

# ***Exploration on Application-oriented Higher Education Management Mode Based on Mobile Information System***

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**Abstract:** Now, with the progress of the times, the application of mobile terminals is more and more widespread. When teachers and students increasingly use mobile phones for teaching or learning, mobile education management information systems also appear. According to the actual situation of colleges, an application-oriented college management model based on mobile information technology was proposed. The system analyzed the needs of users in detail from three aspects: student users, teacher users and educational administrators, and adopted a top-down, step-by-step modular design based on the needs of the three users. Finally, a set of mobile education management system was developed, which is centered on timetable inquiry, grade inquiry and grade management, and has been widely used in practice. Although China's higher education management model has made certain progress in recent years, there are still many problems that need to be improved. Therefore, how to improve the management mode of China's applied higher education is of great significance to improve the teaching quality of China's applied higher education. This paper discussed the Chinese higher education management model and the countermeasures for improvement. This paper discussed the current management situation of application-oriented colleges, and analyzed the reasons for its emergence. The experiment showed that the classroom management effect under the traditional information system was relatively poor, and the students were not satisfied with the education management mode under the traditional information system. The classroom management effect under the mobile information system could be as high as 10 points. At the same time, the teaching efficiency was as high as 98%. It can be seen that the higher education teaching management mode based on the mobile information system was more suitable for the development needs of colleges.

## **1. Introduction**

Application-oriented higher education management based on mobile information system refers to the use of modern Internet of Things-related information technology to carry out all-round reforms in education, so as to adapt to the new needs of education development in the information age. Therefore, education departments at all levels, especially colleges and universities, have spent a lot of money in the past teaching work to establish various information equipment. In addition, the

campus network system is used to establish information such as teaching information, student work, enrollment, salary, student status, etc., which greatly improves the school's teaching management and teaching work. However, due to historical reasons, the information systems of colleges and universities have strong independence and scalability, and have great limitations. Therefore, in the past few years, the information systems of various schools have been accumulating and storing large amounts of data in the systems, but these data have not played any role at all. The vast amount of knowledge and rules contained in the data have not been fully exploited and utilized. These data are like a gold mine buried deep in the mountains, and only when fully excavated can it really play its role.

Implementing the application-oriented higher education management mode based on mobile information technology is a major measure to adapt to the national conditions of education in China. It is of great importance to promote the development of the applied higher education management mode to explore the innovative education management mode that conforms to the application-oriented higher education.

## 2. Related Work

The management system of the education system is a process that requires improvement of traditional management strategies and methods. In the fields of modern education, management, social psychology and other disciplines, it is required to vigorously develop the construction model of multicultural management, so that it can evaluate the quality of educational services in the international market and make it relevant to the international market. Rubtsova A V conducted active research to provide an integrated model for the realization of the management of the educational system. Constructive teaching mode provides convenience for many functions of educational management mode. The main result of its research is: a new model of multilingual teaching management was constructed based on management level and target composition [1]. Currently, the higher education sector is facing an important challenge, which is ideal for implementing strategic management to ensure competitiveness and sustainable development. Although Chinese scholars attach great importance to strategic management, the penetration rate of strategic management is still low. Moreover, all current management models are enterprise-oriented and require a lot of resources and high intelligence quotient to execute. Sawhney S proposed a simple educational strategy management model based on five different teaching situations [2]. Sharif R presented an interpretation of a novel conceptual educational management model supported by the innovation literature. The model consists of three main consecutive pairing stages divided into basic, intermediate and complex, which govern the higher education environment during specific weeks of the term. At various stages of the model, a single intrinsic factor in innovation pairing refers to pairing individuals based on a single intrinsic factor, such as paired mentoring by teachers. The primary purpose of its innovation matching model is to guide management higher education faculty and staff in student matching to generate innovations to advance the field of management [3]. Palasai P studied important factors of organizational performance of Thai public higher education administrative units. Data collection was conducted in a mixed manner. The exploratory research was based on in-depth interviews conducted in four universities. Exploratory factor analysis was used and was based on 430 questionnaires. The survey found that among the 50 factors, 35 had a certain impact on performance management. EFA (Education for All) divides it into the following areas: leadership, strategy, information management and job support, people-centred business, customer orientation, innovation, leadership and finance, customer and staff, student and alumni learning and social responsibility[4]. Wang W conducted research on the successful application, design and implementation of the mobile educational

administration system in colleges. By combining the concept of cloud computing and based on computer resources, the cloud application platform model was designed. It significantly improved the computing power and storage performance of the system to better adapt to the individual requirements of university education administrators. This reform has further improved the school's teaching management level and the quality and efficiency of network services [5]. The reform of thinking and the deepening of understanding led the Ministry of Education to issue documents one after another. In the current education system reform, the management mode of applied higher education should be clarified, and the mobile information system should be actively promoted into the classroom. The cultivation of students' all-round development is the fundamental task of higher education.

With the continuous acceleration of the pace of science and technology in China, social development has achieved leapfrog development. Currently, in the field of mobile communication, a unified concept has not yet been formed. Li J studied the network-based university information management model. In order to keep up with the development of the times and cultivate more intelligent, healthy and noble students, China's educational undertakings are constantly undergoing changes and innovations. New teaching concepts and new teaching methods have always attracted much attention[6]. The development of mobile information systems is a complex process, and developing a mobile information system that meets the quality and achieves its goals is a major responsibility of researchers. Ahmad F's research aimed to develop mobile applications to facilitate the teaching and learning process in information technology classrooms in educational subjects related to network information systems [7]. Hamidi H's goal was to study how mobile information systems affect the way higher education is managed, and to explore the impact of internal and external factors on students. On this basis, he analyzed the advantages and disadvantages of the mobile phone information system, and discussed the effect of the mobile phone network on education management. Simultaneously, "student satisfaction" plays an important role in teaching management. There is a certain dependence between online teaching and colleges, so the status of management mode in colleges is increasingly prominent. In addition, this study explores how to improve mobile learning abilities of mobile phone users and how to use mobile phones in schools. This is a very important factor. In mobile learning, the impact of smartphone users on mobile learning and their perception of mobile learning [8]. All in all, the construction of mobile information system has become an important platform for colleges to optimize the teaching management mode.

The article started from the characteristics of mobile information system, and expounded the practical research effect of mobile information system from the aspects of daily teaching, quality monitoring and teaching seminars. Furthermore, it emphasized the superiority of mobile information system and related technologies from the aspects of system framework construction and related technical content, so as to promote the continuous deepening of college informatization construction. The teaching informatization system based on the mobile platform has played a positive role in promoting the optimization and reform of the application-oriented higher education management mode, which is worthy of reference and promotion.

### **3. Application-oriented Higher Education Management Mode Based on Mobile Information System**

#### **3.1 Current Situation and Existing Problems of Applied Higher Education Management**

At present, Chinese universities are actively exploring teaching management models, and striving to build a sustainable education management model that has both teaching methods and the coordinated interests of schools, students and society. Although many universities have established

relatively mature teaching management models, due to the long-term homogeneity, universities have not been able to find their own operating methods in the original school-running practice [9]. Specifically, the higher education management model still has the following problems:

(1)At present, the school-running management model of Chinese universities is still in its infancy, and many concepts have not yet been agreed upon. The majority of teachers and students have a great misunderstanding of higher education, and do not realize that the essence of higher education is a quality education. It is required to cultivate and improve the "comprehensive quality" of college students, so that they can truly feel the value of education and tap their creativity. First of all, the school failed to attract enough attention and lacked the guidance of relevant policies and systems. Secondly, parents believe that students come to school for activities other than learning, all other activities affect learning [10]. Third, under the influence of the elite education concept, teachers pay too much attention to the cultivation of a single skill, and cannot timely transform the learning achievements into technical support for social development. Although some schools appropriately incorporate some theoretical teaching into their teaching, they are more disconnected from the profession. They often set up some separate teaching or activities by themselves, mainly based on vocational technology. The drawbacks of this realization are enormous. Finally, most college students feel that the management of colleges and universities itself does not bring any practical benefits, and they focus more on finding jobs that suit them, while ignoring the current management methods in colleges and universities [11].

(2)China's university management system is not perfect. Higher education management requires multiple departments and secondary colleges of the school to cooperate and work together. However, in practice, due to unsound policies, disunity of organizations, shortage of funds and other reasons, various departments have not achieved overall coordination in implementation, but have formed a situation of independent governance, which cannot achieve comprehensive teaching of applied higher education.

(3)The strength of the teaching staff is weak. In order to improve the comprehensive quality of students, first of all, it is required to have creative thinking, which requires university teachers to have a solid knowledge reserve and advanced concepts, as well as certain comprehensive management experience [12]. However, most of the current university teachers lack practical teaching management experience, and are often unable to teach students. Although some universities employ some entrepreneurs as part-time teachers, most of them are conducted in the form of lectures, and a complete teaching management system has not been formed, which leads to unsatisfactory teaching results. At present, China lacks "double-qualified" teachers who have both professional theoretical knowledge and certain teaching management experience. Table 1 shows the impact of the above problems.

Table 1. Impact of the above issues

| question                     | learning efficiency | management effect | Teaching efficiency |
|------------------------------|---------------------|-------------------|---------------------|
| Weak awareness               | 62%                 | Poor              | 55%                 |
| Incomplete management system | 58%                 | generally         | 56%                 |
| Weak teachers                | 60%                 | poor              | 49%                 |

### 3.2 Advantages of Higher Education Management Mode Based on Mobile Information System

This paragraph takes the multimedia of the mobile information system as an example to illustrate the advantages of the higher education management model. First, integrated systems are less

expensive to develop and run. At the same time, the system relies on various major platforms, which can reduce the investment and research and develop cost of software and hardware. Second, the technical content is not high. Multimedia is a system for communicating with end users, which does not require much technology and knowledge, and is very convenient to operate. Third, it is required to give full play to the various advantages of the multimedia platform. Its central idea is to make learning not limited, and to a certain extent realize the transformation of the teaching subject from teacher to student [13]. Fourth, reasonable education and guidance can be given to the "head-down family", so that their interest in learning, autonomous learning and self-management ability can be effectively improved. Therefore, a new learning method can be explored and constructed for students, which is of great role for deepening the connotation construction of education [14].

In addition, the choice of a mature mobile information system is the foundation and guarantee of the whole system, and a perfect, mature and efficient platform is the core of the whole system. Most multimedia users can use the technology proficiently, and can communicate and interact with all aspects in an all-round way. The reasons for choosing the multimedia example of the mobile information system are as follows: first, in terms of function, it can fully meet the functional requirements of video playback, teaching information push, and resource sharing; the second feature is the high efficiency of the multimedia platform; the third is the high popularity of multimedia. At present, multimedia client, as an indispensable intelligent application technology, has provided a good application environment for university teaching. At present, most colleges in China have realized the importance of using multimedia technology for teaching. A barrier-free communication platform has been built at various levels such as schools, departments, and functional departments, and has been widely used in many aspects of schools [15].

Simultaneously, the establishment of the mobile information system realizes real-time communication between teachers and students without any geographical restrictions. This communication method can be used one-on-one to make the communication between teachers and students more intuitive. While constructing the teaching management model, it is also necessary to build a question bank, which is divided according to the previous rules. In addition, a database is established and an exercise module is formed to lay the foundation for the further optimization of the higher education management model in the future [16].

### 3.3 Differences between Mobile Information Systems and Traditional Information Systems

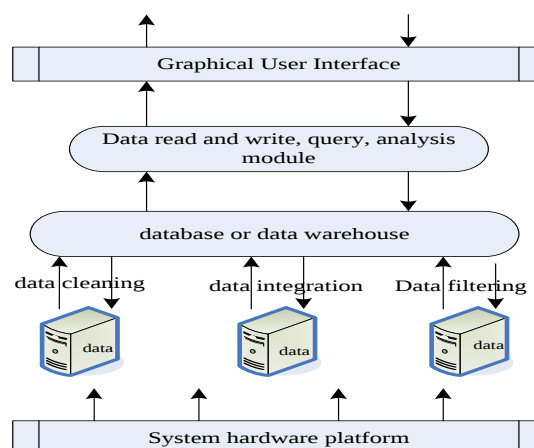


Figure 1. Traditional higher education information system model

(1)The traditional higher education information system model structure is shown in Figure 1. The

main function is to collect data, and then convert, store, and query the data, and the user reads, writes, and queries to complete the storage and retrieval of data. Due to the continuous increase of data, the amount of data stored in the information system is very large, and behind these data there are many knowledge and rules that cannot be obtained by simple methods. Figure 1 shows the traditional higher education information system model.

(2)Based on the shortcomings of traditional information systems, an improved model of information systems based on data mining is proposed. The model is shown in Figure 2. It adds the function of data mining to the original system model, and uses data mining technology to discover potential information from a large amount of data, thereby providing users with relevant potential. Figure 2 shows the mobile information system model.

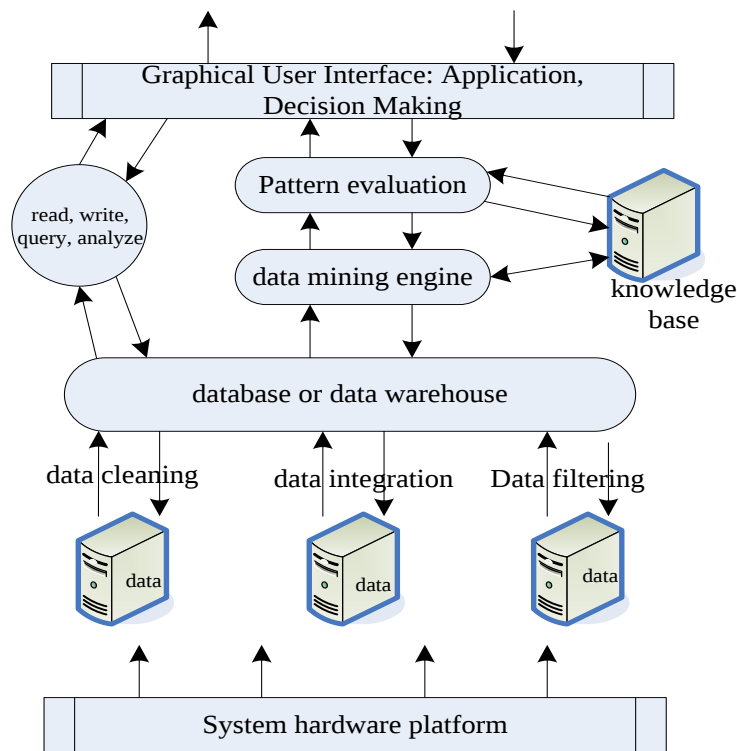


Figure 2. Mobile information system model

(3)On this basis, an information system model based on data mining technology is proposed, that is, the existing data is analyzed to obtain information that has not been mastered before. The general process of data mining is shown in Figure 3.

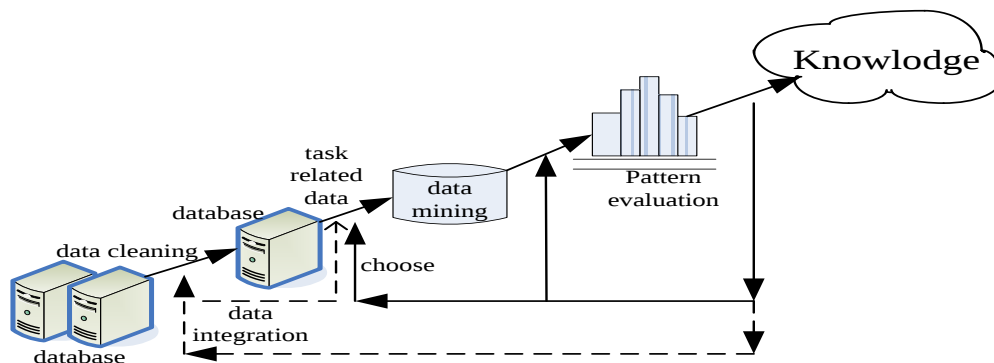


Figure 3. General process of data mining

Some representative techniques are used in Figure 3. 1. Clustering method. Clustering is to organize a series of data objects into a category to maximize the similarity of objects in the same category. The biggest differences are in machine learning, pattern validation, image analysis, information retrieval, and more. The application of clustering in teaching helps organizations organize classes with similar individuals and divide classmates into different classes, so that classmates in different classes are closer, or more evenly [17]. 2. Decision tree. A decision tree is an algorithm that uses a tree diagram to display various possible outcomes, such as the association of probabilistic events with sources, costs, and usage functions. Decision trees are often used in behavioral research, especially decision analysis, to assist in determining the realization of a management decision; decision trees are a descriptive method that can be used to find conditional probabilities; decision trees can also be used to analyze the entry rules of an organization [18]. The algorithm can be used for categorical variables at various levels. 3. Relevant rules. It refers to a kind of knowledge that can reflect the correlation between an event and other events. When two or more events are related, the nature of one event can be predicted based on the nature of another event and expressed as an association rule. 4. Classification. By identifying a model (or function) or specifying a data class or concept, a model predicts the class to identify an unknown object. 5. Return. By constructing a function that is consistent with the changing trend of the data, one variable can be used to predict other variables.

### **3.4 Effect of Higher Education Management Practice Based on Mobile Information System**

#### **3.4.1 Daily Teaching**

(1) It ensures the efficient and accurate implementation of new student registration and information verification. The mobile information service shows the characteristics of personalization, sending personalized text messages to students' mobile phones. When students receive a text message, they can reply according to the content of the text message [19]. The system can feed back the data processing results to the relevant staff in a timely manner, which greatly improves the efficiency of data verification.

(2) It implements mobile selection of courses and puts less stress on the server. The mobile information system can be extended to the course selection on students' mobile phones, which can not only facilitate students to choose courses, but also avoid the clutter when choosing courses. In addition, the pressure on the web server is also reduced.

(3) The deduction of the mobile phone is realized, and the work efficiency is increased. During school, English 4, 6, and computer grade exams can be registered and paid through mobile phones, which greatly simplifies the registration process and greatly improves work efficiency. The mobile phone information system provided by the Academic Affairs Office would send registration notices to students in need. After verification and confirmation, registration and payment can be processed [20].

(4) A mobile portal of teaching information is realized, and teaching materials can be viewed at any time. The use of mobile information technology can well solve the problem of students' retrieval of educational materials. On this basis, an efficient information collection portal can be established to provide students with a full range of queries.

(5) It completes precise hints. In daily work and study, teachers and students have relatively more work and study activities, as well as more content such as meetings and examinations. Therefore, the problem of forgetfulness is exacerbated. By using the mobile information system, the various work arrangements on the campus are arranged in the form of mobile phone notifications to facilitate the work and study of teachers and students.

### 3.4.2 Quality Control

(1) A flat and timely information feedback channel is established by using the mobile information system, which facilitates the investigation work. On this basis, a certain category or all students can be surveyed, and the respondents can use mobile phones to give feedback, so as to achieve automatic statistics on the survey results. It is beneficial to optimize the management methods of colleges and universities.

(2) A multi-assessment system for students and parents is established by using the mobile information system. The school conducts a survey of various groups through a systematic platform and gave feedback through mobile phones, thus ensuring the objectivity of the evaluation and promoting the reform of teaching management methods.

### 3.4.3 Teaching Seminars

Through the mobile information system, the Academic Affairs Office can submit topics to relevant students according to the needs of the school, so that they can communicate with mobile phones in their spare time, which greatly improves the learning efficiency of the classroom. The construction of mobile informatization has taken into account the actual situation of the school as a whole, that is, based on the public data platform, the teaching management system is combined with it, and its operation mode would not change, so as to improve the corresponding work efficiency [21]. The specific system construction framework is shown in Figure 4.

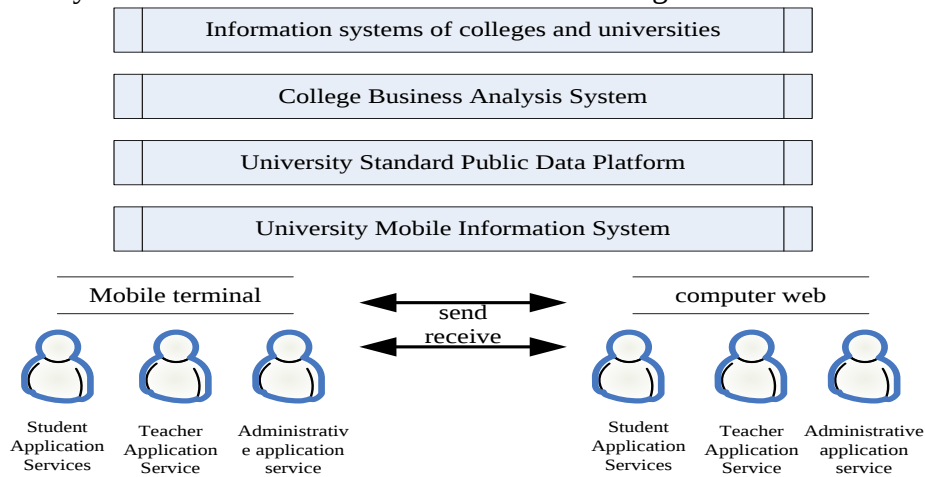


Figure 4. Information system construction framework

## 3.5 Experiment of Educational Management Model Based on Mobile Information System

It is supposed that the mobile information system  $\omega = (U, A, V, F)$ , where  $U$  is the set of objects, and  $U = \{x_1, x_2, x_3, \dots, x_n\}$ .  $A$  is an attribute set, and  $A = \{a_1, a_2, a_3, \dots, a_m\}$ ;  $V$  is the attribute value, and  $V = \bigcup_{a \in A} V_a$ , where  $V_a$  is the value range of attribute  $a$ .  $F: UA \rightarrow V$  is an information function; for objects  $x \in U$ ,  $F$  give it the corresponding attribute value.

In practical applications, not all objects can get attribute values, and there are some missing attribute values. A blank (denoted by  $*$ ) is often given in the default property value. If a mobile information system  $\omega = (U, A, V, F)$  has attribute  $a \in A$  with missing attribute values, that is,  $V_a$  contains a null value, then  $\omega$  is called an incomplete information system, otherwise it is called complete.

In a complete mobile information system, for each attribute subset  $P \subseteq A$ ,  $\text{Ind}(P)$  can be

defined as:

$$\text{Ind}(P) = [(u, v) \in UU | \forall_a \in P, a(u) = a(v)] \quad (1)$$

In an incomplete mobile information system, for each attribute subset  $P \subseteq A$ ,  $\text{Sim}(P)$  can be defined as:

$$\text{Sim}(P) = [(u, v) \in UU | \forall_a \in P, a(u) = a(v) \text{ or } a(u) = * \text{ or } a(v) = *] \quad (2)$$

Among them,  $\omega_p(u) = [v \in U | (u, v) \in \text{Sim}(p)]$ ;  $\omega_p(u)$  represents the compatible class of  $u$ , then the set of all compatible classes  $K(P) = [\omega_p(u) | u \in U]$  only constitutes a coverage of  $U$  but not a division of  $U$ .

A complete mobile information system can be regarded as a special case of an incomplete mobile information system. If there are:

$$X_i = [u_{i1}, \dots, u_{is_i}] \in U | \text{Ind}(P) \quad (3)$$

Then there are:

$$X_i = \omega_p(u_{i1}) = \dots = \omega_p(u_{is_i}), |x_i|^2 = \sum_{k=1}^{\omega_i} |\omega_p(u_{ik})| \quad (4)$$

It is assumed that  $\omega$  is a complete mobile information system, and  $P \subseteq A$ , then  $U | \text{Ind}(P) = \{x_1, x_2, x_3, \dots, x_m\}$ . The number of information defining attribute set  $P$  is:

$$E(P) = \sum_{i=1}^m \frac{|x_i| |x_i^c|}{|U|} = \sum_{i=1}^m \frac{|x_i|}{|U|} (1 - \frac{|x_i|}{|U|}) \quad (5)$$

Among them,  $x_i^c$  represents the complement of  $x_i$ , that is,  $x_i^c = U - x_i$ ;  $|x_i|$  represents the cardinality of the set  $x_i$ . It is assumed that  $Q \subseteq A$  and  $U | \text{Ind}(Q) = \{Y_1, Y_2, Y_3, \dots, Y_n\}$ , then the number of condition information defining attribute sets  $P, Q$  is:

$$E(Q|P) = \sum_{i=1}^m \sum_{j=1}^n \frac{|x_i \cap Y_j|}{|U|} \frac{|Y_j^c - X_i^c|}{|U|} \quad (6)$$

The number of interactive information defining attribute sets  $P, Q$  is:

$$E(P, Q) = \sum_{i=1}^m \sum_{j=1}^n \frac{|x_i \cap Y_j|}{|U|} \frac{|Y_j^c \cap X_i^c|}{|U|} \quad (7)$$

The number of joint information defining attribute sets  $P, Q$  is:

$$E(P \cup Q) = \sum_{i=1}^m \sum_{j=1}^n \frac{|x_i \cap Y_j|}{|U|} (1 - \frac{|x_i \cap Y_j|}{|U|}) \quad (8)$$

It is assumed that  $\omega$  is an incomplete mobile information system, and  $P \subseteq A$ , then there are:

$$K(P) = \{\omega_p(u_1), \omega_p(u_2), \omega_p(u_3), \dots, \omega_p(u_{|U|})\} \quad (9)$$

The number of information defining attribute set  $P$  is:

$$E(P) = \sum_{i=1}^{|U|} \frac{1}{|U|} \left(1 - \frac{|\omega_p(u_i)|}{|U|}\right) \quad (10)$$

It is assumed that  $Q \subseteq A$  and denoting  $K(Q) = \{\omega_Q(u_1), \omega_Q(u_2), \omega_Q(u_3), \dots, \omega_Q(u_{|U|})\}$ , the number of condition information defining attribute sets  $P, Q$  is:

$$E(Q|P) = \sum_{i=1}^{|U|} \sum_{j=1}^{|U|} \frac{1}{|U|} \frac{|[\omega_Q(u_j)]^c - [\omega_P(u_i)]^c|}{|U|^2} \quad (11)$$

The number of interactive information defining attribute sets  $P, Q$  is:

$$E(P, Q) = \sum_{i=1}^{|U|} \sum_{j=1}^{|U|} \frac{1}{|U|} \frac{|[\omega_Q(u_j)]^c \cap [\omega_P(u_i)]^c|}{|U|^2} \quad (12)$$

The number of joint information defining attribute sets  $P, Q$  is:

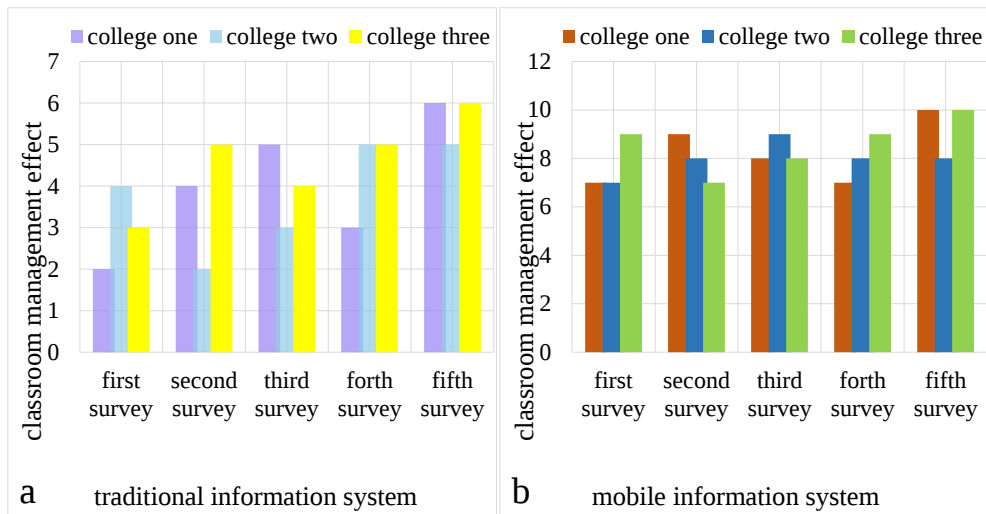
$$E(P \cup Q) = \sum_{i=1}^{|U|} \sum_{j=1}^{|U|} \frac{1}{|U|} \left(1 - \frac{|\omega_P(u_i) \cap \omega_Q(u_j)|}{|U|^2}\right) \quad (13)$$

For mobile information systems, a concept of knowledge uncertainty in measurement information systems is proposed and analyzed. On the question of correlation in attributes or subsets of attributes, correlation coefficients are introduced. The correlation coefficient is used to describe the integrity of an information system, and the relative correlation is defined to represent the importance of each attribute.

#### 4. Comparison of Mobile Information Systems and Traditional Information Systems

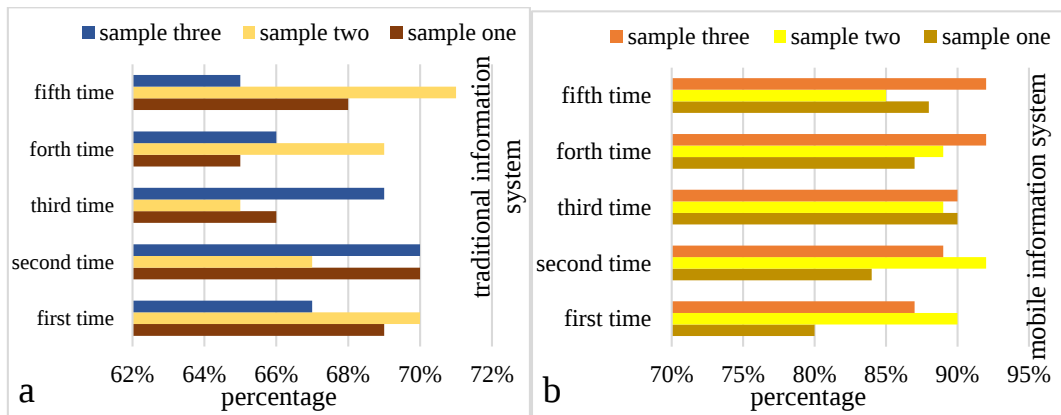
The application-oriented higher education management mode based on the mobile information system breaks through the traditional operation management mode, and no longer follows the traditional administrative management mode, but pays more attention to the management decision-making mechanism. China's higher education management model has also been continuously improved. Specifically, China's application-oriented university management model has formed four categories: "internship in the classroom", "research practice", "cognitive practice" and "social practice". Therefore, the teaching mode based on the mobile information system has played an important role in cultivating the comprehensive development of students. There are great differences between the two in terms of classroom management effect, teaching efficiency, student satisfaction, and teacher-student harmony. The comparison of classroom management effects is shown in Figure 5.

Figure 5 uses a scoring system to represent management effectiveness (1-10 points). A score of 1-3 is poor, and a score of 4-6 is average; a score of 7-9 is good, and a score of 10 is very good. From Figure 5a, it can be seen that the classroom management effect under the traditional information system was below 6 points, which was relatively poor; in Figure 5b, the classroom management effect under the mobile information system can be as high as 10 points, which showed that its advantages were relatively large. Figure 6 shows the comparison of student satisfaction.



a. Classroom management effect under traditional information system b. Classroom management effect under mobile information system

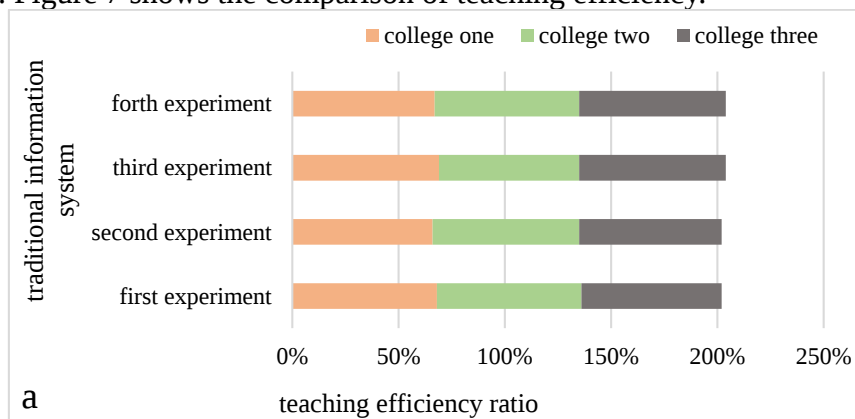
Figure 5. Comparison of classroom management effects



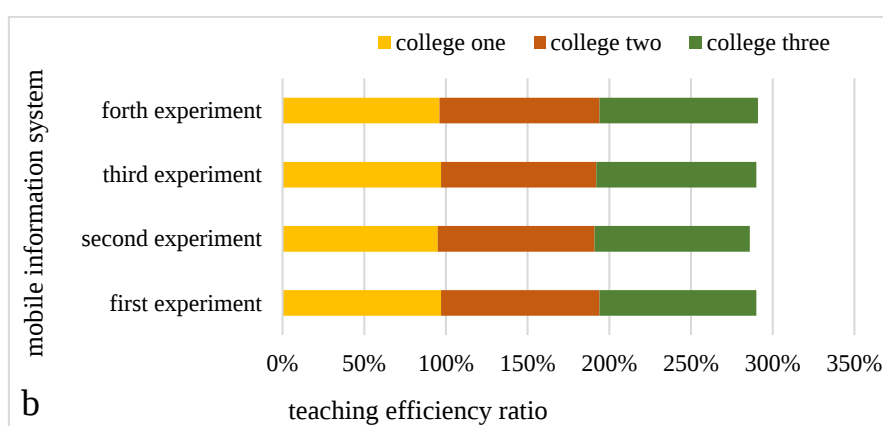
a. Student satisfaction with traditional information systems b. Student satisfaction of mobile information system

Figure 6. Student satisfaction comparison

From Figure 6a, it can be seen that students' satisfaction with the education management model under the traditional information system was basically hovering at 65% to 71%, and there had been basically no new breakthrough for a long time. In Figure 6b, the students' satisfaction with the teaching management mode under the mobile information system was as high as 92%, which showed that the development prospects of the mobile information system in the future were relatively broad. Figure 7 shows the comparison of teaching efficiency.



a. Teaching efficiency under the traditional information system



b. Teaching efficiency under the mobile information system

Figure 7. Teaching efficiency comparison

From Figure 7a, it can be found that the teaching efficiency under the traditional information system was difficult to exceed 70%, so it was inferred that the learning effect of the students must also be poor. In Figure 7b, the teaching efficiency under the mobile information system was as high as 98%. It can be seen that the higher education teaching management model based on the mobile information system was more suitable for the development needs of colleges.

## 5. Conclusions

In conclusion, whether based on traditional information systems or mobile information systems, Chinese universities need to recognize the problems existing in their own teaching management models and explore their optimal paths. In view of the problems faced by the current management mode of colleges, college administrators no longer adopt the traditional management mode, but use the mobile mode to plan and evaluate the teaching management mode. To this end, digital construction and informatization construction should be put on the agenda. It is required to strengthen informatization construction and build a mobile informatization campus platform. By incorporating the school's teaching and student management into the management system, a new pattern of mobile information management is formed.

## References

- [1] Rubtsova A V, Almazova N I, Bylieva D S. Constructive model of multilingual education management in higher school[J]. *IOP Conference Series: Materials Science and Engineering*, 2020, 940(1): 121-132.
- [2] Sawhney S, Gupta A, Kumar K. A simplified strategic management model for higher education institutions in India[J]. *International Journal of Higher Education and Sustainability*, 2019, 2(3): 238-243.
- [3] Sharif R. A new model of pairing for innovation in management higher education: implications for the management field[J]. *International Journal of Management Concepts and Philosophy*, 2019, 12(1): 19-40.
- [4] Palasai P, Sirisoponsilp S, Chandrachai A. Performance management model: A study in Thai public higher education institutions[J]. *International Journal of Economics and Management*, 2017, 11(1): 59-73.
- [5] Wang W. Computer platform-based program management model of college physical education[J]. *Agro Food Industry Hi Tech*, 2017, 28(1): 520-524.
- [6] Li J. Application of Mobile Information System Based on Internet in College Physical Education Classroom Teaching[J]. *Mobile Information Systems*, 2021, 20(21): 1-10.
- [7] Ahmad F, Hamzah N, Hassan A. "Iedutech" Mobile Application Development for Information Technology Subjects in Education among TVET Students[J]. *International Journal of Advanced Trends in Computer Science and Engineering*, 2020, 9(3): 2955-2960.
- [8] Hamidi H, Jahanshaheefard M. Essential factors for the application of education information system using mobile learning: A case study of students of the university of technology[J]. *Telematics & Informatics*, 2019, 38(5): 207-224.

- [9] Torres J B, Rados G, Souza M V. A knowledge management model in the support of engineering education[J]. *Brazilian Journal of Development*, 2019, 5(10): 17929-17944.
- [10] Sotysiak W. Management Model for Education Process in E-learning[J]. *Prace Naukowe Akademii im Jana Długosza w Częstochowie Pedagogika*, 2017, 26(2): 67-76.
- [11] Don M, Zabidi M M, Ahmad M F. Integrated Education Waqf Fund Management Model: A Case Study in the State of Johore, Malaysia[J]. *Human Resources Management Academic Research Society*, 2019, 8(4): 89-95.
- [12] Yasamin, Molavi, Taleghani. Designing a Safety Management Model for Higher Education Centres[J]. *Journal of Health Education Research & Development*, 2017, 6(4):1-11.
- [13] Xiong Y. Model selection model of university education management based on large data analysis[J]. *Boletin Tecnico/Technical Bulletin*, 2017, 55(20): 373-378.
- [14] Daly P. Business apprenticeship: a viable business model in management education[J]. *Journal of Management Development*, 2017, 36(6): 734-742.
- [15] Asongu S, Odhiambo N M. Basic Formal Education Quality, Information Technology and Inclusive Human Development in Sub-Saharan Africa[J]. *Sustainable Development*, 2019, 27(3): 419-428.
- [16] Trabelsi Z, Matrooshi M A, Bairaqa S A. Android based mobile apps for information security hands-on education[J]. *Education & Information Technologies*, 2017, 22(1): 125-144.
- [17] Heimburger A. Using Recorded Audio Feedback in Cross-Cultural e-Education Environments to Enhance Assessment Practices in a Higher Education[J]. *Advances in Applied Sociology*, 2018, 8(2): 106-124.
- [18] Nce E Y, Kabul A, Diler B. Distance Education in Higher Education in the COVID-19 Pandemic Process: A Case of Isparta Applied Sciences University[J]. *International Journal of Technology in Education and Science*, 2020, 4(4): 343-351.
- [19] Halimi F, Alshammari I, Navarro C. Emotional intelligence and academic achievement in higher education[J]. *Journal of Applied Research in Higher Education*, 2021, 13(2): 485-503.
- [20] Abedini Y. Metacognition as a core skill for wise decision-making in higher education: investigating gender differences[J]. *Journal of Applied Research in Higher Education*, 2022, 14(2): 886-900.
- [21] Girard T, Pinar M. An empirical study of the dynamic relationships between the core and supporting brand equity dimensions in higher education[J]. *Journal of Applied Research in Higher Education*, 2021, 13(3): 710-740.