Application research of mixed teaching mode based on Wechat applet

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Abstract: In the era of rapid development of mobile Internet, Wechat applet because it does not need to install and uninstall characteristics, become a very popular application. Wechat applet applied to teaching is a new teaching auxiliary means. Firstly, the feasibility of WeChat is analyzed from the perspective of function and students' willingness to use it. Then it discusses the application strategy of Wechat applet in the course of database application technology teaching. Finally, through the analysis of the effect of Wechat applet auxiliary course teaching, it is shown that Wechat applet is an effective auxiliary means of classroom teaching, which can be promoted and applied in other courses.

1. The introduction
The course of "database application technology" is a basic course for computer related majors in colleges and universities. For higher vocational colleges, the focus of this course is not to teach the principle of database, but to focus on a popular open source database management system MySQL, focusing on the specific application of database in practical work. The aim is to train the students to master the theoretical knowledge and practical operation ability of database technology and management, so as to apply them flexibly in the future comprehensive development courses.

At present "database application technology" course teaching mainly exist the following problems: one, in the process of curriculum content and professional standards and docking, found that the course content and post doesn't fit the actual requirements, and the actual working process of the contact is not close, this requests us to post requirement, rebuild original course teaching content, to reconstruct the content of the course; Second, the teaching method is relatively single, case analysis method, project teaching method, network teaching method, group teaching method and other diversified teaching methods are not enough in the teaching process; III. The assessment and evaluation methods are monotonous. Although the final assessment has been changed from ordinary examination to project-based assessment, the final assessment has been improved, but the process assessment is not comprehensive enough. Fourth, the application of teaching means is only limited to the multimedia, not the full application of information means to improve students' interest in learning.

Based on the above problems, it is urgent to break through the traditional teaching mode and seek new information teaching methods and apply them to the course teaching. Through investigation and research, the research group decided to design the auxiliary system of Wechat applet teaching for the course teaching, trying to explore a new mode of mixed teaching.

2. Feasibility analysis of Wechat applet applied in course teaching
With the rapid development of mobile Internet, the application of mobile communication is more and more extensive. WeChat, as a popular instant messaging tool, makes communication more convenient and efficient. WeChat applet is a kind of application that can be used without downloading and
installing, it realizes the dream of application "within reach", user can open the application by scan or searching. For developers, small program development threshold is relatively low, less difficult than APP, can achieve message notification, offline scanning code, public number association and other seven functions. Through the public number association, the user can achieve the public number and small program jump between each other. As teachers, we can push the teaching resources of the course to students through the small WeChat program in the teaching of the course, and realize the communication and interaction between teachers, students and students by setting personalized menus, navigation, automatic reply and other functions. This has been explored to different degrees in flipped classroom teaching, blended learning and mobile learning, and some practical experience has been obtained.

At the same time, we have also carried out in-depth research on students' learning habits and learning behavior. Through the analysis of the collected questionnaires, it can be concluded that all the surveyed students use WeChat and WeChat. When students encounter difficult problems in learning, more than 90.44% of them prefer to search for information through the mobile phone terminal to find the answers to the questions. In terms of mobile learning mode, more than 82.18% of students are willing to conduct mobile learning through Wechat applet with friendly interface and rich content. 64.76% of students take the initiative to add some teaching procedures to assist learning; More than 71.22% of the students believe that the combination of online and offline teaching can achieve better results.

![Figure 1 preferred method of knowledge acquisition](image1)

![Figure 2 Favorite teaching methods](image2)
Therefore, whether from the function of the small program itself or from the acceptance level of students, it is completely feasible to use Wechat applet for auxiliary course teaching.

3. Application strategy of Wechat applet in "database application technology" course teaching

According to the constructivist learning theory, the role of the teacher is only that of a facilitator, and what we want to cultivate is the ability of students to learn actively. Figure 3 is the path model of Wechat applet applied to course teaching designed according to the mixed online and offline teaching mode, which is divided into three modules: knowledge transfer before class, knowledge internalization in class, and ability improvement after class.

![Figure 3 path model of WeChat applet applied to course teaching](image)

3.1. Knowledge transfer before class

The course content of "database application technology" is composed of four knowledge systems: basic concept and data model of database, database creation and operation of addition, deletion, modification, database programming and database security. WeChat mini-program is suitable for displaying teaching videos, pictures and pictures within 10 minutes to facilitate personalized and fragmented learning of students. Therefore, we need to dismantle the knowledge system of the course to form knowledge points suitable for fragmented learning.

Each knowledge point has a clear learning objective and learning content, in the Wechat applet will be presented in the form of task list, so that students can complete the learning task according to their own time before class, for the smooth development of classroom teaching to make adequate preparations. Automatic reply is set in the small program of WeChat. When students are confused about a certain knowledge point or feel difficulty in learning before class, they will input keywords to query, and the background of small program will automatically extract relevant content according to the keywords to reply, so as to assist students to complete the pre-class study.

| First level menu | Second level menu | Fragmented knowledge | Presentation |
|------------------|------------------|----------------------|-------------|
| Course           | Basic database concepts and data models | Basic database concepts, data models, paradigms | Study task list |
| Database creation and add, delete, change and check operations | The installation of Mysql database configuration, database creation management, data type, data table is created, the modification of data table, the table of constraints, the index of the table, insert data, update data, modify data, single table a simple query, query conditions, grouping aggregation query, query, join queries, outer join query, joint query, query, view the application | Study task list |
| Database programming | Stored procedures, variables, process control statements | Study task list |

Table 1 custom learning menu Settings
In order to make learners have a better user experience, we created a custom menu to show each knowledge point in different levels, and added the module of second-level certificate, combining our teaching closely with the certificate, providing some help for students’ certificate. This WeChat applet Settings menu there are three level, course learning, secondary research, troubleshooting, course under the menu according to the knowledge system set up four secondary sub menu, click to jump to page, the relevant modules from learning tasks, learning materials and micro video lesson three aspects to render the fragmented knowledge. Table 1 lists the Settings of the custom menu and gives the fragmented knowledge points of the course learning module.

3.2. Internalization of knowledge in class
Using statistical analysis the background of WeChat small procedure, teachers can be precisely statistics of the number of students to watch the video, learning tasks, learning data reading frequency and completion before practice, thus further analysis under control of active and passive learning groups, tease out a certain knowledge of the known and unknown. Known unknown learners and learners. Based on the specific learning situation of learners, teachers can set classroom learning problems in different levels, and push different learning items to different objects by using the message push function of Wechat applet. Students in the physical classroom after completion of the basic classroom learning can be individual or team to push the inquiry-based learning way to complete the project, teachers can observed the progress of students at any time, for the universality problem, can carry out various kinds of discussion, communication, mutual cooperation did not complete the teaching task, so as to promote knowledge internalization in the class.

3.3 Ability improvement after class
According to the students’ learning situation observed in the classroom teaching process, analyze and sort out the knowledge points that are easy to make mistakes in the students' learning process and the knowledge points that are difficult to grasp, and adopt group discussion and probing case teaching method to overcome them, so as to cultivate students’ ability to analyze and solve problems and improve their practical application ability.

4. Application effect of WeChat in "database application technology" course teaching
Wechat applet is a new form of mobile learning, using Wechat applet to assist teaching, is a powerful means of information teaching. It breaks the time-space limitation of the traditional classroom, provides an interactive teaching platform for the interaction between teachers and students, and makes the teaching process more active and vivid. Students can use their spare time for fragmented learning, consolidate and improve the teaching content at any time and anywhere, which greatly improves the learning efficiency and thus the learning effect of the whole course.

5. Conclusion
Through the teaching practice of "database application technology” course, it is proved that the use of Wechat applet to assist teaching has outstanding advantages for cultivating students’ active learning ability and unity and cooperation ability, and is also easy to implement in the course teaching. It is an effective auxiliary means of classroom teaching and can be popularized and applied in other courses. Of course, as a teacher, we should focus on teaching analysis and design and control of teaching content, and in the application of auxiliary teaching means, we need to adhere to the appropriate, moderate principle, so as to better achieve our teaching objectives.
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