

Informationization Construction of Teaching Management in Schools and Departments

Li Mei, Xu Guangxin, Wu Chunxia, Yang Rui, and Qin Ling

Abstract—With the informationization construction and development of management system in higher education institutions, the teaching management level is improved greatly by using teaching management system. The teaching efficiency is increased and the teaching quality is promoted. However, it has been found in the operation practices that the teaching management in schools and departments has the features of being concrete, individualized and professional, which makes the teaching management system for the university fail to meet the demands at the school and department level. Hence, it is necessary to build a teaching management information platform that applies to schools and departments. Based on the study and practice of informationization construction of teaching management in schools and departments, the design principle, framework and application effect of the teaching management system for schools and departments are elaborated to provide reference for the informationization application of teaching management inside and outside the university.

Index Terms—Schools and departments, teaching management, informationization, teaching management system.

I. INTRODUCTION

With the rapid development of modern information techniques in the 21st century, networkization and digitization have become the mainstream of the age and affected nearly every aspect of society. The education management informationization of higher education institutions has developed rapidly under the guidance of national policies in recent years. In 2002, the Ministry of Education released "Informationization Standard of Educational Management". Later, the Ministry issued "Implementation Method for 'Informationization Standard of Educational Management' (Trial Version)" and "Implementation Method for the Construction of Application Demonstration Area of 'Informationization Standard of Educational Management' (Trial Version)" [1]. The construction and development of education informationization attracts high attention and vast amount of fund. The development of education informationization construction of higher institutions is also supported. Therefore, the informationization of management in higher education institutions is developing towards the direction of networkization, standardization and normalization [2].

II. SIGNIFICANCE OF INFORMATIONIZATION CONSTRUCTION OF TEACHING MANAGEMENT IN SCHOOLS AND DEPARTMENTS

A. The Teaching Management Informationization for Schools and Departments Is the Inevitable Requirement to Realize the Scientific Management on Both the University and Department Levels

At present, the teaching management in most universities is based on the two-level management mode (university level and department level). Most specific management tasks are assigned to the level of schools and departments to be completed. In recent years, with the revolution of internal management system in a number of universities, the management focus has shifted from daily management to guidance, monitoring, inspection and evaluation by the university level. Correspondingly, schools and departments have become the main executor of teaching works [1]-[3]. The teaching management system on the university level is mainly for the overall management of the university, while the specified and procedural management of schools and departments should be realized by a teaching management system especially designed for schools and departments.

B. Teaching Management Informationization for Schools and Departments Is an Important Way to Improve the Efficiency of Teaching Management

With the deepening of teaching management reform in universities, the need for establishing a teaching management for schools and departments is growing and is more and more normalized, which makes the development difficult and cumbersome. This phenomenon can be observed in the aspects such as admission, making plans for talent training, teaching operation, teaching inspection and teaching researches.

For the management of each link, not only the content keeps growing and the management is becoming more detailed and normalized, but also all written materials are copied with computers. The massiveness of data means great burden for teaching secretaries. Achieving teaching management informationization in schools and departments can reduce the workload of teaching management on the department level avoid repetitive work and avoid errors caused by manual operations and finally improve the working efficiency and quality.

C. Teaching Management Informationization in Schools and Departments Is an Effective Means to Promote the Reform and Innovation of Teaching Management in Schools and Departments

In order to fit the needs of social development, the teaching management work in schools and departments must center around the specialty characteristics and the

Manuscript received October 23, 2013; revised December 25, 2013.

Li Mei, Xu Guangxin, Wu Chunxia, Yang Rui, and Qin Ling are with Plant Science and Technology College, Beijing University of Agriculture, 102206, China (e-mail: wshdjs@vip.sina.com).

talent training targets, keep renewing idea, and making constant reforms and innovations. The teaching management must have its own distinctiveness. The designing of teaching management informationization in schools and departments should be individualized to satisfy the management needs of schools and departments [3].

The teaching management informationization in schools and departments has a significant meaning for promoting the reform of education and teaching, improving teaching quality, increasing the teaching management level and working efficiency, and cultivating the special teaching features of schools and departments.

III. DESIGN PRINCIPLES OF TEACHING MANAGEMENT SYSTEM IN SCHOOLS AND DEPARTMENTS

The designing of teaching management system in schools and departments should be in close conjunction and harmony with that of the university to accomplish the duty of educational management of the whole university. The design principles of the system are as follows:

A. Scientificity and Normalization

The design of the system must insist on the principle of scientific, rigorous, normalized and advanced management so that the policies, guidelines, rules and regulations of the university can be integrated in the whole system.

B. Integrity and Systematicity

The content of the design should be comprehensive, complete and systematic, including all aspects of the teaching management works.

C. Sharing and Complementariness

In the same university, the teaching management system of schools and departments should be independent from that on the university level. The two systems should be mutually supportive, sharing information and together constituting an organic whole. The complementariness in content means that the contents absent in the teaching management system of the university or those unable to be realized can be reflected in the system of schools and departments, without repetition of the contents.

D. Individualization and Human-Oriented Principle

The system should fully reflect the characteristic of teaching management in schools and departments, while highlighting the reform and innovation of the management in schools and departments. Different schools and departments have different management philosophies and features, thus the design contents of the system should be different. The system design should adhere to the Human-oriented principle and user-friendly principle, so as to achieve the goal of comprehensive functions, easy operation, scientificity and reasonability.

E. Procedural and Concreteness

The system is designed for the procedural management contents which are unable to be realized in the teaching management system on the university level. The goal is networkization and paperless management.

F. Practicality and Universality

The system should be designed from the reality of the university to adapt to the teaching management needs of each school and department. The system should meet more diversified application needs.

G. Intuitiveness and Simplicity

The system should be simple, intuitive and easy to understand, so that the users can operate the system without any clarification.

H. Security

System security is an issue worthy of attention. Problems such as user access control, security audit and computer virus prevention should be emphasized to prevent data loss and to prevent information from being leaked to unauthorized persons, and to prevent information from unauthorized tampering [4].

IV. DESIGN ARCHITECTURE OF TEACHING MANAGEMENT SYSTEM IN SCHOOLS AND DEPARTMENTS

The design contents of teaching management system for schools and departments should be based on the actual teaching management needs of schools and departments [5]. It should cover all aspects in the teaching management process of schools and departments such as teaching operation process, teaching quality monitoring and teaching research. The modules are designed as Fig. 1 showed.

A. Module of Teaching Information Management

The module includes teaching notification, dynamic issuance and display. The publishers include administrators and director of Teaching and Research Section.

B. Module of Management of Major Selection by Students

The students in plant production in our department have no majors at enrollment, and the courses have no differences in the first two years. From the third year, the students will choose the specific majors. That is, the students have to choose the majors after enrollment. The module of management of major selection by students includes applying for major, query and ranking of the comprehensive evaluation scores before the major selection, as well as the inquiry for major selection result.

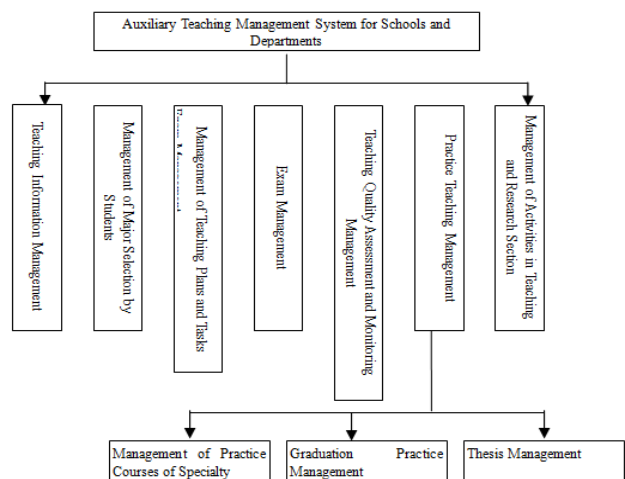


Fig. 1. Architecture of teaching management system for schools and departments.

C. Module of Management of Teaching Plans and Tasks

The module includes management of teaching plans and syllabus, management of course plan for the semester and task assignments, management of teaching plan and experiment & internship program, and management of teaching workload. The teachers and students can check the teaching program of each major and the syllabus of each course, the teaching plan and arrangements of the teacher for each course in each semester, and the content and schedule of each course. The directors of Teaching and Research Section and laboratories should complete the assignment of teaching tasks, while the teachers should finish the teaching plan and experiment & internship program, and report the textbook and reference books needed for the course. Then the director of Teaching and Research should examine and approve.

D. Module of Exam Management

The module includes inquiries for exam information and registration for exam. The inquiries for exam information include queries for the time and location of the exam. Exam registration is the registration of a variety of exams, such as College English Test Band 4 or 6 and reexamination.

E. Module of Teaching Quality Assessment and Monitoring Management

The module includes teaching quality assessment, teaching quality monitoring and teaching quality information. Teaching quality assessment is based on the after-class feedback from teachers, students and supervisors. Teaching quality monitoring includes student attendance, teaching inspection and teaching information surveys. Teaching inspection includes arrangements of exams at the beginning, middle and end of the semester. Teaching quality information is mainly for releasing information of teaching quality, such as teaching quality information newsletter, study status notification and summary of teaching inspection.

F. Module of Practice Teaching Management

According to the teaching management characteristics in our university, the practice teaching module is divided into three sub-modules, the management of practice course of specialty, graduation practice management and thesis management.

- 1) The module of practice course management of specialty is mainly for the operation managements of the practice courses in plant production department, such as syllabus inquiries, teaching assignments, development and approval of teaching plans, proposal and selection of topics for the comprehensive practice contents as well as the assessment of student performance.
- 2) The graduation practice management sub-module includes developing the graduation practice plan, graduation practice inspection & information feedback, graduation practice summary and graduation practice assessment.
- 3) The graduation thesis management module includes the topic proposal of teachers, topic selection of students, thesis defense grouping and thesis assessment. The part of topic proposal of teachers includes the

topic proposal by teachers, approval from administrator of the major, and checking the proposed topics by teachers and students. The part of topic selection of students allows the determination of the result of topic selection by random drawing according to the applications of the students. The thesis defense grouping includes that the assigning of defense team list and defense order of the students by the administrator, as well as the checking of the defense grouping results by the teachers and students. Thesis assessment includes the assessment by instructor, by reviewer and defense team, as well as the overall assessment of the thesis.

G. Module of Activities Management in Teaching and Research Section

The teaching management system for schools and departments provides an exchange platform for departments. It can be designed according to the actual needs of each school and department. The module includes the notification, recent news and attendance of the teaching and research section, as well as the forum of the teaching and research section.

V. IMPLEMENTATION EFFECT OF THE TEACHING MANAGEMENT SYSTEM IN SCHOOLS AND DEPARTMENTS

In 2003, the study on teaching management system for schools and departments was started. After over two years of exploration and practice together with the practical work in schools and department, the design and application of functional modules such as "major selection by students", "topic selection by students", "course selection by students" and "teaching evaluation by students" were completed in 2005. The implementation effect is generally good. In 2006, with the strong support of Beijing Municipal Commission of Education, the project of "Education Management Information Research and Practice of Secondary Teaching Unit of Higher Education Institutions" became the approved project of reform of education and teaching in Beijing universities. Later, the study on the teaching management system for schools and departments was further enhanced. Since the project was approved, the system was used for the teaching operation for 5 grades, 23 classes and more than 5,000 people. The effect was good and it received acclaim from the majority of teachers and students.

A. Human-Oriented Principle, to Practice the Concept of Individualized Training for Students

The design of the teaching management system for schools and departments adheres to the people-oriented principle for the purpose of highlighting students' personality and diversity training. It gives more selection space for students and further mobilizes the learning enthusiasm of students [6]. The modules and sub-modules, such as major selection, extended practice topic selection in practice course of each major, thesis topic selection and graduation practice, are all based on the students' interest and aspirations [7].

B. To Adapt to Individual Needs in Teaching Management and Highlight Teaching Management Features of Each School and Department

The teaching management system for schools and departments can adapt to the needs of teaching management in schools and departments, fully reflect the characteristics of teaching management in schools and departments, and highlight the reform and innovation of management in schools and departments [8]. For example, the "practice course management of major" in "practice teaching management" is divided into cognitive practice, professional skill practice and extended practice. This reflects the new ideas in the practice teaching reform in plant production department.

C. To Further Improve the Teaching Quality Monitoring System for Schools and Departments and Promote the Improvement of Teaching Quality

The application of the teaching management system for schools and departments allows the teaching management staff, teaching supervisors, teachers and students to check the course syllabus, teaching progress and each implementation process of teaching. Therefore, they can keep track of the situation of teaching and learning as well as the feedback on teaching from teachers and students. This is favorable for the teaching process quality control, and allows the problems to be discovered and solved in a timely manner.

D. To Strengthen Interaction and Communication and Arouse the Enthusiasm of Teaching and Learning

Different modules in the teaching management system in schools and departments facilitate the interactions between teachers, students and administrators. For example, the teacher fills in and submits the teaching plans and tasks, while the director of teaching and research section approve them. The teacher reports the extended practice topics and thesis topics and the director approves them. In both processes, the interactions between teachers and the direction are initiated. Students select the thesis topics and teachers provide guidance on the students' research activities. The submission of thesis overview, opening report and thesis by students and the review and scoring by teachers are also realized by the system. The tracking, analysis and feedback of each teaching link by administrators are made easier. The teaching forum in module of management of activities in teaching and research section provides an interaction platform for teachers.

VI. CONCLUSION

In summary, the application of teaching management system for schools and departments has achieved the normalization of the teaching operation management for schools and departments, improved the working efficiency and quality, and reflected the features and innovations of the teaching management in schools and departments. Because of its advantages of flexibility and scalability, the system can be constantly updated and improved. In the future, the teaching management system for schools and departments will not only serve as the platform to satisfy the needs of

basic teaching operation management, but also becomes the exchange platform of teaching and learning, the showcase of teaching achievements, the management platform of teaching and research projects, the management platform of open laboratory, and the management platform to implement students' innovative experimental programs. Therefore, the improvement of the teaching management system for schools and departments will play a positive role in increasing the teaching quality of higher education institutions and in the implementation of teaching reform projects.

REFERENCES

- [1] H. Xuan, Y. X. Wang, and H. C. Chen, "Applications of the comprehensive educational system in educational management in Tsinghua university," *Computer Engineering and Applications*, vol. 12, pp. 237-239, 2002.
- [2] D. J. Yuan, Q. Zhang, and J. Q. Zhang, "Design and implementation of network thesis management system in agricultural majors," *Agriculture Network Information*, vol. 7, pp. 82-86, 2007.
- [3] J. L. Wei and D. Chen, "Construction of procedural teaching management system for schools and departments," *China Education Info*, vol. 4, pp. 41-44, 2007.
- [4] X. G. Zhao, P. Yu, and L. Q. Kong, "Study on the university campus management," *Journal of Inner Mongolia Agricultural University (Social Sciences)*, vol. 4, pp. 276-277, 2006.
- [5] S. Bjarnason, "Evolution or revolution Information and communication technologies in higher education," vol. 3, 2004.
- [6] P. Uys, "A syntagm of networked educational management: case study—University of Botswana campus-Wide information systems," Bradford, 2004.
- [7] B. Beatty, "The emotions of educational leadership in breaking the science," *Journal of leadership in education*, 2000.
- [8] R. McLeod and J.-G. Schell, "Management information systems," *Information System Front*, 2008.



Li Mei was born in Beijing in 1964. In 1986, she got vegetable bachelor degree in vegetable major in Beijing Agriculture College, Beijing, China. She is now the office director of Plant Science and Technology College



Xu Guangxin was born in Heilongjiang province in 1976. In 2005, she obtained master degree in education management major in Minzu University of China.



Wu Chunxia was born in Shandong province in 1982. She obtained master degree in Plant Science major in Xinjiang Agriculture University in 2008.



Yang Rui was born in Kashi Xinjing. In 2004, she obtained master degree in Vegetable major in Xinjiang Agriculture University.



Qin Ling was born in Hebei Province in 1964. In 2001, she obtained Doctor degree in fruit science major in China Agriculture University.