the form of questions, so as to realize the integrity of the knowledge system. In this paper, the practice of "comprehensive design of curriculum" as an example, based on the PBL teaching mode online teaching development, implementation process and learning process management and evaluation problems, put forward countermeasures and suggestions.

2.1 The Information Content of College Enrollment is Large

The publicity efficiency of college enrollment is low In the era of big data, the information on the Internet increases at a rate of geometric multiples. College enrollment is an important part of higher vocational education to build a smart campus. If there are not enough students, its development will be adversely affected. Because there is no make full use of big data for effective propaganda, resulting in a decline in the enrollment of colleges and universities work efficiency and

the published admissions data will be submerged in the flow of information, can not make full use of its timeliness, can't understand and master the student enrollment in a timely manner, which will severely hinder the communication with vocational school students. In order to achieve high-quality online interactive teaching, online practice teaching comprehensively uses various forms such as intelligent teaching tools, online interactive tools and MOOC resources, and realizes the joint application of multi resources and multi platforms. Online teaching makes the physical classroom "Teacher centered" into "student-centered", and makes the teaching process into the form of "resource design + resource production + learning support services", forming the activities supported by multiple resources, multiple platforms and different stages. At the same time, it needs the cooperation of teachers and students. Using MOOC, we use the national virtual simulation experiment teaching project sharing platform; schools and schools, schools and enterprises establish contact; open the virtual simulation teaching cloud platform and cloud desktop during the epidemic; build a rich online teaching practice platform; and establish a college experiment teacher exchange group, to provide guarantee for the smooth development of practical courses.

Table 1: PBL online practice teaching mode

		Problem driven	
	Independent study before class	Intensive lecture in class	After class Q & A Discussion
Learning supervision	Group formation, assignment of responsibilities and obligations of team members Publish team tasks	The teacher explained the key points and difficulties of the experiment, demonstrated the operation process, and pointed out the precautions. Group experiment, complete the assignment. The teacher divided into groups to comment on the experimental group.	Students answer the questions in the experiment and hand in the experiment report. The teacher read the report and pointed out the problems.
Learning tools	Textbook, MOOC, virtual simulation experiment cloud-based platform	Tencent conference, rain classroom, super star learning APP, virtual simulation experiment cloud-based platform	WeChat, super star learning APP, virtual simulation experiment cloud platform
Learning objectives learning tasks		The experiment circuit is designed according to the realization principle and platform condition	Complete the experiment report Preview Next time
Learning content	Participate in assessment	The problems and differences between the experimental theory and the practical operation	Help each other within the group and evaluate each other among the groups
Learning subject	Self study Promote learning in groups and supervise learning between groups	Teacher led learning	Mutual learning Teacher commenting

2.2 The Administrative Management Mode of Higher Vocational Colleges Needs to Be Improved

At present, our country's higher vocational colleges implement a top-down "trinity" structure, with "a series" of instructions issued by the superior, which greatly restricts the efficiency and personality development of teaching work [1]. Most of the administrative personnel of some vocational schools are teaching-oriented teachers, and lack of special training, resulting in serious restrictions on the level of administrative management, thus restricting the daily administrative work of schools. the establishment of smart campus in the era of big data will greatly relieve the burden of administrative work in colleges and universities. Improve the administrative work ability of higher vocational colleges. Online teaching is not simply to move offline classroom to online; it needs to apply online simulation, virtual reality, virtual practice and other technologies in the teaching process [2]. Only when the educational technology and teaching design are deeply integrated can the teaching effect be improved. The key to the success of online teaching is to guide students to study independently and solve problems in the form of group cooperation. Online teaching forces students to learn independently and students will actively establish contact and cooperation with their peers to solve problems, which coincides with PBL teaching mode. For teachers, PBL teaching method just shows the knowledge points in the form of questions.

2.3 Second, the Concept and Characteristics of Smart Campus

Smart campus is a comprehensive management system based on the new generation of network technologies such as big data, Internet of Things and virtual reality, combined with new concepts such as new media and knowledge management. Smart campus creates a more convenient and comfortable working and living space for teachers through the processing and processing of teaching information and life information. Based on smart schools. To make higher vocational colleges become an intelligent, information, personalized, perceptive innovative campus. the goal of the smart campus is to provide students and teachers. In the construction of smart campus, it is necessary to collect and sort out individual activity data, conduct data screening and data analysis. To build an integrated information platform for all teachers and students through meaningful information sharing and creative use. We should give full play to the advantages of cloud technology, strengthen the information construction on and off campus, and promote the sustainable development of vocational and technical colleges. In the implementation of information, but also to achieve humanized management, the use of information technology, for the majority of students and teachers to create a favorable condition for personal development.

2.4 The Construction of Smart Campus is based on the Campus System

Higher vocational colleges should purchase corresponding application software according to their actual situation. Qualified vocational colleges can independently research and develop system application software. the intelligent application system of higher vocational education and its

platform must have online teaching module, student information management module, scientific research and management module, campus office module, library retrieval module and campus service module, etc. All subsystems must use a uniform data form and interface for centralized management. In the construction of smart campus, attention should be paid to data exchange among schools, the use of unified technical norms, to ensure data exchange, so as to comprehensively manage teaching, scientific research, employment, management, etc.

2.5 Three, the Construction of Smart Campus in the Era of Big Data

The construction of smart campus is not accomplished overnight, but should be considered from multiple aspects. Through the construction and construction of smart campus, the majority of teachers and students can feel convenient and promote the deepening and improvement of higher vocational education. On this basis, the author gives some practical countermeasures on how to build a smart campus in the era of big data.

(a) the best plan to establish and manage the data center Sharing data center is the key to building smart campus in colleges and universities. Shared data center is a comprehensive information system for teachers and students. It is not only the user of data, but also the producer of data. In this age of information explosion. Higher vocational colleges should strengthen the promotion of educational information on the basis of establishing "data sharing". Send out admissions information, study information and so on. the teaching materials are classified and saved, and relevant columns are set up to facilitate online retrieval between teachers and students. After the completion of the construction of the public information platform, vocational colleges should carry out large-scale promotion to enhance the understanding of teachers and students on the smart campus. It is necessary to set up a special business team to operate and manage the shared data center and improve the operation capacity of the data sharing center.

2.6 Make Full Use of the Supporting Functions of Big Data

The construction of smart campus needs a lot of information technology support, and the intelligence of smart campus is based on the rational expectation of teachers and students' behavior pattern, school management pattern and so on. In the construction of smart campus, various business management should be integrated into the system, and big data technology should be used to analyze various businesses and find the correlation between businesses, so as to realize the optimization of enterprise operation and service. To be more precise. the supporting functions of big data are mainly reflected in the following aspects:

One is data support for students and graduates. According to the previous admission data, according to the classification of different gender, specialty and so on. To put forward suggestions for the future recruitment work. I hope to organize a company publicity lecture in the graduation season to lay a good foundation for the vocational school to provide career counseling.

2.7 Second, it Provides Certain Support for Financial Management

Based on the financial budget tables and final accounts of previous years, a comprehensive analysis of the university's finance was conducted [2]. For the future campus reconstruction and expansion work to provide some experience. It makes a comprehensive analysis of all kinds of financial expenses, and continues to improve the administrative system of colleges and universities. PBL teaching mode is adopted in online experiment teaching. In the teaching, the experimental content is divided into specific problems, which are released to students in three stages before, during and after class, the ways of solving problems and discussing problems, solving corresponding problems and completing the experimental content .PBL teaching mode realizes the partial transformation from "Teacher centered" to "student centered" through the ways of students' independent learning, group mutual learning, group cooperation, group mutual evaluation, group mutual evaluation and teacher evaluation. Taking the experiment of "the working principle of fluorescent lamp and the improvement of power factor" as an example, this paper describes the specific implementation process of PBL teaching mode and the test, measurement and evaluation method. Thus, it provides a useful reference for solving the problem of students' hierarchical guidance, learning process management and evaluation, and serving students' learning process.

3. Provide Some Support for the Training of Talents

Establish a comprehensive information management system for faculty and students, and record the research and teaching achievements, professional qualifications and assessment results of faculty and staff. Evaluate each student to lay a solid foundation for recruitment. Keep in mind the educational system, actively analyze its development characteristics, and conclude the education model suitable for its own development characteristics. Fourth, to provide financial support in professional areas. the teaching focus of vocational technical college is to cultivate students' professional skills and knowledge. Higher vocational colleges should make a comprehensive analysis of the employment situation of different majors according to the existing data. Timely remove the subjects that do not meet the needs of society and introduce the subjects that have the need for development.

3.1 Tasks and Activities

In order to prevent the single teaching method and mode, the teaching team members use mind map to release tasks to students and explain the activity mode, so as to make the self-study content and group task clear.

Independent learning before class is the content that all students need to complete. Group tasks should be assigned according to students' abilities. The key and difficult problems are assigned to the students with higher scores, the problems closely related to theoretical knowledge are assigned to the students of medium level, and the problems with less

difficulty coefficient are assigned to those who are unwilling to think with their heads or do not want to practice.

The group tasks assigned by the teachers are assigned according to the different members of the group, and encourage the cooperation among groups, so as to make each group move as much as possible, so as to ensure the smooth progress of the activities in class.

3.2 Supervision and Evaluation

The main feature of PBL teaching mode is to decentralize the students, and the leading role of teachers is highlighted when problems arise, which can be targeted to solve problems. When the practical measurement evaluation method is used to assess the group and its members, the weight of teachers is weakened. The proportion of inter group and intra group mutual evaluation is the same, which makes students feel that they are both the makers and executors of rules. In the mutual evaluation, most students are objective and fair. For individual "no attitude" students, the teacher through diligent supervision, more communication, and cooperation with counselors and parents to conduct psychological guidance, so that students in the mentality change.

During the online practice teaching period, when the team teachers launched a questionnaire survey on the "Evaluation table of practice achievement composition" to nearly 900 students taught by the super star learning APP platform, the students' satisfaction rate was 35.1%, and the relatively satisfactory rate was 32.6%. In other suggestions of the questionnaire, the students proposed to use the group method to increase the frequency of teacher-student interaction and improve the relationship between teachers and students; the use of learning platform software, WeChat and QQ and other media software to communicate with teachers is not limited by time, which enriches the content of teacher-student communication and shortens the distance between teachers and students.

4. Teaching Implementation

PBL online practice teaching mode can arrange practical tasks for students, such as installing virtual simulation platform and practical operation software. These tasks are not only challenging, practical and research-oriented tasks for students, but also operational, achievable and mutual assistance tasks, which lay a good foundation for students' subsequent cooperation and learning within the group. It can promote the group students to actively think, explore and apply the knowledge they have learned to carry out the practical activities of the experimental project.

4.1 Design Tasks and Determine the Expected State According to the Learning Situation

During the epidemic period, students complete their tasks at home. Therefore, teachers are required to design tasks that can promote students to think, explore and comprehensively use the knowledge they have learned to solve problems, which is challenging and contains good value orientation. When assigning and designing tasks for group members, teachers should also take into account students' family conditions, students' learning characteristics and their own abilities, etc., so as to provide students with certain assistance tools and guidance manuals. After assigning tasks, teachers must add additional expectations to the group according to the actual situation of the group, so as to strengthen the confidence of the team members to complete the task. According to the task content, the team can submit the work in the form of document, mind map, video and other forms. The task issued to students is not only to enable them to complete the corresponding learning tasks, but also to stimulate students' interest in learning in this way.

4.2 Announce the Task of the Team and Let Everyone Know

The tasks issued to students should be visible to all the staff. Students will compare and communicate with each other on tasks, and sometimes exchange tasks. The task released should make students feel that the task can be completed, but it is still a little difficult. The tasks to be published should be specific and clear, so that students can understand what they are submitting, such as assignments, works or other forms. After a period of online teaching experience, it is concluded that the deadline of the task should be released at the same time when the task is released, and the completion time should not be too long or too tight. According to the teaching content, the group can determine the deadline by itself.

4.3 Effective Learning Support

After releasing tasks to students, teacher should provide students with self-learning resources, works, examples, etc., so that students can have learning direction and goals. At the same time, teacher should regularly follow up and check the tasks at different time nodes by using QQ, WeChat and group Tencent meeting video. Teacher and group members have thematic discussions, live Q & A, case comments, and sharing process achievements, so that students can communicate with teachers and get effective help if they encounter any problems during this period.

4.4 Effective Intervention and Group Management

According to the previous experience of assigning students to groups, teachers need to intervene and manage the composition and management of group members to a certain extent. College students come from all over the country, and their own differences are great. Teachers should not only respect the establishment of their own groups, but also make appropriate personnel adjustment through the conversation of some students. Before the task is issued, the responsibilities and obligations of the team members shall be clarified, and the management of division, cooperation, sharing and evaluation shall be done well. Students are still very serious about their own group. After the task is given out, most students will complete the corresponding task with a positive attitude. A small number of students do not cooperate, teachers can only talk, psychological guidance and communication with parents to find solutions.

4.5 Timely Feedback

Teachers should also release the evaluation criteria for

completing the tasks while releasing the group tasks, and set aside a period of time for students to put forward opinions and suggestions on the evaluation criteria, and adopt and implement the reasonable suggestions. The evaluation function of online platform task is used for feedback and the proportion of teacher evaluation, intra group mutual evaluation and inter group mutual evaluation is set to make the group score and students' individual score as objective and fair as possible. The excellent works of the group will be shared on the platform, so that more benefited students can "give a like or leave a message" and so on, so that students can keep a positive attitude to learn.

5. Conclusion

Big data technology plays a key role in the process of informatization of higher vocational education. Therefore, colleges of higher vocational education should give full play to the advantages of information technology, strengthen the support of information resources, build intelligent teaching platform, optimize teaching resources, comprehensively improve the construction quality and efficiency of smart campus, so as to improve the overall management level of higher vocational colleges. Using PBL teaching mode to carry out online practice is a new challenge and attempt for both teachers and students. The advantages are: (1) it is conducive to the cultivation of students' autonomous learning ability. Online teaching requires students to have strong learning ability and good learning habits, and students' autonomous learning ability must be improved to complete the learning task. At the same time, it also requires the ability of team learning, mutual cooperation and inquiry learning among students; (2) visual difference analysis. According to the data of students' learning ability provided by the learning platform, teachers can adjust the teaching content in real time to realize the controllability of learning effect; (3) both teaching management and service should be paid attention to. It provides multi-level interaction such as detection, homework, examination, question answering and discussion, and provides guidance for students' personalized learning path. At the same time, the learning process management and evaluation of online practice teaching must be based on students' knowledge and consent. The design of online practice activities should conform to the form of students' characteristics, and can not completely copy the famous teacher's manual. Teachers and students to build a suitable interactive platform, establish a moderate evaluation mechanism.

According to the principle of generalized Le Chatelier, online practice teaching also makes us think about the teaching mode of practice teaching after the epidemic. Returning to school after the epidemic will put forward higher requirements for teachers. A series of contents, such as the ability to use modern technology, online and offline mixed teaching methods, curriculum development direction and practical curriculum development based on environment, will reshape teaching and improve teachers' ability again.

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