

Development of Classroom Teaching Management System Based on WeChat Public Platform

Jingxian Xu

TSL School of Business and Information Technology
Quanzhou Normal University
Quanzhou, China
yjsxjx@126.com

Ni Lin*, Junhao Zheng

TSL School of Business and Information Technology
Quanzhou Normal University
Quanzhou, China
377781869@qq.com, 1014725851@qq.com

Abstract—The rapid development of "Internet +" information technology, such as WeChat, has promoted innovation and reform in the field of education, providing abundant resources and greater development platform for micro-lesson and mobile learning. Therefore, introducing Wechat into university classroom as an extension of classroom teaching can break the limitations of classroom teaching time and place, which is of great significance for mobile learning and interactive learning. This paper analyzes and studies the function and interactive mode of university classroom teaching. Based on the "Internet +" technology, such as WeChat public platform and cloud platform, the university classroom teaching management system is developed, and a new interactive teaching mode based on three aspects including teaching management, knowledge sharing and curriculum interaction is realized. The system improves teaching effect, realizes the mobile interaction between teachers and students, achieves the accumulation of large teaching data, and ensures the informationization and real-time of teaching management, which is helpful for teachers to teach students in accordance with their aptitude.

Keywords—*Knowledge sharing; WeChat; Teaching management; Internet +; Course interaction*

I. INTRODUCTION

With the rapid development of the new generation of information technology, Internet technology has begun to emerge in the field of education [1]. At present, an important topic of teaching management research is how to guide the Internet technology in the field of education towards a positive direction, the traditional teaching mode and the Internet technology integration and innovation [2]. Make this integration and innovation form a more advanced, with the times of diversified education teaching mode, to achieve independent, interactive, open, mobile new education teaching mode [3]. Classroom teaching management is an important part of teachers' teaching behavior and runs through the whole teaching process. Maintaining normal classroom teaching order and creating a positive and interactive learning atmosphere are the basic functions of classroom teaching. Influencing factors and innovative models of classroom teaching management have always been important contents of classroom teaching management research. MOOC, mobile learning and other information technology-based teaching models have become new features of classroom teaching[4].

Classroom teaching management has also gradually developed into a specialized management discipline[5].

Wechat and cloud technology are important products of Internet information technology. At present, these two technologies are most closely integrated with the field of education[6]. Mobile learning based on Weixin has become a new direction of digital learning. Some scholars have studied the application of Weixin in learning, such as mobile learning mode, mobile learning resource design, mobile learning space construction and so on. Wechat has also entered the classroom of University teaching, and now most of the university classes will use it as a supplementary tool for classroom teaching, such as theoretical basis courses, experimental courses, professional courses and so on. All these indicate that WeChat is changing the traditional teaching mode [7]. WeChat's new technology is gradually becoming the new direction of classroom teaching innovation. As a typical representative of "Internet +" technology, WeChat is constantly deepening its integration with teaching concepts, methods and contents. This integration can not only effectively improve the teaching efficiency and quality, but also stimulate students' interest and motivation in learning[8]. This study combines the WeChat public platform to study the management and interaction mode of university classroom teaching[9]. This project has developed a classroom teaching management system based on Wechat public platform. It realizes the mobile interaction of courses. Practice shows that this system can improve the efficiency of teaching management. The accumulation of large data in this system can make effective decisions on teaching management [10].

II. DEMAND ANALYSIS OF CLASSROOM TEACHING MANAGEMENT SYSTEM

Classroom teaching is one of the most commonly used methods in teaching[11]. It is a process in which teachers impart knowledge and skills to students. The quality of classroom teaching depends on the management and interaction of classroom teaching. Therefore, combined with "Internet +" technology, the system focuses on classroom teaching needs analysis. And on the basis of this need analysis, the overall architecture of the system is designed. Figure 1 shows the design framework of the system.

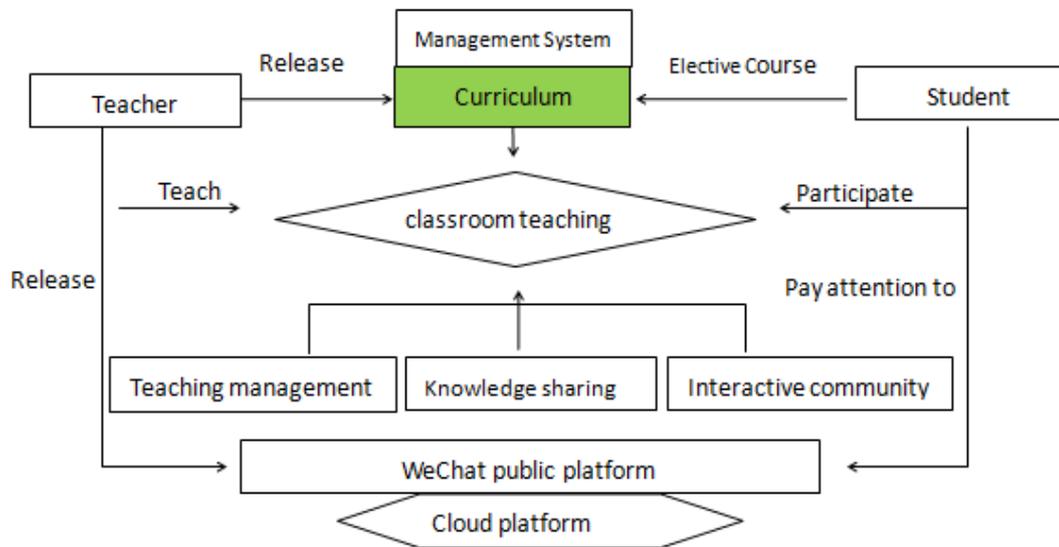


Fig. 1 Requirements analysis and design framework of the system

As shown in Figure 1, students select courses and teachers on the administrative management system, and a temporary teaching class is formed when a certain number of students are selected. Teachers and students complete the teaching and learning of curriculum knowledge at the agreed time and place. Once the course is over, the temporary teaching class will be dissolved. Temporary teaching classes generally have three functions: (1) the function of interaction process is the interaction between teachers and students or between students and students; (2) the function of curriculum knowledge sharing is the sharing of curriculum PPT and curriculum knowledge points; (3) the function of teaching management is to maintain classroom order and statistics of students' attendance.

Traditional classroom teaching methods to achieve the above three functions are relatively single, and its efficiency is very low. In the traditional classroom teaching management, teachers can only use the roll call method to conduct statistics. Traditional classroom knowledge sharing is limited to PPT and textbooks, and there is a lack of interaction between students and teachers before and after class. This situation is not only not conducive to the optimal design of the curriculum, but also more difficult for teachers to analyze and statistics the curriculum-related data. As a result, the teaching contents and methods of a course have been the same for many years, and

this teaching method is not conducive to the cultivation of innovative and entrepreneurial talents.

III. FUNCTION DESIGN OF CLASSROOM TEACHING MANAGEMENT SYSTEM

According to the demand analysis and current situation of classroom teaching, the system integrates the three functions of classroom teaching into the public platform of Wechat. And the system and teaching cloud platform can communicate with each other and transmit teaching data. All the data related to the curriculum are submitted to the teaching cloud platform and eventually form the big data of the course.

A. Interactive community

Course interaction includes classroom teaching interaction and after-class communication. It is mainly teachers who give students answers to questions related to the course. In university classroom teaching, teachers and students interact less after class, and most of the communication is between a few students and teachers, which is inefficient. To solve this problem, the system constructs a design model of the interactive community, as shown in Figure 2. Through this model, teachers and students can achieve real-time interaction after class.

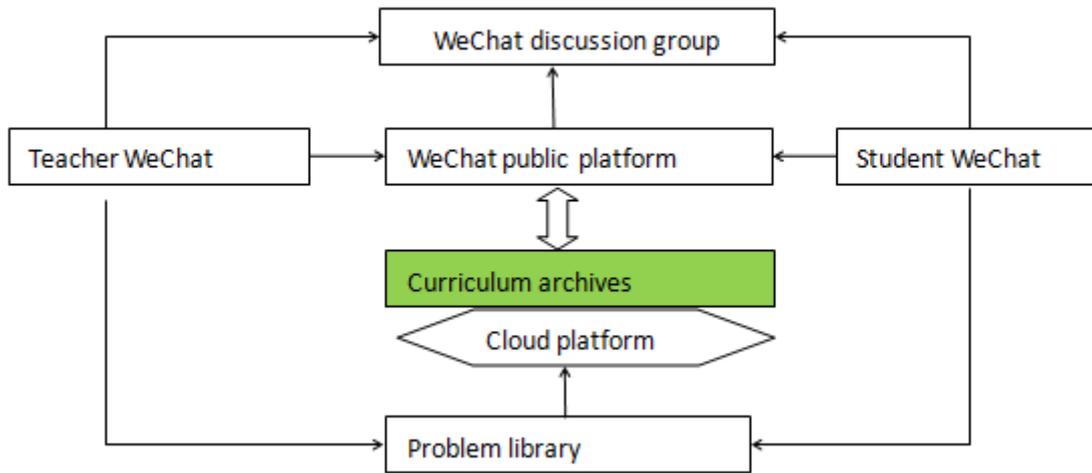


Fig. 2 Design model of the course "interactive community"

B. Knowledge sharing

The design model of curriculum knowledge sharing system is shown in Figure 3. The system can collect large data information of courses through cloud platform, which includes PPT of courses, pictures of cases, videos and links of relevant knowledge. All the data of knowledge points are stored in the

form of keywords, which include pictures and videos of knowledge points. Finally, the system links all the keywords together to form the knowledge base of the course. Students can acquire the desired knowledge by searching keywords, which can not only realize the relevance learning of the curriculum, but also effectively increase students' interest in learning.

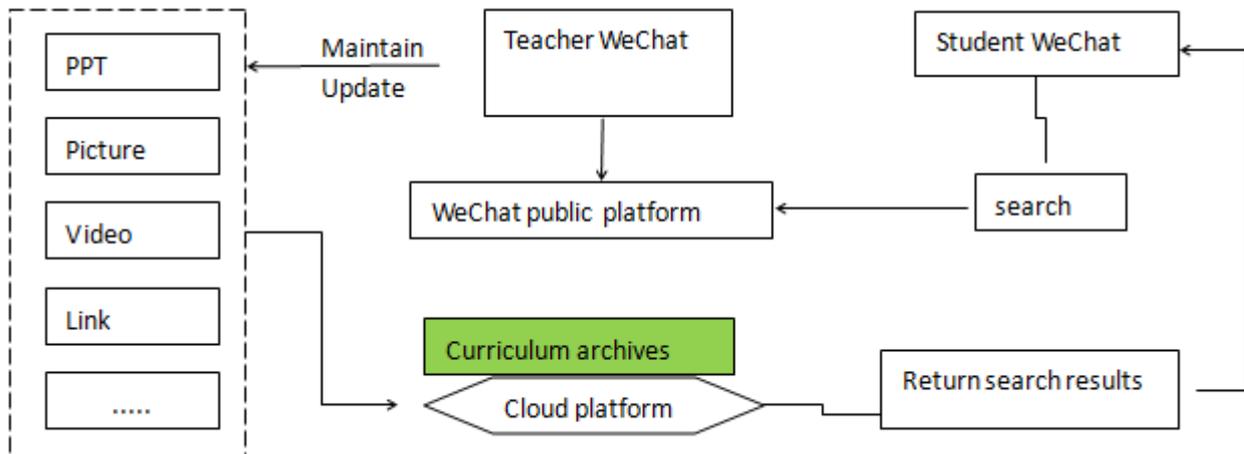


Fig. 3 Design model of curriculum knowledge sharing system

C. Teaching management

The design model of classroom management system is introduced below. The list of students exported from educational administration system is stored in Excel format, and then the list of students is imported into the Wechat public platform. Finally, the course archives information of each student is established on the cloud platform. Teachers can get students' attendance directly through Wechat, and teachers can also quickly count students' performance.

IV. SYSTEM FUNCTION REALIZATION

A. WeChat connects cloud platform server

The system uses cloud computing services provided by Sina, which is called Sina cloud SAE. SAE adopts distributed system architecture and storage technology. It covers many large networks, such as education network. It can not only satisfy the efficient storage of large data in the course, but also satisfy the requirement of accessing high traffic. Moreover, SAE also has many advantages, such as convenient configuration and low cost of SAE.

B. Realization of teaching management function

(1) Data initialization

The teacher imports the Excel file containing student information into the database. When initialization, when the teacher clicks the Add button, the system will pop up an input box. The name of the teacher entering the file. Then the

system will make an Ajax request to the background. The database will not only read the student information, but also execute the SQL statement to create the student table. These operations will insert student information into the database, that is, the system will record student information and course information. The complete process is shown in Figure 4.

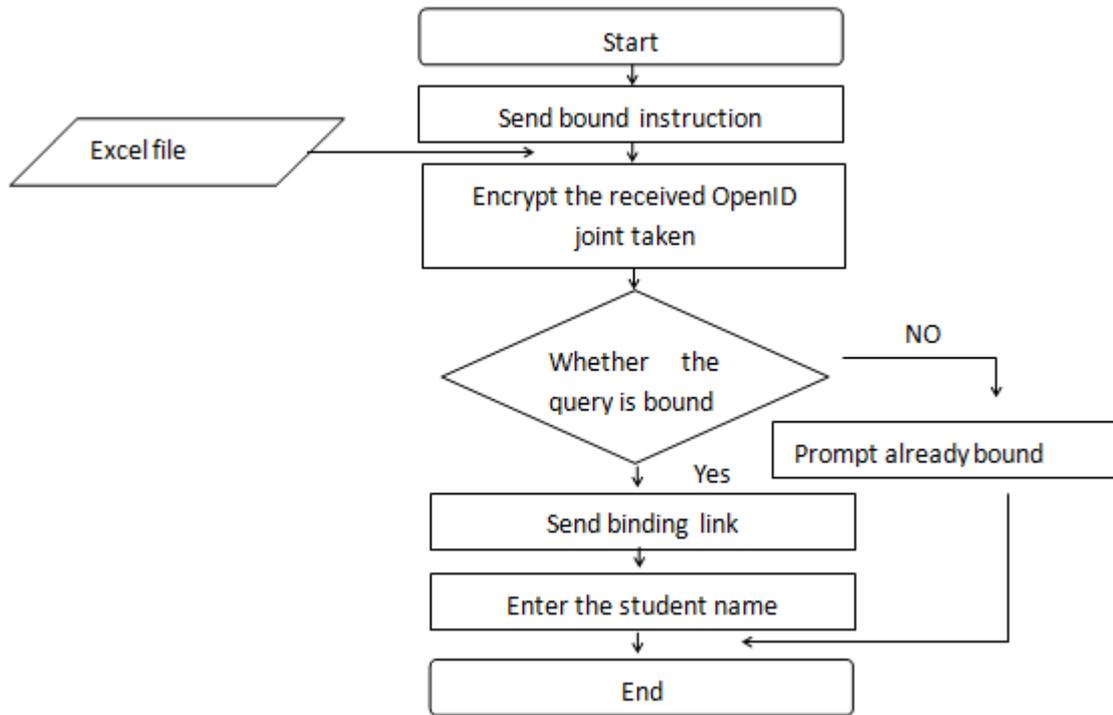


Fig. 4 Flow chart of importing Excel table to create student course file

(2) Student information binding

The system first stores micro signals and student information, and then binds students' information and micro signals. Students send instructions to the system to get the binding link. After students click on the link, they can complete the binding by inputting their name and school number into the interface.

(3) Check-in and leave

In order to avoid students cheating, attendance in class can only be carried out within the prescribed time. The biggest feature of the system is that the cloud platform can store large data, and teachers can make statistics and analysis of the course history check-in data. At the same time, teachers can also edit data, and data can be exported as required.

C. Realization of course interactive community function

The purpose of the curriculum interaction community is to achieve online interaction between teachers and students. This interaction is not limited by time and place, and the content of this interaction can be stored in a cloud disk. This interactive community can be open and shared by all students participating in the course. Teachers can analyze the data of interactive communities, so they can find valuable problems from them, and then focus on it. And students can learn from others' interactions, so that the learning of courses will become easier. Fig. 5 is a detailed flow chart of course interaction. Detailed information of the interaction process is stored in the database. Teachers and students can not only answer a certain question, but also publish their own views. It is a curriculum interactive platform community that can achieve full participation.

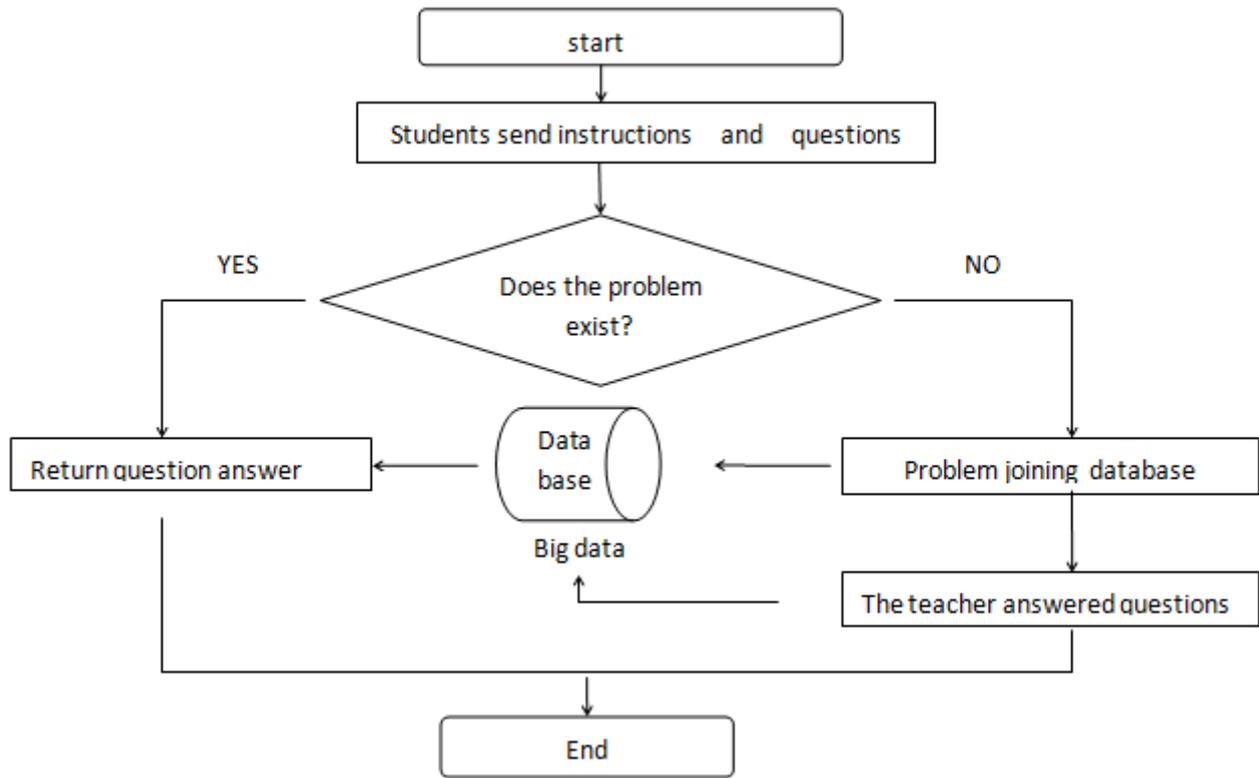


Fig. 5 Interactive community implementation flow chart

D. Realization of knowledge sharing function

Knowledge sharing is to organize the knowledge points of the course through the Internet, and then open it to all students. Course knowledge can be stored in different places at the same time, and the system can quickly query it through keywords. Teachers can transfer the material of course-related knowledge to the cloud platform, and then link the address of knowledge points to the knowledge of the course. Students can enter key words in WeChat to query the knowledge

related documents. Figure 6 is a flow chart of knowledge sharing. Students can learn knowledge points of a course at any time through mobile phones, which can improve learning efficiency more than the traditional way. Students can get the cloud disk address of the course PPT by sending instructions, and then they can download the course PPT and other content to the mobile phone by clicking the address, so that they can learn at any time and anywhere.

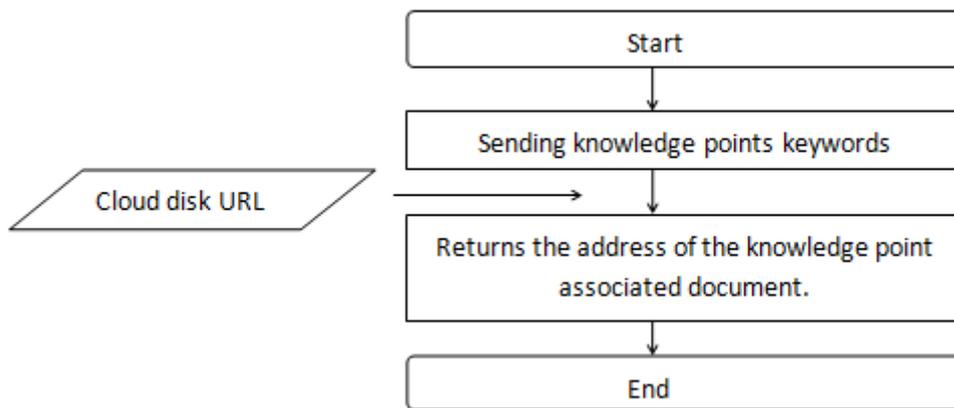


Fig. 6 Knowledge sharing flow chart

V. SUMMARY

This study is based on the Wechat public platform classroom teaching management system, through the cloud platform system to achieve the course of large data storage. This research constructs a teaching management system, which has the functions of course teaching management, knowledge sharing and interactive community. This management system can help teachers to realize a new teaching mode. Practice has proved that this mode is helpful to course teaching and management. Therefore, this system is very meaningful for classroom teaching in universities.

ACKNOWLEDGMENT

This work was financially supported by:

1) Fujian Province young and middle-aged teacher education research project(Number JAT170494):Research on university teaching resource sharing based on Cloud Computing.

2) Quanzhou Normal University student innovation and entrepreneurship training project(Number 201810399121): Research and development of the WeChat public platform for college students' Tutoring.

3) Quanzhou Social Science Planning Project(Number 2018H19): Research on Digital Teaching Resources Sharing and Copyright Protection in Quanzhou Universities under Cloud Computing Environment.

REFERENCES

- [1] Bai Hao, Hao Jingjing. Research on the application of WeChat public platform in the field of Higher Education [J]. Education informatization in China, 2013,(4):78-81. (In Chinese)
- [2] Liu Yu Ting. Application of WeChat public platform in mobile learning [J]. Software Guide Educational Technology, 2013,(10):91-93. (In Chinese)
- [3] Chen Gang, Liu Kun, Liu Yi. Design and development of WeChat public platform service number in Library [J]. Journal of academic library and information science, 2015,(3):44-48. (In Chinese)
- [4] Xiang Yu Xi. Design and Practice of Mobile Learning Based on Wechat Public Number: A Case Study of Adult Education Courses in Ubiquitous Learning Environment [J]. Contemporary continuing education, 2015,(1):44-47. (In Chinese)
- [5] Jiang Yin Zhen. Development of teaching assistant platform for computer literacy course based on WeChat public number. Information and computer[J], 2018,(13):78-79. (In Chinese)
- [6] Zhu Guang Hu, Qin Ai Ge, Pang Dongqing. Development and application of higher mathematics teaching interaction platform based on WeChat public number. Educational modernization[J], 2018,(13):78-79. (In Chinese)
- [7] Zhao Yan. Mining and utilization of teaching resources of professional WeChat public address. Logistics technology [J], 2018,37(03):131-134. (In Chinese)
- [8] Jin Cheng Hai. Research on constructing micro lecture resource platform based on WeChat public number. Journal of Yanbian Institute of Education [J], 2018,32(02):102-105. (In Chinese)
- [9] Luo Chunhua. Development and Application Research of Teaching and Research Exchange Platform Based on WeChat Public Number. Yunnan Normal University [D], 2017. (In Chinese)
- [10] Chang Chen, Wang Wenyu. Research and development of WeChat teaching platform based on WeChat public address. Education of the times [J], 2016,(21):231-232+236.. (In Chinese)
- [11] Dong Na. Research on Mobile Teaching Application Based on WeChat Platform. Journal of Anhui Vocational and Technical College [J], 2016,15(04):77-80. (In Chinese)