

# Exploration on the Application of Information Technology in the Management of Vocational College Students

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**Abstract:** Student management is the core of vocational college work. With the continuous expansion of the scale of various vocational colleges, the complexity and difficulty of student management work continue to increase, providing space for the application of information technology. This article takes the shortcomings of current vocational college student management as the starting point, and explores the application advantages and methods of information technology in vocational college student management. It analyzes the application of information technology in student information management, learning resource management, security management, and internship management. Finally, it briefly discusses the construction suggestions of information technology application systems based on vocational college student management to serve future vocational college student management activities, Improve the quality and effectiveness of its management.

**Keywords:** Information technology; Vocational colleges; Student management; System construction

## 1. Introduction

Information Technology (IT) is a general term for various technologies used to manage and process information. It mainly applies computer science and communication technology to design, develop, and install information systems and application software, and is often referred to as information and communication technology. Common information technologies include sensing technology, computer and intelligence technology, communication technology, and control technology. Information technology can provide important support for management work and has been widely applied and valued by various entities, including vocational colleges in various regions. Our country also pays more attention to the management informatization of higher vocational colleges. All regions comply with the 14th Five Year Plan of the Education in China on Education Informatization, and higher vocational colleges are also listed here. In this context, analyzing the shortcomings, advantages, and methods of information technology application in current vocational college student management has certain practical significance.

## 2. Shortcomings in the current management of vocational college students

### 2.1 Low real-time management

The lack of real-time management is one of the shortcomings in the current management of vocational college students. Many problems cannot be solved immediately after they occur, and there is a lag in handling them. On June 3, 2023, a student from a vocational college in Jiangxi discovered a foreign object suspected of being a rodent's head during a meal. The local market supervision and management department attached great importance to this matter, and after scientific investigation, repeated comparison, and thorough argumentation, it was confirmed that the foreign object was a "duck neck". Due to the continuous fermentation of public opinion, the local investigation process had to be restarted until June 17th, when a provincial-level joint investigation team found that the foreign object was indeed the head of a rodent, which took about 2 weeks before and after, and the management efficiency was not high. Similarly, many incidents and disputes related to students in vocational colleges cannot be dealt with in a timely manner due to their sudden and accidental nature, resulting in limited real-time management.

## ***2.2 Low management convenience***

Convenient management is the key to ensuring management efficiency. Currently, many vocational colleges use traditional work methods for student organization management, which results in low convenience. For example, vocational colleges organize students to participate in collective activities mainly through class meetings, phone notifications, and other means<sup>[1]</sup>. If students are absent from class meetings for certain reasons or fail to receive timely phone notifications, they may not be aware of the holding time and participation methods of collective activities, and schools and classes may not be able to provide relevant information to students through other more convenient means, resulting in problems in activity organization and student management<sup>[2]</sup>. In addition, traditional management methods also have drawbacks in terms of execution, such as the level of performers and work methods, which limit the quality of management work.

## ***2.3 Inadequate safety management***

The content of student management in vocational colleges is complex. In addition to basic learning and life management, student safety has also received more attention as a routine content, including personnel entering and exiting the campus, student apartments, student apartments, and teaching building fire management. At present, the management work of most vocational colleges is scientific and orderly, which can ensure the safety of students, but there are still shortcomings<sup>[3]</sup>. Campus management personnel have limited perception of some details and safety hazards, such as student apartment access management. Off campus personnel may enter student apartments without management due to their similar posture and clothing to vocational students, engage in illegal activities such as fraud, and even provoke trouble or beat up students on campus. Due to the lack of perception of dynamic factors in traditional management methods, such safety issues cannot be effectively suppressed. There is room and necessity for further optimization.

## ***2.4 Relaxed internship management***

The central task of vocational colleges is to cultivate advanced and intermediate professional and technical talents, which often leads to higher attention to internship work. At present, although many vocational colleges regularly organize internships, their management of internship work is relatively lax, and they cannot deeply and effectively understand the student internship situation. Many management work also cannot truly meet the needs of student internships, making it difficult to obtain the expected returns for internship work. If a student encounters a disconnect between theory and practice while working in an internship unit, they hope to receive help from teachers and students in school. However, in the remote work mode, there is a lack of reliable communication platforms, and their teachers and classmates cannot timely understand the student's needs and provide assistance<sup>[4]</sup>. The demands of the student community during the internship process cannot be paid attention to and addressed by the school, and the effectiveness of internship management is difficult to achieve.

# **3. Application advantages of information technology in higher vocational student management**

## ***3.1 High real-time performance***

The basic advantage of applying information technology to the management of vocational college students lies in ensuring real-time performance. Information technology mainly relies on information technology equipment and modern communication technology to play its role. Some sudden and occasional security incidents can also be quickly resolved with the assistance of information technology. If students discover problems while dining in the cafeteria, they can use information technology equipment to capture and store foreign objects, which can serve as a basis for subsequent processing, enabling real-time attention and handling of problems once they arise. The same applies to other aspects of management. As long as there is a complete communication system and coverage of network and information equipment in the school, problems in students' lives and studies can also be addressed and resolved in a short period of time, ensuring real-time performance<sup>[5]</sup>.

## ***3.2 High convenience***

Information technology ensures the convenience of student management in vocational colleges,

which is determined by the characteristics of information technology. As mentioned earlier, in the organization and management of student collective activities, with the support of information technology, the leaders of each class and major can generate digital resources such as activity content and time, and use the information technology platform to complete publicity. Students can use various intelligent terminals to quickly obtain relevant information. Compared with traditional models, management work is more convenient. For example, in the management of learning resources, when students have a need to download and browse resources, they can use information technology to quickly log in to the school's database, and use smartphones and electronic computers to obtain resources. This is more convenient and time-saving than traditional libraries for reading and searching offline materials.

### ***3.3 High depth***

Information technology provides diversified support for student management in vocational colleges, making it convenient and easy to use, as well as improving the depth of work. Taking the security management mentioned above as an example, with the support of information technology, schools can place access control management systems and real-time monitoring devices in student apartments. All students who attempt to enter the campus need to first undergo access control management and pass verification before entering the apartment, in order to avoid and reduce the security risks caused by foreign personnel entering the apartment. When there are fire safety issues, student fights, and other situations in student apartments, various real-time monitoring devices can also detect the hidden danger in a timely manner and quickly handle it, ensuring that student management work is in-depth and effective, and improving the comprehensive quality of management work.

### ***3.4 High applicability***

The application of information technology service management in vocational colleges and educational institutions began in the West. In American universities, which organized higher education information management earlier, related technologies mainly serve teaching activities. After its positive experience was introduced to other countries, it quickly received attention and application, demonstrating the applicability advantages of information technology in student management. Taking internship management as an example, on the one hand, there are similarities in internship management in vocational colleges, which means that the management methods applicable to a certain vocational college also have room for application in other vocational colleges. On the other hand, including China, the information technology of various countries has similarities, and the technical standards and equipment application models emphasize unified standards. The communication between vocational colleges and interns, as well as between interns and teachers and students on campus, can all be carried out in similar modes, further ensuring the standardization and universality of information technology applications.

## **4. Application methods of information technology in vocational student management**

### ***4.1 Application of Information Technology in Student Information Management***

In student information management work, the application of information technology mainly focuses on storage and retrieval. It is recommended that schools establish a hierarchical information database, which is divided into four levels: firstly, the college level, which is classified according to the setting of vocational colleges; secondly, the professional level, which is classified according to the professional setting of each college; thirdly, the year level, which is classified and built according to the year of enrollment of students in different majors. The fourth is the class level, where students of the same major who enrolled in the same year will have their own databases built based on class differences. All student information is required to be stored separately, meaning that each student should have an independent data bar that can be retrieved and accessed separately.

In order to facilitate the retrieval and viewing of student information in vocational colleges, a comprehensive retrieval mechanism can be established based on the construction of sub databases, which can be managed through two methods: keyword retrieval and manual sub database retrieval. Among them, manual retrieval by database refers to manually searching for the required information by entering four levels of information databases, which is also a traditional information retrieval method. Keyword retrieval emphasizes intelligence. After all student information is entered, unique data entry

names are established, such as "Wen Chuan College - Level 12- Class 1- Jiang Mouxue". After the staff types in keywords such as "Jiang Mouxue" and "Wen Chuan College - Level 12- Class 1", they can obtain relevant student information data entries that are consistent with the corresponding keywords for management, ensuring convenient and fast student information management.

#### ***4.2 Application of Information Technology in Student Learning Resource Management***

The informatization of learning resource management is an inevitable requirement for the development and construction of vocational colleges and other universities, mainly emphasizing the use of information technology to collect learning resources and provide them indiscriminately to students. In principle, it is recommended to establish a semi open database and establish a corresponding management system.

Each vocational college can collect and process information related resources related to its teaching content, or directly collect information based teaching resources, and organize them to build a unified school information resource library. This library sets up several sub databases according to the differences of different majors, and the database construction does not need to consider the differences in academic years. Professional resource classification can be done. When students have learning needs, they can access the database of our school, input the Campus card number or conduct face recognition, and provide unique information to access the database, download and browse the required learning resources. In terms of management systems, in addition to requiring students to pass identification verification, they should also attach importance to database security management and establish real-time protection mechanisms using firewalls and protection software. At the same time, professional personnel are selected to be responsible for database management and maintenance, as well as handling bugs. To ensure the quality of system operation, it is recommended that vocational colleges build campus Ethernet based on 5G bearer network and configure sufficient channels to facilitate students' access to databases and download resources.

#### ***4.3 Application of Information Technology in Student Security Management***

In terms of student security management, the application of information technology emphasizes targeted and comprehensive aspects. In principle, it is necessary to establish an information-based homework system throughout the school to ensure that safety management can fully cover all aspects, and targeted emphasis is placed on establishing management mechanisms based on key safety issues in student management work.

Each vocational college can establish a safety management information system in canteens, student apartments, teaching buildings, school gates, playgrounds, gyms, and other places, configure equipment such as monitoring equipment, communication systems, etc. to ensure the coverage effect of safety management. The targeted application value of information technology is more prominent. Taking apartment fire management as an example, vocational colleges can configure intelligent sensors in student apartments, which can collect real-time temperature information, smoke concentration information, carbon dioxide content information, etc. in student apartments. Abnormalities in the above information are often related to fires. When the temperature inside the apartment rises abnormally and the smoke concentration and carbon dioxide content rapidly increase, The sensor collects corresponding information and transmits it to the built-in chip, which judges the parameters based on the default program. If the default program determines that the above parameters are abnormal or there are fire hazards, the sensor will issue an alarm to prompt students to evacuate and remind campus management personnel to extinguish the fire; On the contrary, continue to observe until the problem is resolved. Other security management work can also adopt similar methods, leveraging the advantages of information technology to ensure the effectiveness of security management for vocational college students.

#### ***4.4 Application of Information Technology in Student Internship Management***

In the management of vocational college students, the value of internship management is more prominent. It is the key to measuring students' hands-on ability and practical level, and also an important reference for optimizing school teaching and enhancing students' abilities. It can be strengthened with the help of information technology. In principle, the main emphasis is on maintaining smooth communication between probationary students and the school, while providing assistance in data analysis through information technology.

Before probationary students leave school, vocational colleges can collect their basic information and contact information, establish a semi open online communication platform, select at least one academic management personnel on campus to join the platform, and select several teachers to join the platform. Each platform can accommodate 30 left and right students. The platform establishes online communication with students, collects problems and thoughts they face during the internship process, summarizes and analyzes data, understands students' actual demands, and proposes feasible suggestions. By utilizing information technology to achieve online and offline linkage, the platform collects information, relevant issues, and suggestions for problem-solving as valuable experience for subsequent internship management work, continuously improving the student internship management system, and better leveraging the advantages of information technology in student internship management.

#### **4.5 Construction ideas for information technology application systems based on higher vocational student management**

The construction of an information technology application system based on vocational college student management focuses on convenience and ease of use, and provides construction support with Internet of Things technology, 5G technology, etc. Each vocational college can refer to the content described in this chapter to establish an Internet of Things work system on campus, and attract teachers and students, academic management personnel, apartment management personnel, etc., so that all subjects can fully interact and ensure the role of information technology is played.

### **5. Conclusion**

In summary, the application of information technology in the management of vocational college students has outstanding advantages and can be given more attention in future work. From the perspective of advantages, in the management of vocational college students, the application of information technology has the advantages of convenience, real-time, depth, and applicability. It can be said that the current shortcomings of vocational college student management can be addressed with the help of information technology. In specific work, student information management, learning resource management, security management, and internship management can be optimized through information technology. From a common perspective, the construction of information technology application systems based on vocational college student management focuses on convenience and ease of use, providing construction support with Internet of Things technology, 5G technology, and other technologies. At the same time, maintenance and management work should be ensured to be timely and in place, so that information technology can properly serve vocational college student management.

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