



A STUDY ON STUDENT MANAGEMENT THROUGH SMART
CAMPUS CONSTRUCTION: A CASE STUDY OF JINGDEZHEN
CERAMIC VOCATIONAL AND TECHNICAL COLLEGE

BY
DONGBO LI

AN INDEPENDENT STUDY SUBMITTED IN PARTIAL FULFILLMENT
OF THE REQUIREMENT FOR THE DEGREE OF MASTER OF EDUCATION
IN EDUCATIONAL ADMINISTRATION (INTERNATIONAL PROGRAM)

SOUTHEAST ASIA UNIVERSITY

ACADEMIC YEAR 2022

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Independent Study Title A Study on Student Management through Smart
Campus Construction: A Case Study of Jingdezhen
Ceramic Vocational and Technical College

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Program Master of Education in Educational Administration
(International Program)

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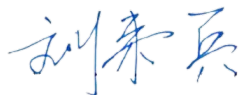
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Abstract

University informatization has gradually become a new driving force for universities to improve management efficiency and promote educational teaching reform. In such an environment, the construction and research of intelligent campus in higher education institutions has gradually become a new development trend, and the innovation of student management mode in higher education institutions has been studied. It also provides new ideas and methods for student management methods in colleges and universities. In the process of smart campus construction, it is an important issue for university education administrators to consider and solve the problem of integrating information technology with scientific and efficient student management, improving "student-oriented" campus services, and innovating the mode of thinking and government education, so as to realize the modernization of campus. In order to explore the study of smart campus construction on student management, 2000 students in Jingdezhen Ceramic Vocational and Technical College were surveyed, and 1986 valid questionnaires were collected, including different grades, different majors and different genders. Based on the research feedback, relevant enlightenment was summarized.

Keywords: Smart Campus, Student Management, Innovation Research

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Chapter 1

Introduction

The practice of building a digital space on the basis of traditional campus to realize the digitization of everything from environmental information (including classrooms, laboratories, etc.), resource information (such as books, lecture notes, courseware, etc.) to application information (including teaching, management, service, office, etc.), so as to provide effective support for resource and service sharing, is called digital campus; smart campus is a further development and enhancement of digital campus, and is It is a more advanced form of education informatization.

Like other "wisdom+scenario" concepts (such as smart hospital, smart community, etc.), smart campus is a branch of the concept of "wisdom", which originates from the concept of "smart city" introduced in China around 2009. "The concept of "smart city" originated from the "smart earth" proposed by IBM in 2008; therefore, it can be said that smart campus is a technology term that has been gradually formed and improved since 2010. The technology referred to has an artificial intelligence component.

1.1 Statement of the Research Problem

In February 2022, the "Highlights of the Work of the Ministry of Education in 2022" proposed "the implementation of the national education digitalization

strategy", and in March, the national public service platform for intelligent education was officially launched, and in October, the 20th Party Congress included "promoting the digitalization of education" for the first time. In October, the 20th Party Congress included "promoting digitalization of education" in its report for the first time. In this context, the construction of smart campuses and their modernization features to lead the digital transformation and intelligent upgrading of schools are becoming hot areas in the current education modernization process. What is the current status of smart campus development in China? What is the significance of smart campus construction for student management? Based on the research consideration of the above issues, this study will take Jingdezhen Ceramic Vocational and Technical College as the object, and the current situation of smart campus construction on student management will be studied in order to better understand the actual situation and help improve the quality of smart campus construction.

1.2 Research Questions

1. How smart is the campus? What are the main aspects?
2. What are the statistical variables of the number of students who experience and use the management related to the smart campus? Including grade level and major.
3. How do students compare their satisfaction with the experience and use of campus wisdom under different demographic variables used in different areas, such

as student management, communication, life, and security?

1.3 Research Hypotheses

There is a significant difference between the smart campus construction on student management under different demographic variables.

H1.1: There is a significant difference between the smart campus construction on the management of students in different grades.

H1.2: There is a significant difference between smart campus construction on the management of students of different majors.

H1.3: There is a significant difference between smart campus construction on student management by gender.

1.4 limitation and Scope of the study

1) Scope of research subjects.

This study adopts the questionnaire of "Survey on Students' Satisfaction with Wisdom Campus Construction" to survey 2000 students in Jingdezhen Ceramic Vocational and Technical College to understand the current situation of wisdom campus construction on student management.

2) Scope of the field

This study takes Jingdezhen Ceramic Vocational and Technical College as the study area, mainly including 2000 students in freshman, sophomore and junior years in

school.

3) Scope of content

The purpose of this study is to understand the satisfaction of student management in the smart campus, in which the content of the study of student satisfaction with the smart campus includes learning content setting, class management, grade management, classroom teaching management, and life service management. The study on the management of students in the smart campus construction, the gender, major and grade of students are also the contents of this survey.

4) Time frame

The time range of the study is mainly from February to July 2022.

1.5 Research Terminology

(1) Smart Campus: Smart campus is to upgrade traditional education with information technology, help upgrade the campus intelligently through digital technology, realize the transformation from traditional education to smart education, build a platform for integrated intelligent teaching, scientific management and in-depth services, continuously improve teaching quality and efficiency, and continuously cultivate high-quality talents for the country.

Smart campus usually consists of campus infrastructure with sensor network and intelligent hardware as the core and intelligent software system deployed on the cloud server in the data center.

(2) Student management: "Student management" mainly refers to the administrative management of students, i.e., the implementation of various plans, regulations and systems of student administration, including enrollment planning, class registration, classification*, performance assessment and recording, promotion, retention, demotion, suspension, reinstatement and withdrawal, attendance and discipline, rewards and sanctions, scholarships and grants, evaluation and distribution, graduation. The management and management education of the assessment and distribution of scholarships, the distribution of graduation* and employment work, etc.

(3) Grade: It refers to the level of the school according to the years of study of students. For example, the current school system in China generally stipulates that elementary school have six years of study, and schools are organized into six grades; junior high schools have three years of study, and schools are organized into three grades. Students enter the first year of school for the first grade, the second year to the second grade, and so on. If there are many students in the same grade, they are divided into several classes, and universities are generally divided into four grades: freshman, sophomore, junior, and senior.

(4) Specialization: It is "the specialized field of higher and secondary specialized education for students", the academic discipline of higher and secondary specialized schools according to the needs of the social division of labor, which is the activity of universities and colleges to meet the needs of the social division of labor. For

example: opera, dance, music, acrobatics, acting, performance, basic music theory, composition, education and other specialties.

To a certain extent, this reveals the essential connotation of the professions and indicates the scope, object and function of the professions, while the "specialized field" is one of the characteristics that distinguish college and university education from other types of education.

1.6 Research Benefit and Significant

In terms of the connotation and characteristics of smart campus, experts and scholars from different research fields have given their own focused definitions. Experts in Internet of Things technology highlight the intelligent sensing function of smart campus; experts in educational technology consider smart campus as a business process, resource sharing, intelligent and flexible education and teaching environment based on new communication network technology; experts in school information construction focus on business integration application and service innovation of smart campus.

First of all, I believe that smart campus emphasizes the concept of "service as the core and management as the support", and makes comprehensive use of 5G, big data, artificial intelligence and other emerging technologies to build an intelligent sensing environment and a new education and teaching space with virtual and real integration, so as to provide teachers and students with people-oriented, intelligent

and open personalized innovative services. It will provide teachers and students with human-oriented, intelligent and open personalized innovative services. Second, the smart campus should also reflect "deep integration". The "deep integration" includes the integration of school physical space, teaching network space, and social relationship space for teachers and students, and the integration and innovation of information technology with teaching, teaching and research, scientific research, management and services to form a new campus ecology that is "perceptible, diagnosable, analyzable, and resilient". New campus ecology.

Chapter 2

Theory and Literature Reviews

2.1 Concepts and Theories

2.1.1 Smart Campus" empowers student management - making management more standardized, efficient and intelligent.

With the change of the times and the rapid development of science and technology, new technologies such as the Internet, Internet of Things, big data, cloud computing and artificial intelligence, which were born in the information age, are constantly entering the education field and becoming the core technical force to promote education modernization.

In 2019, the "China Education Modernization 2035" issued by the Central Committee of the Communist Party of China and the State Council also points out the need to build intelligent campuses, coordinate the construction of integrated intelligent teaching, management and service platforms, and require that information technology be used to fuel changes in education and school management

In the new round of development planning, the university has made the construction of a smart campus a key element in promoting standardized and intelligent school management. The school takes the construction of smart campus as an opportunity to build school management based on smart campus, promote

innovation and development of school management, create an ecology of harmonious symbiosis between technology and education, and realize more standardized school management, more efficient work implementation and wiser management strategies.

Since its wisdom construction, the school has planned the overall plan and framework for the construction of the school's smart campus. It has also continued to practice and explore in school management, teaching and learning style changes, and student evaluation.

2.1.2The basic features include: firstly, advanced and complete intelligent infrastructure, secondly, sound and open system structure at the edge of the cloud, thirdly, integrated and collaborative information business system, fourthly, smooth integration of online and offline spatial applications, fifthly, accurate and efficient digital intelligence technology empowerment, sixthly, integration and upgrading of curriculum and classroom evaluation, seventhly, continuous promotion of teacher and student literacy development, and eighthly, safety and security The operation mechanism is sound, etc. In the context of China's digital transformation of education, the construction of smart campus also shows an obvious acceleration of the school's "Internet+", "Smart+" and "three classrooms" and other multiple In the context of the digital transformation of education in China, the smart campus construction has also been shown to accelerate the ecological reconstruction of schools under multiple paths of practice, such as "Internet+", "Smart+" and "Three

Classrooms", and to help the new curriculum reform of literacy orientation.

1)The connection between teaching management and school management
classroom management

First, in school management, there are teaching management and other management. We can find that school management is a way of management in which school education managers can achieve continuous improvement of school management quality through meticulous design, precise planning and reasonable coordination of school work and necessary control. In the process of school management, school administrators are required to specify the educational goals and objectives of the school, so that teachers can set teaching goals and help students learn in a reasonable and relaxed environment. Therefore, by comparing school management and classroom management, the analysis allows us to arrive at a basic definition of instructional management. Instructional management is the process by which school administrators assess the school's current teaching environment and, based on the requirements of teaching objectives and plans, set teaching tasks for teachers to complete using reasonable teaching methods and approaches to achieve the school's teaching goals.

2) Teaching management framework of university smart campus based on education big data

By using education big data to analyze the teaching management for university smart campus, we can conclude that the teaching management based on

education big data is divided into many aspects. For example, student management, teacher management, classroom teaching management, and teaching plan management. All these management are organically integrated together, thus forming a broad teaching management. At the same time, through the complementarity of various management, we can serve students' learning development and education subjects, so that we can better improve the smart campus and achieve a smart campus.

The following is a specific analysis of various aspects of teaching management to help you better understand teaching management in the context of big data in education. As we all know, student management refers to the unified management of all aspects of students' learning development during school.

We all know that students in colleges and universities have the basic characteristics of independence and autonomy. Therefore, the use of big data for student management optimization and quality improvement can help us educators to better carry out student services and help students grow up healthy and happy. At the same time, the student management work carried out by using big data analysis is more targeted, accurate and personalized. In ancient times, Confucius, the great educator of China, proposed the management concept of teaching students according to their abilities. The concept of "teaching according to ability" allows different talents to grow up in a different learning environment and become better talents for society.

In today's fast developing era, we can also make use of big data technology to make student management more targeted, and practically help our education managers to solve the problems encountered in the development of each student, and finally achieve further improvement of education. At the same time, the teacher management in teaching management is also very important. The teacher is not only a supervisor and guide of the students, but also a companion and helper. It is true that there is a saying that parents are the best teachers for their children. However, this saying also shows the importance of the "teacher". Therefore, in the specific context of the continuous application of big data, our education administrators can improve the quality and efficiency of teacher management from two aspects: improving teachers' professionalism and improving teachers' teaching and practice, so that the teacher team can be stronger and better help students learn and grow.

In addition, teaching goal management is also very important in the current teaching management. Teaching goal management is not only to classify and manage the teaching goals of teachers. According to the latest survey, it also includes the management of students' learning goals. In the current context of big data in education, the use of big data technology to refine the teaching objectives can make the teaching work better.

By refining and planning the goals, students and teachers can continue to complete them one step at a time. By refining and planning the goals, students and

teachers can accomplish the goals step by step, so that the goals are no longer out of reach. Teaching plan management is also an important part of teaching management. As the name implies, teaching management is a phased and planned work management based on the continuous refinement of teaching objectives. As mentioned above, the use of education data allows teachers and students to plan for a rainy day, so that they can make plans that are more developmental and more in line with the actual needs of teachers and students, and closer to the actual growth of students.

Classroom management is also crucial in the management of teaching and learning. In the traditional classroom management in the past, teachers often adopt one-size-fits-all extreme management methods, thus restricting the further improvement of classroom teaching quality. Therefore, in the context of big data in education, refining and analyzing every aspect involved in classroom management can effectively help our teachers improve classroom efficiency, enhance teaching quality and optimize students' learning effect.

Finally, teaching quality management is an important part of teaching management. By using education data to analyze the learning effect and teachers' teaching efficiency, we can effectively help our educators analyze the current problems that affect the further improvement of teaching quality, so as to propose effective strategies to improve students' learning effect and teachers' teaching efficiency, and finally promote students' learning growth.

3) Practical practice of teaching management mode based on education big data

An important point that makes the wisdom campus of colleges and universities different from the previous campus management is that different teaching management modes can be organically combined or out linked in the process of wisdom campus application, so as to support from theory and basic management. The two major aspects of collation are effectively analyzed and the corresponding measures that can be implemented for the most optimal teaching management are proposed. For example, we can propose some teaching management modes based on education big data, such as teaching process management mode, teaching quality management mode, teaching grading management mode and teaching service management mode, based on the above mentioned aspects of teaching management such as student management, teacher management and classroom teaching management. Only from the perspective of teaching hierarchy management mode, this new teaching mode is based on the development of teaching system theory. Simply put, by subdividing the whole system and subdividing the subsystems, the interconnection between each level is made, so as to improve the quality of teaching management effectively.

2.2 Literature reviews

Campus Brain for Data Visualization

For the school smart campus system, it is crucial to build the basic information

base of the unified user management system. The integrity and consistency of the data of teachers and students are especially important for the later application platform invocation and the use of unified identity authentication.

The basic information management of the school smart campus spends a lot of time and energy to open up various application systems, and it is the basis for student portraits and teacher portraits in the later smart campus. It is also the data source for building the campus brain big data kanban.

The school used the existing application data to build the first version of the Campus Brain visual kanban board, which can understand the basic information of the school very intuitively and clearly. Information such as attendance of the day, teacher team, academic status, retirement subject warning in the past three years, the ratio of male to female students in the whole school, ethnicity, origin, foreign students, Hong Kong, Macao and Taiwan students can be seen at a glance, which provides global data for school management decisions.

Health Reporting

Under an epidemic, students' physical condition and temperature is a very important element for understanding student health. It is also a very tedious task for the school health office to compile statistics on the health status of the whole school. For a school with more than 2,000 students, it is a challenge to report the summary information in a timely manner.

The school uses the Smart Campus app to facilitate parents to report health

conditions daily, and to report illnesses and discomfort through the Smart Campus app's "Absence from School due to Illness" module. After parents finish reporting, classroom teachers will be notified of the absence and will approve the absence. All information will be automatically summarized, and the health teacher can view the whole school situation in the Smart Campus system.

The closed-loop operation using the smart campus app makes student health management more timely and efficient, and the visualized data presentation gives health teachers a very intuitive overview of the whole school's student health status. Also, based on the data, it can realize early warning of disease control and prevention before it happens.

New Student Report

August 25/26 is the first batch of new students in Jingdezhen Ceramic Vocational and Technical College, how to collect basic information about new students, for the later classroom teachers to understand the students, home visits. The traditional way to report students on the paper registration form for registration records, the school collated and distributed to classroom teachers, the information is not retained.

The school innovates the workflow of the reporting day, simplifies the operation method, and uses the smart campus mini-program to fill in the basic information of new students by cell phone after they arrive at school, which is convenient and simple. After the information enters the school's smart campus

platform, it is summarized and the number of verified students, male to female ratio, professional transfer, and the number of class assignments are visually presented for the whole school.

Using the smart campus, you can randomly assign classes and assign school numbers according to the corresponding rules, so that the class assignment is fair and just. Meanwhile, using the smart campus applet can also complete the online subscription of new students' living cards and cell phone cards, eliminating the need to queue up at the cafeteria and telecommunication business hall in the past, which can now be done on the campus functionalization in a one-stop manner.

Smart campus is a new change of school teaching, management and service mode. The construction of smart campus should adhere to the people-oriented approach, focus on the combination of top-level design and actual needs, lead by application services and data-driven innovation to realize the concept update, model change and system reconstruction of smart campus.

This study only examines a part of the school in school management, the specific exploration and practice of using information technology to change the management process and simplify the process by putting people first, and after sorting out the experience we find that it makes school management more standardized, efficient and wise!

While we enjoy the many conveniences that information technology brings to people, we also have to bravely accept the challenges it launches to human beings.

We should follow the trend, seize the opportunity, embrace the change with a more open and tolerant mind, respond calmly to the challenge with innovative and developmental thinking, actively adjust the management strategy with a rational and objective mind, adhere to the true nature of education, and accelerate the realization of the modernization of basic education.

2.3 Conceptual Framework

By studying the relevant literature on the construction and application of smart campus and analyzing the content of the published specification standards for the construction of the refined management platform for students in smart campus, we can find that the construction of the refined management platform for students in smart campus presents a new value orientation.

2.3.1 New orientation of the construction of smart campus

1) Implementing the fundamental task of establishing moral education In the report of the 19th Party Congress, it is pointed out that "we should comprehensively implement the Party's education policy, implement the fundamental task of establishing moral education, develop quality education, promote educational equity, and cultivate socialist builders and successors with comprehensive development of moral, intellectual, physical, aesthetic and labor". Establishing moral education is the core key to the development of socialist education with Chinese characteristics, and it is also the new orientation of smart campus

construction. In the context of the new era, the orientation of smart campus construction has changed from focusing on the cultivation of students' abilities to attaching importance to students' core literacy and key abilities, etc. In order to fully implement the fundamental task of establishing moral education, it is necessary to create an intelligent education environment with the help of new information technology, so as to further achieve the target requirements of smart campus construction.

2) Promote core literacy and key competencies

Promoting students' core literacy and key competencies is not only the foothold of smart campus construction and application, but also an important symbol to show the effectiveness of smart campus construction and application. The construction of smart campus should no longer be limited to the construction of infrastructure, the construction of virtual and real space, the development of high-quality digital resources and the multi-dimensional application of information technology, but more to the promotion of the cultivation of students' core literacy and key competencies. Under the environment of smart campus, student management should pay attention to the support and service role of smart campus construction on education and teaching reform, focus on the difficult problems and core issues in the process of student management, and innovate the concept of student management. It can help cultivate the sense of responsibility and responsibility by changing the way of student management and optimizing the

student management mode. At the same time, it is conducive to the improvement of students' quality and reduction of their burden, and to strengthen the cultivation of students' self-management ability.

In conclusion, the current research on smart campus platform mainly focuses on the practice and application of education and teaching, and there is little research on the construction and application of the platform for student behavior in school.

2.3.2 The only way we can really understand the students' research on the construction and application of campus wisdom platform is to adjust school policies and practices in a targeted way. Therefore, we collected their problems through a large number of interviews, designed questionnaires, and used data to find the root of the problems of student management in the construction of wisdom campus. Follow the theories related to the educational management and student behavior of the smart campus. Jingdezhen Ceramic Vocational and Technical College was chosen as the object of this study, and the research framework was designed.

Chapter 1, the introductory part: the research objectives, significance and content related to the smart campus construction on student management are clarified.

Chapter 2, Theoretical foundation. The theoretical and methodological analysis of the smart campus construction on student management is conducted, including the guiding ideology of the full concept and theory of "smart campus" empowering student management, the characteristics of the smart campus are its connotation,

the actual practice of teaching and learning management mode with big data, and the research framework and research ideas followed in this paper are proposed.

Chapter 3: Methodological Design. The design and construction of smart campus construction on student management, student questionnaires and interviews, collection of relevant data, statistical analysis, etc.

Chapter 4, Data Analysis. The data obtained are processed and compared to determine the differences that exist above the school's smart campus construction on the management of different majors and different grades.

Chapter 5: Conclusions and Recommendations. The results of this study are analyzed to summarize the results of the smart campus construction on student management and put forward the problems that still exist, and make reasonable suggestions to make the school smart campus construction more ideal for student management.

Chapter 3

Research Methodology

3.1 Methods of study

First, this study explores the theories related to the construction of smart campus through literature analysis, understands and grasps the current situation of smart campus construction on student management, and then proposes the research questions of this study.

Secondly, on the basis of literature research, data analysis and summary are conducted through questionnaire survey in terms of students' learning, life and safety. This study analyzes and compares the differences in the management of students in different grades, majors and genders by conducting a questionnaire survey on the construction of the smart campus of Jingdezhen Ceramic Vocational and Technical College on student management.

Then, the data analysis was completed by organizing and summarizing the data from the questionnaire survey.

Finally, according to the results of data analysis, the overall discussion on the smart campus construction on student management in Jingdezhen Ceramic Vocational and Technical College was conducted, and relevant countermeasures and suggestions were put forward for the next development of the smart campus construction on student management in Jingdezhen Ceramic Vocational and

Technical College.

The specific research and design flow chart is shown in Figure 3.1 below.

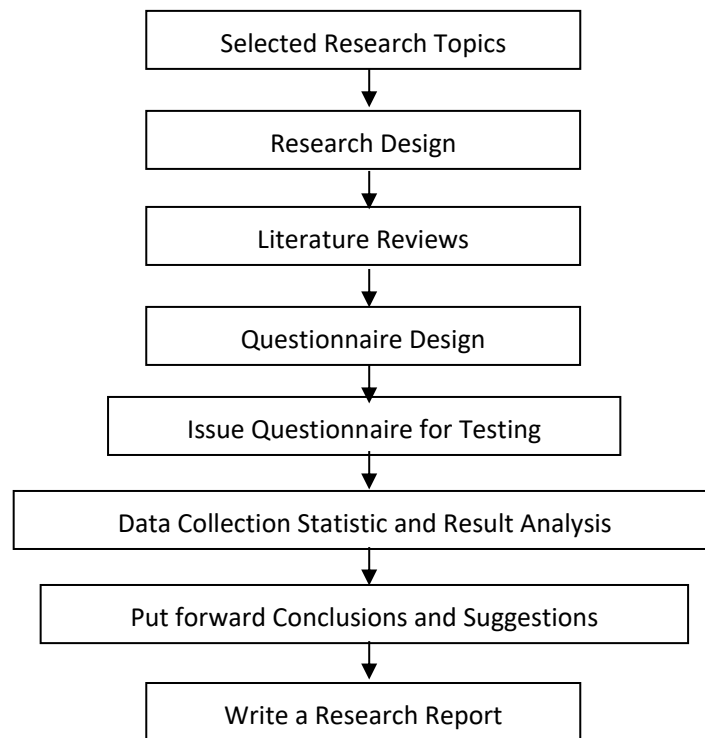


Figure 3.1 Research Flow Chart .

The detailed research design and steps include the following eight main processes.

1. Selecting the research topic

According to the research background, research purpose and significance, the researcher selected the research topic after discussing with the supervisor, i.e., the investigation and research on the smart campus construction on student management in Jingdezhen Ceramic Vocational and Technical College.

2. Research Design

3. Literature Review

According to the research topic, research questions and hypotheses were proposed, and relevant literature was collected and analyzed. The literature is mainly collected from relevant journals, data and professional papers at home and abroad, and is mainly found through the Internet big data. It provides theoretical basis and reference for the subsequent research.

4. Questionnaire design

A mature scale instrument was selected to ensure its reliability and validity to form a questionnaire on student management in Jingdezhen Institute of Ceramics Vocational Technology's smart campus construction.

5. Distribute the questionnaire for testing

The questionnaire was administered to 2000 students and teachers in Jingdezhen Ceramic Vocational and Technical College through random sampling of the whole school.

6. Data collation, statistics and result analysis

After the questionnaires were collected and organized, they were imported into SPSS software to complete the statistical analysis and the results were analyzed.

7. Conclusions and recommendations

Based on the results of the survey, conclusions of the study were drawn and

recommendations were made.

8. Writing the research report.

3.2 Population and Sampling method

3.2.1 Demographic Approach

In the practice of student management, it is important not only to understand the correlation between the variables, but also to explore the students' feelings in the management of smart campus construction on a case-by-case basis. A simple generalization is that the unique characteristics of students can be extracted from the demographic factors to study the impact on each variable. The correlations between the other variables studied will change depending on the individual characteristic factors. In this paper, 2000 students enrolled in Jingdezhen Ceramic Vocational and Technical College were studied. According to the demographic characteristic factors, the demographic characteristic variables such as identity, major, grade, and gender of the investigated students were different.

3.2.2 Sampling research method

In this study, 2000 online questionnaires were randomly distributed to students and teachers of freshmen, sophomores and juniors in Jingdezhen Ceramic Vocational and Technical College through the WeChat group formed by the school in each grade. A total of 1986 questionnaires were collected, with a recovery rate of 99.3%. After sorting the questionnaires, a total of 1892 valid questionnaires were obtained,

with a recovery efficiency of 94.6%.

3.2.3 Questionnaire design

Questionnaire

Dear students and teachers.

Basic student information questionnaire
1.What grade are you in?
☐ freshman ☐ sophomore ☐ junior
2. What is your major?
☐ Art and Design ☐ Business Administration ☐ Ceramic Art ☐ Computer
3. whether you were born in a rural or urban area
☐ rural ☐ urban ☐ other employees
4. the gender of your children.
Male ☐ Female
5. do you often use smart electronics?
☐ Often ☐ Occasionally ☐ Never
6. your academic performance is
☐ Excellent ☐ Good ☐ Fair ☐ Poor

Hello! We invite you to complete this questionnaire in order to better understand the research on student management in our school's smart campus construction. This is an anonymous survey and the results will only be used for educational research and will not affect your studies or work. Please take the time to complete the questionnaire as you see fit.

Your responses are critical to the value of this study. Please check the box that you think is most appropriate, thank you.

Part I: Basic Information

Dear students and teachers;

Hello! We invite you to complete this questionnaire in order to better understand the research on student management in our school's smart campus construction. This is an anonymous survey and the results will only be used for educational research and will not affect your studies or work. Please take the time to complete the questionnaire as you see fit.

Your responses are critical to the value of this study. Please check the box that you think is most appropriate, thank you.

Student Research Questionnaire
1. How does the smart campus construction help you in your study?
☐ Very helpful ☐ Not helpful ☐ Not helpful
2. How does the smart campus construction help you in your campus life?
☐ Very helpful ☐ Average ☐ Not helpful
3. How convenient is the smart campus for you to communicate with your classmates?
☐ very convenient ☐ more convenient ☐ average ☐ not convenient
4. Has the smart campus made it easier for you to communicate with teachers?
☐ very easy ☐ relatively easy ☐ average ☐ inconvenient
5. Does the construction of smart campus provide better protection for your personal campus safety?
☐ Yes ☐ Generally ☐ No
6. Does the construction of smart campus help you to access information outside of class?
☐ Yes ☐ Generally ☐ No

Part II: Questionnaire of smart campus construction for student management

Questionnaire

Dear students and teachers;

Hello! We invite you to complete this questionnaire in order to better understand the research on student management in our school's smart campus construction. This is an anonymous survey and the results will only be used for educational research and will not affect your studies or work. Please take the time to complete the questionnaire as you see fit.

Your responses are critical to the value of this study. Please check the box that you think is most appropriate, thank you.

Part I: Basic Information

Basic Information for Teachers
1. What grade level do you teach now?
☐ freshman ☐ sophomore ☐ junior
2. What is your major?
☐ Art and Design ☐ Business Administration ☐ Ceramic Art ☐ Computer
3. were you born in a rural or urban area
☐ rural ☐ urban ☐ other employees
4. your gender.
Male ☐ Female
5. do you often use intelligent electronic products?
☐ Often ☐ Occasionally ☐ Never
6. how good are you at school?
☐ Excellent ☐ Good ☐ Fair ☐ Poor

Questionnaire

Dear students and teachers;

Hello! We invite you to complete this questionnaire in order to better understand the research on student management in our school's smart campus construction. This is an anonymous survey and the results will only be used for educational research and will not affect your studies or work. Please take the time to complete the questionnaire as you see fit.

Your responses are critical to the value of this study. Please check the box that you think is most appropriate, thank you.

Part II: Questionnaire of smart campus construction for student management

Basic Information for Teachers
1. How does the smart campus construction help you in classroom management?
☐ Very helpful ☐ Not helpful ☐ Not helpful
2. How does the smart campus help you in managing students' performance?
☐ very helpful ☐ average ☐ not helpful
3. How convenient is the smart campus for you in classroom teaching?
☐ very convenient ☐ more convenient ☐ average ☐ not convenient
4. Has the smart campus construction made it easier for you to communicate with students?
☐ very easy ☐ easy ☐ average ☐ inconvenient
5. Is the smart campus construction more convenient for you in managing students' life?
☐ Yes ☐ Generally ☐ No
6. Is the smart campus construction more convenient for students' academic

registration management?
☐ Yes ☐ Generally ☐ No

3.3 Data Collection

3.3.1 Establishment of data research indicators

To establish the indicators for measuring the construction of the wisdom campus of Jingdezhen Ceramic Vocational and Technical College, when conducting the actual assessment, the indicators should be determined to reflect both the actual situation of students and teachers on the school's wisdom campus construction on student management, and to stand in the perspective of the investigation object, so that the indicators can objectively reflect the evaluation of students and teachers on the wisdom campus construction on student management. Therefore, this paper establishes a set of index system for assessing students' and teachers' opinions on the smart campus construction on student management, which should adhere to the following three major principles.

1) It is the principle of comprehensiveness and hierarchy. Establish students. The index system of teachers' management of students by smart campus construction should accurately and comprehensively reflect the construction of smart campus. It is also necessary to stratify and classify these indicators, so that the whole evaluation index system is structured around the purpose of evaluation, and gradually push the investigation deeper and wider.

2) It is the principle of independence and importance. The indicators of smart campus construction on student management should be clear and relatively independent, and each questionnaire can independently reflect a certain aspect of the problem. In establishing the indicators, from the perspectives of students and teachers respectively, the indicators valued by teachers at different levels and the indicators considered necessary and critical by students of different majors are selected for the objective rating of smart campus construction on student management.

3) Operability and measurability principle. The ultimate purpose of the survey of students and teachers on the smart campus construction on student management is to find the problems that still exist in the smart campus construction and to propose the reasons. By studying the feedback from students and teachers on the information of smart campus construction on student management, collecting data and conducting analysis, the final result should be a quantifiable value, so the set indicators must be able to be counted, calculated and analyzed.

3.3.2 Creating a data research instrument

Based on the literature, it can be seen that the measurement of the management of students by smart campus construction has not been standardized in the field, and different researchers have chosen different instruments for other purposes. The most commonly used instruments for the management of students

by smart campus construction from the students' perspective are three dimensions, namely student learning, student life, and student safety, and the most commonly used instruments for the management of students by smart campus construction from the teachers' perspective are four dimensions, namely student achievement management, classroom management, student life service management, and classroom management. At the same time the reliability and validity of the questionnaire must be satisfied, so this study has an important reference value. On the basis of this study, the dimensions of the study on student management by the smart campus construction of Jingdezhen Ceramic Vocational and Technical College were established according to the concerns of the students and teachers involved in the study, and the research questionnaire was compiled by itself.

1) Establishing the questionnaire of the smart campus construction on student management in Jingdezhen Ceramic Vocational and Technical College

In order to achieve the research objectives objectively and truly, we referred to the existing literature on the wisdom campus construction on student management in colleges and universities, and established the natural information of the electronic questionnaire, and then conducted an objective evaluation of the wisdom campus construction on student management to students and teachers by means of WeChat.

2) Establishment of questionnaire dimensions

In this study, 2000 teachers and students of Jingdezhen Ceramic Vocational and

Technical College were selected as the sample, covering three dimensions of freshmen, sophomores and juniors of different majors and no gender as the sample, i.e. student learning, student's life and student safety, and four dimensions of teachers of no major and different grades, i.e. student achievement management, class management, student life service management and classroom management.

3) Establishment of questionnaire questions

After establishing the dimensions of the student questionnaire and the teacher questionnaire, the content of each size question must be considered to ensure that the content of the questionnaire is more closely related to the study of student management in smart campus construction. In order to rationalize each question, the final version of the questionnaire was developed by soliciting opinions through in-communication in the students and teachers' WeChat group.

4) Determined the scoring system for questionnaire collection

In order to more objectively and truly reflect the current situation of the smart campus construction on student management, we adopted a questionnaire "five-point system", which divided the feedback from student questionnaires and teacher questionnaires into five levels, and scored the smart campus construction on student management from 1 to 5 points.

3.3.3 Research index system of smart campus construction on student management

According to the multiple arguments of smart campus construction on student management, the index system of smart campus construction on student

management was finally established. The system consists of three primary indicators, four secondary indicators and five key observation points. The specific contents of the index system are shown in Table 3.3.4

3.3.4 Tests of the questionnaire's reliability and validity

(1) Reliability test

As an important component of reliability, we must consider its degree of consistency, i.e. how reliable it is. It mainly tests the stability of the questions in the questionnaire and the characteristics of each question. There are four methods of reliability analysis: the retest reliability method, the fold-and-half reliability method, the replication reliability method, and the a reliability coefficient method. The reliability assessment method used in this paper is the Cronbach's reliability coefficient method, and this reliability test method is the most commonly used at present. The formula for its reliability coefficient is: $\alpha = (k/k-1) \cdot (S_i^2 / S^2)$. It can be seen from the procedure that the α coefficient evaluates the consistency among the scores of the items in the questionnaire, showing the internal consistency. The specific results of the reliability analysis are shown in Table 3.3.4.

As can be seen from the table above, the overall Cronbach's alpha coefficient of the questionnaire is 0.876, which is recommended by experts above 0.80. For the four dimensions of the questionnaire, the Cronbach's alpha coefficient is between 0.853 and 0.915, which is higher than this value. the Cronbach's alpha coefficient is between 0.853 and 0.916, which is higher than the expert

recommendation of 0.7. Therefore, this questionnaire has good reliability and it is credible to conduct a study on parents' satisfaction with schools based on this questionnaire.

(2) Validity

1) Content validity

Validity describes the degree of validity of a study. Validity is not only a prerequisite for scientific research, but also a basic criterion and requirement for research design. The extent to which the items under investigation are consistent with the scope of measurement. Initially, 12 questions were jointly participated by teachers and students, and 12 base questions were finalized through deletions and additions. Next, more than 1000 valid questionnaires were selected for scoring on a 5-point scale, mainly by the degree of understanding, clarity of meaning, and comprehensibility of the questions.

2) Structural validity.

This is a criterion that reflects the theoretical structure of the questionnaire itself. In this paper, correlation analysis was used to analyze the dimensions. According to psychologist Tucker, the correlation between each dimension in the questionnaire should be kept between 0.10 and 0.60. If the correlation between two dimensions of the questionnaire is high, then there is an overlap between these two dimensions; if the correlation between the two dimensions is low, then there is a significant difference between what the questionnaire wants to measure and what

it actually measures, and the validity of the questionnaire cannot be tested. Table 3.3.4 shows the correlations between the dimensions in the questionnaire and the total questionnaire.

As can be seen from Table 3.3.4 above, the overall and four dimensions of the questionnaire show moderately high correlations, with each dimension having a very significant relationship with the overall dimension of the questionnaire; the correlations between the four dimensions of the questionnaire are moderately low. This ultimately indicates that the questionnaire has good validity because the dimensions are not only independent, but also have good attribution

3.3.5 The process of data collection

(1) Formation of the questionnaire

In order to make the individual questions more reasonable, I pre-researched the students and teachers at Jingdezhen Ceramic Vocational and Technical College, and recorded and filed the research contents. The information obtained from the research was screened and organized, and the issues closely related to student learning and life in the smart campus construction on student management were taken as the main items to be examined in the questionnaire. After the complete questionnaire was determined, it was taken to the class leaders and counselors of each class for comments, and the questionnaire was uniformly revised, supplemented, etc. to make the questions more straightforward. Through more than half a month of communication with students' class WeChat groups, the final

version of the questionnaire was formed and the formal data collection work began.

(2) Formal research

After completing the formal version of the questionnaire, the electronic office questionnaire was randomly distributed to 2000 teachers and students in Jingdezhen Ceramic Vocational and Technical College. After completing the questionnaire, students and teachers forwarded the questionnaire to their class leaders via WeChat. Summarized by the class leader to me and count the valid questionnaires.

A total of 2,000 randomly distributed electronic questionnaires, the recovery of questionnaires 1986, the recovery rate of 99.3%; questionnaire recovery and collation, after screening out invalid questionnaires to get 1892 valid questionnaires, the recovery rate of 94.6%.

3.4 Data preparation and data analysis

3.4.1 Data statistics

The collected questionnaires were tabulated according to the variables of students' personal basic information: students' grade, students' majors, students' gender, students' grades, etc., and the variables of teachers' personal basic information: professors' grade, professors' majors, teachers' gender, job excellence, etc.

(1) Data of students' identity

As can be seen from Table 3.4, most of the questionnaires were filled out by

students, with the largest number of 1867, accounting for 93.35%; 1010 of them were filled out by male students, accounting for 50.5%; 801 of them were filled out by female students, accounting for 40.01%, and only 2.8% were filled out by teachers.

(2) Students from urban and rural areas

In the limited questionnaires, most of the students were from urban households and few were from rural households.

There were 1066 students from urban areas, accounting for 53.3%; 801 students from rural areas, accounting for 40.01%.

(3) Percentage of excellent academic performance

There are 348 students with excellent academic performance, accounting for 17.4%; 1065 students with good academic performance, accounting for 53.25%; 573 students with average academic performance, accounting for 28.65%.

(4) Student gender data

The proportion of male and female students is around 50%, with a slightly higher proportion of male students (1065, accounting for 50.36%) and female students (922, accounting for 49.64%).

(5) Data on students' use of smart electronics

The number of frequent users was 1398 (69.9%), occasional users 368 (18.4%), and less frequent users 220 (11%).

3.4.2 Data analysis

After screening the invalid questionnaires, the valid data were keyed into the computer and the data were statistically analyzed using SPSS software. the "descriptive analysis" function in SPSS software allows the data to produce relevant descriptive statistics such as frequencies, means, cross-tabulation analysis, and the percentage of parental satisfaction for each observation point. The "cross-tabulation analysis" tool allows for comparative analysis of different concerns of students across majors, grades, genders, and achievements.

Chapter 4

Data Analysis Result

This chapter presents the authors' analysis and summary of the data collected on the Internet through SPSS software. Depending on the purpose of the study and the research design, these analysis methods include frequencies and percentages; descriptive analysis of descriptive statistics, such as mean and standard deviation, and independent samples t-test. The following sections will present the results of the study and briefly discuss them separately.

The questionnaire used in this study is titled "Research on Student Management by the Construction of Smart Campus in Jingdezhen Ceramics Vocational College" and is divided into two main parts: the basic information statistics part and the motivation-oriented part (see Appendix). This study was conducted with 2000 students and teachers of different grades in Jingdezhen Ceramic Vocational and Technical College.

Mainly distributed through the WeChat link, there were 2000 electronic questionnaires, and 1986 were recovered. The largest number of them was 1867, accounting for 93.35%; 1010 were filled by male students, accounting for 50.5%; 801 were filled by female students, accounting for 40.01%, and the number of teachers was 56, accounting for only 2.8%

4.1 Demographic Analysis of Respondents

In this study, 1986 valid questionnaires were collected by distributing electronic questionnaires. The data in the first part of the questionnaire were used to understand the basic background information of the students and teachers, which corresponded to the first purpose of the study, i.e., to understand the demographic variables of Jingdezhen Ceramic Vocational and Technical College, including their grade, major, grades, gender, and other basic information.

Table 4.1 Basic information of students in Jingdezhen Ceramics Vocational and Technical College

Demographic Variable	Classify	N	Percent %
Achievement	Excellent	284	17.4
	Good	1065	53.25
	Fair	470	23.5
	Poor	103	5.15
Major	Business Administration	356	17.8
	Art and Design	543	27.15
	Ceramic Art	655	32.75
	Computer	432	21.6
Gender	Boy	1010	50.5
	Girl	801	40.1
Grade	Freshman	733	36.65
	Sophomore	826	41.3
	Junior	427	21.35

From the data filled in the questionnaire, among the students who answered the questionnaire, 348 (17.4%) were students with excellent academic performance; 1065 (53.25%) were students with good academic performance; 470 (23.5%) were students with average academic performance, and 103 (5.15%) were students with poorer performance. The proportion of male and female students was around 50%, with male students (1065, accounting for 50.36%) and female students (922, accounting for 49.64%).

The three grades participating in the questionnaire were relatively balanced, with the number of first-year students 733 (36.65%); the number of second-year students 826. The number of students in the third year was 427, accounting for 21.35%. The number of students' majors were 432 (21.6%) in computer science, 655 (32.75%) in ceramic art, 543 (27.15%) in art and design, and 356 (17.8%) in business administration. The basic information of students who participated in the specific questionnaire survey is shown in Table 4.1

4.2 Statistical Analysis Results

In accordance with the research objectives of this study, the researcher conducted a uniform statistical analysis of the information collected from the 1986 questionnaires using SPSS for better hypothesis testing.

According to Table 4.2 below, the students were more helpful to the smart campus construction for student management. In terms of each sub-dimension,

students think that the smart campus construction is more helpful to their learning, living, communication and safety dimensions analysis, the mean value of each dimension is higher than 3.7, and the total satisfaction reaches 3.78. Therefore, it proves the significance and value of smart campus construction for student management.

Table 4.2 Descriptive analysis of Jingdezhen Ceramic Vocational and Technical College on the smart campus construction for student management

How does the smart campus construction help you in your study	Mean	SD	Analyse
1. Very helpful	3.81	1.277	Tall
2. Not helpful	3.83	1.196	Tall
3. Not helpful	3.80	1.264	Tall
How does the smart campus construction help you in your campus life	Mean	SD	Analyse
1. Very helpful	3.78	1.256	Tall
2. Not helpful	3.70	1.239	Tall
3. Not helpful	3.73	1.222	Tall
How convenient is the smart campus for you to communicate with your classmates	Mean	SD	Analyse
1. very convenient	3.78	1.155	Tall
2. more convenient	3.81	1.253	Tall
3. average	3.71	1.186	Tall
4. not convenient			
Does the construction of smart campus provide better protection for your personal campus safety?	Mean	SD	Analyse
1. Yes	3.76	1.236	Tall
2. Generally	3.73	1.242	Tall
3. No	3.79	1.216	Tall
Does the construction of smart campus help you to access information outside of class	Mean	SD	Analyse
1. Yes	3.81	1.229	Tall
2. Generally	3.79	1.21	Tall
3. No	3.80	1.186	Tall
Total	3.78	1.140	Tall

The details of each dimension and question are shown in Table 4.2 above

4.3 Hypothesis Testing Results

The following data analysis section applies SPSS 23.0 software to compare the feedback of smart campus construction on student management across majors, grades, genders, and students. The following section mainly used independent sample t-test and one-way ANOVA to test the research hypotheses. The specific results of the analysis are presented in the analysis below.

4.3.1 Test Results of Hypothesis H 1.1

H 1.1: There is a significant difference in the management of students in different grades by the smart campus construction.

Table 4.3 Analysis of the differences of smart campus construction on the management of students in different grades.

Dimension	Education Degree	N	Mean	SD	F	P
How does the smart campus construction help you in your study	freshman	733	2.58	2.56	3.538	0.000*
	sophomore	826	4.27	1.67		
	junior	427	4.85	1.55		
How does the smart campus construction help you in your campus life	freshman	22	2.26	1.88	1.378	0.000*
	sophomore	58	4.08	1.09		
	junior	26	4.24	1.34		
How convenient is the smart campus for you to communicate with your classmates	freshman	733	2.39	2.39	2.196	0.000*
	sophomore	826	4.24	1.17		
	junior	427	4.19	1.15		
Does the construction of smart campus provide better protection for your personal campus safety	freshman	733	4.59	2.09	1.096	0.660
	sophomore	826	4.31	1.23		
	junior	427	4.75	1.45		

* $p < .05$

According to hypothesis H 1.1, it is necessary to compare the differences in the analysis of variance of students' smart campus construction on management in different grades. In the questionnaire, student grades were three grades, so one-way ANOVA was used to test this hypothesis. The results of the test are shown in Table 4.3. In the process of comparing the differences of students in different grades, the p-value of the recognition of learning help, communication help, campus safety, and campus life of students in different grades on smart campus construction on student management under the analysis of F-test = 0.000 or even less than 0.01. Therefore, it can be determined that different grades have different effects on smart campus construction on student management help. However, there is no significant difference in their recognition of the role of smart campus construction on student management because the $p\text{-value}=0.660>0.05$.

4.3.2 Test results of hypothesis H 1.2

H1.2: There is a significant difference between the smart campus construction on the management of students of different majors.

Table 4.4 Analysis of the differences between students of different different majors on the smart campus construction on student management.

Dimension	Income	N	Mean	SD	F	P
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How does the smart campus construction help you in your study	Business Administration	356	4.28	2.56	3.458	0.012*
	Art and Design	543	4.03	1.57		
	Ceramic Art	655	3.91	1.98		
	Computer	432	4.15	1.85		
How does the smart campus construction help you in your campus life	Business Administration	356	2.86	1.88	1.493	0.023*
	Art and Design	543	4.71	1.19		
	Ceramic Art	655	4.45	1.39		
	Computer	432	4.39	1.24		
How convenient is the smart campus for you to communicate with your classmates	Business Administration	356	3.19	2.39	1.086	0.013*
	Art and Design	543	4.27	1.48		
	Ceramic Art	655	4.44	1.07		
	Computer	432	4.39	1.85		
Does the construction of smart campus provide better protection for your personal campus safety	Business Administration	356	4.09	2.39	0.056	0.770
	Art and Design	543	3.27	1.45		
	Ceramic Art	655	4.34	1.07		
	Computer	432	4.19	1.75		

*p< .05

According to hypothesis H 1.2, it is necessary to compare the differences in student management of smart campus construction among students of different majors. In the questionnaire, three grades were researched, so one-way ANOVA was used to test this hypothesis. The test results are shown in Table 4.4. In the process of comparing the differences of different majors on student management of smart campus construction, under the analysis of F-test, there are significant differences between students of different majors in their recognition of smart campus construction on student management in terms of learning help, communication help, campus safety, and campus life, but there is no significant difference in their recognition of the role of smart campus construction on student management, because the p-value = 0.770 is greater than 0.05.

4.3.3 Test Results of Hypothesis H 1.3

H1.3: There is a significant difference between the smart campus construction on the management of students of different genders.

Table 4.5 Analysis of the difference of smart campus construction on the management of students of different genders.

Dimension	Children Gender	N	Mean	SD	T	P
How does the smart campus construction help you in your study	Boy	1065	3.79	1.962	0.295	0.657
	Girl	922	3.62	2.627		
How does the smart campus construction help you in your campus	Boy	1065	3.79	1.441	0.374	0.739
	Girl	922	3.62	1.651		

life						
How convenient is the smart campus for you to communicate with your classmates	Boy	1065	3.79	1.85	0.395	0.663
	Girl	922	3.62	1.32		
Does the construction of smart campus provide better protection for your personal campus safety	Boy	1065	3.79	1.32	0.345	0.673
	Girl	922	3.62	1.01		
How does the smart campus construction help you in your study	Boy	1065	3.79	1.74	0.375	0.643
	Girl	922	3.62	1.31		

* $p < .05$

According to hypothesis H 1.3, it is necessary to compare the differences between boys and girls on the management of students by the construction of the Wise Campus. In this study, the gender in the questionnaire was divided into boys and girls. Therefore, the analysis of independent sample t-test was also used to test this hypothesis. The results of the test are shown in Table 4.5. In the process of comparing the differences between students of different genders, under the analysis of t-test, there is a significant difference between boys' and girls' recognition of wise campus construction for student management in terms of learning help, communication help, campus safety, and campus life with a p-value of > 0.05 . Therefore, it can be determined that there is no significant difference between students of different genders.

4.4 Discussion

According to the above research results, this study will be discussed in the following aspects.

After the research of 2000 in students in Jingdezhen Ceramic Vocational and Technical College, it is found that there are certain differences in the management of smart campus construction for students of different grades, majors and genders. However, in the current education field, it is gradually developing towards the direction of smart campus. In such a context, big data, as a brand-new technology carrier, presents significant functional advantages in student management, with a very prominent position and outstanding role. First of all, the functional characteristics of storing, managing and analyzing information resources of big data can provide important data reference for effective innovation of school education

management, extract effective data information from big data, rely on advanced intelligent means for effective analysis, and optimize and innovate specific education programs and implementation platforms on this basis, and also on this basis, specific It is also possible to carry out comprehensive innovation in the management mechanism and system, to build a file of learning information and to track the learning situation, and to realize targeted and intelligent management by practicing human-oriented thinking on this basis. In addition, the scientific use of big data can enable teachers to grasp the specific information of students' situation more comprehensively and specifically, and make reasonable and standardized management plans scientifically, so as to improve the overall effectiveness of student management. Therefore, colleges and universities need to actively explore advanced big data technology and explore scientific management initiatives according to specific management goals, so as to create a smart campus atmosphere and realize efficient management.

In the process of using big data to implement intelligent student management, colleges and universities should follow the strategic development requirements of smart campus, carry out intelligent integration of various management data related to students, and make reasonable planning for specific management plans through integrated planning and comprehensive analysis, so as to comprehensively improve the comprehensive execution efficiency of student management and highlight the overall management effect. In general, the analysis methods can be classified as descriptive, instructional, predictive and analytical, and the managers can choose the relevant methods scientifically with the actual situation, so as to ensure the effectiveness of data analysis and improve the accuracy of the analysis results, and highlight the reference value in the student management. With the support and guidance of big data, colleges and universities need to reasonably apply clustering method and association rule algorithm in management work, make intelligent analysis on student data based on the support of computer and other platforms, do a good job of correlation analysis, judge students' learning situation and mental health construction through data information feedback, and set up specific guidance and management programs with reference to

them, which can This can further optimize student management and provide important action guidance for standardized educational work. In addition, machine learning model is an important technology carrier in the context of big data, which can be used to compile data on students' daily performance and online learning, build intelligent machine models and carry out effective analysis to determine students' comprehensive learning level and deficiencies, and provide teachers with scientific guidance to carry out scientific management based on the premise of understanding specific learning information.

Basically reflects the current Jingdezhen Ceramics Vocational and Technical College wisdom campus construction on student management development status, wisdom campus construction innovation applications are mainly reflected in the following seven aspects:.

First, the construction of a smart environment. The school fully take advantage of the new generation of technology such as big data, Internet of Things and artificial intelligence to upgrade the school environment and create a smart education space.

Second, innovative classroom teaching. Teachers practice new teaching concepts with the help of intelligent technology, and build new teaching models such as integrated classroom, inquiry teaching and precision teaching.

Third, breakthrough evaluation development. Many schools in the region rely on the support of the integration platform to achieve data interoperability to extend the evaluation scene, link classroom teaching, campus activities and family upbringing, and build a horizontal linkage and vertical coherence of the evaluation ecological field.

Fourth, it reconstructs digital resources. We integrate national and regional platform resources, and develop school-based moral education courses, comprehensive practical courses, science and technology innovation, club activities and other resources through self-built, introduction and cooperation, etc. We also develop school-based creator courses and STEAM courses with the help of intelligent technology.

Fifth, empowering research and training as one. Based on the 5G network, it

realizes the lectures of master teachers in the near-end classrooms and interactive reviews in the remote classrooms, and provides customized training contents and development paths for teachers by combining the platform with multi-dimensional data such as personal teaching and research activities.

Sixth, innovative governance services. Through the collection and convergence of data in the whole process of education and teaching, we build a multi-dimensional application model, promote the in-depth application of data, realize scientific decision-making and resource supply in education and teaching, and carry out integrated services of "cloud, network and end" to realize the precision of teaching and management. Seven is to create an open ecology. In the case, some schools in the region have realized the integration of regional and school teaching contents and teaching resources with intelligent technology support, building an open and multi-dimensional learning space, and truly integrating with the overall information application environment of society.

Chapter 5

Conclusions and Discussion

5.1 Conclusions and Discussion

The significance and results of smart campus construction for student management.

1) Smart management: The most common student schooling/dismissal management, face recognition can ensure the arrival/departure of students themselves, and the use of intelligent cameras to capture and instantly confirm the images of students entering and leaving the school gate, time, etc. Absence, abnormal late arrival, early departure, etc., can be timely warned to remind the administrator/class teacher/security.

In the practice of campus academic affairs management, the smart campus provides various management systems for faculty and staff, such as student management, teacher management, class management, grade management, honor management, moral evaluation, school bus management, etc. Integrated big data analysis is convenient, fast and accurate.

2) Wisdom Logistics: All-round integration of campus logistics, one-stop management informatization upgrade of the assistant campus wisdom logistics, construction of highly standardized, modernized and informatized logistics service guarantee system through mobile Internet, big data, Internet of Things and other informatization technologies, providing intelligent services for teachers and students.

3) Smart life: In the smart campus, in addition to the campus card, it is also possible to make "eating with a brush face" a norm, not only in the campus canteen, but also in the campus supermarket, library and bathhouse. Contactless consumption.

4) Smart communication: Through electronic class cards and WeChat mini-program clients, students and parents, teachers and parents, and students and parents can interact and leave messages at any time for convenient communication. In the wisdom campus system, children's school status, growth records, grades and consumption are all displayed intuitively and accurately, and parents can keep track

of their children's situation at school even when they are not around.

5) Safe campus: Intelligent campus construction intelligently upgrades traditional cameras, captures and compares people entering and leaving the campus in real time, and actively alerts blacklisted people and strangers to enter the campus illegally, ensuring school safety 24 hours a day. Dangerous areas are controlled to prevent unrelated people from entering and prevent problems before they happen. Campus access trajectory query, support for map search, so that there are traces to ensure campus security.

Smart campus is the main site for digital transformation and intelligent upgrading of education, and it is also the key grip for promoting the modernization of schools and the high quality of education. The existing practice cases of smart campus show that we have embarked on a comprehensive transformation and change process of education in the smart era, promoting the development of education system self-evolution, leading the overall change of education system, promoting the upgrading of education goals, training model innovation, intelligent basic environment, reshaping teaching and learning space, building education public service ecology, upgrading education governance and establishing lifelong learning system. Along with the development of national smart education ecology and the increasingly professional growth of front-line teachers and school principals, the development of smart campuses will increasingly show a bright future of large-scale teaching and personalized education practice.

5.2 Suggestions

The current development and construction of smart campus is facing the following four major challenges.

First, there is no standard model and path for the development of smart campus. Smart campus construction has diverse and comprehensive development characteristics such as school-based personalization, regional intensification, service universality, Internet openness and integration. Therefore, it is difficult to have a replicable model in the overall sense of individual smart campus construction, which is generated in the modernization practice of individual schools.

Second, the effectiveness of digital literacy enhancement for teachers is weak. The pain point of existing teacher training methods is that there are serious constraints on the transformation of competencies. Training cannot meet the precise and personalized needs of teacher development, high-quality learning participation is difficult to maintain effectively, professional learning outcomes are difficult to transform into capacity development of trained teachers, and school-based training and regional teaching and research support in some schools are weak. As a result, teachers are slow to improve their digital teaching skills and have difficulty in implementing digital teaching and learning activities in depth.

Third, there is a lack of talents in technology, service and business integration in the school vision. The full-field smart campus practice system requires information technology support services, various smart campus system operation and security services, subject-oriented and interdisciplinary integration services, education data collection and aggregation and mining analysis services, etc., which require interdisciplinary and complex professional talents. However, in reality, the overall development level of such talents in individual schools is limited, and some schools are even extremely lacking, which has become one of the important factors restricting the development of school smart campus.

Fourth, the shortage of discipline-oriented integration tools and services. To provide systematic and structured digital resources and a large number of discipline-oriented tools with characteristics such as integration of scenarios and discipline-oriented concepts for structural changes in classroom teaching, this is the ecological demand for the "last mile" of changes in micro-classroom teaching practices in the development of smart campuses. However, the current digital resources are mostly limited to multimedia features, which only support knowledge transfer and lack inquiry-based, interactive and intelligent learning tools and applications for in-depth disciplinary and concept-oriented construction, which restrict the level and development of the school's smart campus.

5.3 Recommendations

To give full play to the role of smart campus in education and teaching management, it is necessary to make overall design of the platform and clearly integrate the technologies and equipment used in education and teaching management, so as to build a comprehensive system platform and establish information integration standards with the help of business processes and models. The use of intelligent management platform can also promote the modernization of the campus, and at the same time, it can also do the relevant operation and maintenance work in accordance with the hierarchy, so as to improve the management efficiency and reduce the cost of school operation.

First, to integrate technology and business in both directions to scientifically plan the wisdom campus and dynamically promote the construction of wisdom campus. From the perspective of the technical level, systematic top-level planning should be carried out from the aspects of intelligent environment, digital resources, school education data application, digital literacy and skills, and actively explore technical applications such as smart classrooms and various types of technology-enabled innovative classrooms, integration and organization of digital resources based on cloud services, big data and data mining, intelligent learning analysis and diagnosis, and adaptive learning. From the perspective of business level, top-down scrutinizing constructs should be carried out from the business domain of school operation, and business integration design should be carried out from the deep integration of digital technology and teaching, teachers' digital literacy and training development, students' digital literacy and learning development, education big data and comprehensive evaluation, school digital governance and modern education services, and cohesive business chains and innovative business scenarios should be realized through technology to system construction. Secondly, the systemic innovation and reconstruction of school education is realized by digital technology.

Second, digital technology is used to promote systematic, structured and profound changes in the classroom. In line with the practice of "stopping classes and not stopping learning", learning should be based on "double integration" as the

main line to promote the innovative development of digital education in schools. First of all, we should expand the time and space of activities and the content of activities with the help of remote broadcasting technology, so as to provide students with an integrated hybrid learning space; secondly, we should make full use of Internet of Things technology and VR/AR technology to carry out situational and perceptive ubiquitous learning, design project-based, inquiry-based and experiential learning activities, guide students to acquire interdisciplinary knowledge and develop real-world problem-solving skills through first-hand experience; secondly, we should explore ways to adapt to the Secondly, we will explore Internet learning models that adapt to the new mixed norm, focus on how to meet the actual needs of different students, base on commonalities and take into account differences, and provide differentiated learning paths for students.

Thirdly, we will carry out modernized school governance practices based on the empowerment of big data in education. We will promote the precipitation and application of data in the management domain, improve the accuracy and breakthrough of school management around the "double reduction", new curriculum reform and difficult school development, and empower the ladder development of school management. In the application of student growth data, we take the needs as the breakthrough and explore the multidimensional characteristics of large-scale student development data to improve the effectiveness of comprehensive, harmonious and personalized education. Around teachers' professional capacity development and literacy-oriented new curriculum reform, we improve the full volume, process and gradient of teachers' teaching and teaching and research business process data, empowering schools to improve the professionalism of teachers.

Fourth, explore new strategies for smart campus construction. As I said earlier, the demand for composite and specialized talents triggered by the development of smart education is an important factor that currently restricts the level of development of smart campuses in many individual schools, which is also a breakthrough in the development of high-quality education at the moment. Schools should make continuous efforts in the integrated development of teacher research

and training. Promote networked school-based teaching and research, actively participate in open "Internet+teaching and research", promote digital, networked and intelligent teaching and research; build a collaborative teaching and research system based on intelligent technology, develop collaborative teaching and research communities based on subjects, projects, themes and interests, and realize community teaching and research; undertake school development and education reform difficulties based on Based on the development of schools and the difficulties of education reform, we will undertake innovative reform projects or scientific research projects for the integration of education informatization, and actively participate in experimental projects for cooperation among universities, governments and informatization enterprises. In addition, we innovate the collaborative model of network-based teaching, research and training, strengthen the cooperation between front-line teachers, subject experts and educational technology experts across professional perspectives, conduct in-depth research on the development of information-based teaching models for specific subjects, and promote the collaboration of group wisdom and co-creation.

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