Research on the Blended Teaching Practice Based on the Ketangpai Network Teaching Cloud Platform

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Abstract. The Ketangpai cloud teaching platform gives full play to the ability of teachers and students to carry out teaching design, and can fully manage all teaching activities before, during and after class. It is a very practical and effective blended teaching tool. Taking the course "Application of Excel in business" as an example, the blended teaching practice and blended teaching investigation evaluation were carried out by using the Ketangpai cloud teaching platform. Through the exploration and practice of this blended teaching, the ability of Excel data processing and business management of students were effectively improved, the ability of students' autonomous learning, cooperative learning and inquiry learning were cultivated, enhanced the spirit of students' diligent study, self-discipline, overcoming difficulties, being willing to help others and striving for perfection, realized the transformation of students from shallow learning to deep learning. It fully verified the positive role of Ketangpai cloud teaching platform in blended teaching.

Keywords: Ketangpai, network teaching cloud platform; Blended teaching; Teacher and student; Application of Excel in business.

1. Introduction
At present, China's university teaching is mainly based on Teachers' lectures and students' passive learning. How to change the teacher's lecture to student-centered learning is a key issue that the university teachers pay close attention to [1]. With the development of smart phones, iPads and other network mobile terminal devices and 4G, 5G and Wifi networks, some companies also timely developed the network teaching cloud platform. The network teaching cloud platform has the functions of convenient for teachers to upload teaching resources, display teaching resources, conduct classroom interaction, convenient for teachers to publish announcements, students to upload homework, stage examination, teaching evaluation, learning data analysis, etc., covering all teaching links before, during and after class. Using mobile devices, students can log in to the network cloud platform at any time to study independently, complete homework, and conduct teaching evaluation, which can fully mobilize the initiative and enthusiasm of students' learning, and make students change from the subconscious learning to the deep learning of active thinking [2].

In this paper, the application of Excel in business can be taken as an example to carry out blended teaching practice in the online cloud teaching platform classroom.

2. Course Construction of Excel Application in Business
Application of Excel in business as a general course, the main goal is to train students to master the data processing ability required by the study of professional courses. Through the case design, calculation and analysis in production, sales, human resource management, financial management and national
economic management, the students' comprehensive ability of analyzing and solving problems is cultivated, so as to play a role in social participation under the solid data analysis foundation. In order to facilitate students to understand the case and adapt to the needs of work quickly, this course designs Red Mars Group Company according to the actual business of an IT listed company. Red Mars Group was a multinational company that produced computer hardware products, covering production, sales, human resource management, financial and other business processes. The national economy management module uses Excel data tools to analyze the correlation and regression model between China's real estate development and GDP in the past 23 years, and gives solutions [3].

This course contains both excel knowledge points and enterprise management knowledge. It is necessary to build rich course resources to ensure the smooth progress of course teaching and enable students to understand and accept. The teaching resources such as syllabus, PPT documents, videos, examination question database have been constructed in the course, etc. The syllabus specifies the training objectives of the course, the key and difficult contents of each chapter and the teaching methods adopted. The PPT document of classroom teaching included the key content and case analysis of each teacher's classroom lecture. The video included MOOC and micro video. MOOC is a video recording of the whole process of a teacher's lecture. The micro video included basic excel operation, function explanation and case explanation. The examination question database included single choice, multiple choice, filling in the blank, other theoretical questions and computer operation questions, which was used to test the learning effect of students.[4]

3. Blended Teaching Practice Based on Ketangpai

The online learning platform of Ketangpai was different from other online education platforms. This platform was mainly composed of teachers and students. The platform itself only provided platform services, did not participate in the design of teaching activities, and did not provide relevant curriculum resources. All the design of teaching activities can be the control of the teachers themselves. The participation of teachers and students is strong and easy to use, which can fully show the individualized teaching of teachers and students. Teachers can log in to the Ketangpai platform through PC, laptop or even mobile phone at any place to carry out online live learning, online Q & A and other teaching activities.

Next, will introduce the important links of online teaching based on Ketangpai.

3.1. Ketangpai Cloud Platform Registration

In order to carry out teaching in classroom, we must first register in the cloud platform of Ketangpai, which is divided into teacher registration and student registration. Teachers and students can register by email, phone number or scanning Wechat QR code. After the teacher registers, to create a class on the cloud platform of Ketangpai to generate the course code and two-dimensional code. The registered students enter the course code or scan the course two-dimensional code to join the course class created by the teacher. [5]

3.2. Teachers' Work

3.2.1. Preparation before Class. Teachers can create multiple classes on this platform, upload relevant curriculum resources in the preparation area, and design curriculum activities. If more than one person teach a course, you can use this platform to prepare lessons collectively and share resources.

3.2.2. Design Teaching Links. The teacher can design the teaching activities of each class, including the following contents: adding interactive links in the PPT, which requires the teacher to design questions and requirements in advance; creating test papers, conducting random quiz according to the content of the class; grouping students and designing discussion group topics.[6]

3.2.3. Interaction. There are many forms of interaction in class: test question interaction, PPT interaction and rush to answer. In class, the teacher issues questions, and the students use their mobile phones to answer questions or express their opinions. After the teacher issued the question, the system will
automatically count the time. You can immediately see the accuracy of the objective question and preliminarily understand the distribution of students' knowledge points. For subjective questions, students only need to input the answers with their mobile phones to complete the interaction with teachers, and teachers can randomly spot check, on-site comment on the mastery of each knowledge point. In the public discussion area, students can discuss problems with each other, and in the discussion area, teachers' PPT can be synchronized to students' mobile phones by adding a bullet curtain to activate the classroom atmosphere. Class roll call is also a variety of forms, and can be assessed according to the records of students' answering questions.[7]

3.2.4 Attendance in Class. Attendance methods include traditional attendance, digital attendance, GPS attendance and QR code attendance. We can also generate class attendance records through examinations.

3.2.5. Homework Submission and Feedback. The time for students to submit homework is controlled by themselves. Teachers only need to set the deadline for submission of homework. Students have only one chance to submit homework. After submission, they will not be allowed to submit again. If they need to modify, they can only communicate with the teacher, return the homework, and automatically check the duplicate when submitting the homework. After the semester, they will automatically collect the homework submitted by each student to form a complete set. It also showed the times of teacher's correcting and recording. Students can query at any time and place.

3.2.6. Statistics of Students' Using Teaching Resources. There will be a lot of data in any course. Teachers can provide students with data to assist teaching, but whether students check is the concern of teachers. This platform will carry out big data statistics, and can check the use of students' download and sharing resources.

3.2.7. Communication between Teachers and Students. Through the "private letter" function of Ketangpai, students can directly contact with teachers or students, and solve the problem of poor communication between students and teachers. Through platform data statistics and group exchange information statistics, teachers can timely understand the blind area of students' learning and analyze the reasons. Teachers can also enter the student's personal answer interface for individual counseling, and adjust the difficulty of teaching resources according to each statistical data.[8]

3.2.8. Webcast. In the traditional classroom, teachers can make full use of the functions provided by the classroom platform to teach and interact in the classroom, and walk to the students in the classroom for mobile lectures. It can also use the network to carry out live teaching. Teachers and students can carry out online live teaching at home or in an independent space where they can access the Internet. All functions of the classroom dispatching platform can be used during the online live teaching, such as remote attendance, remote random test in class, bullet screen interaction, software operation, question answering, etc., students use mobile phones, iPads, laptops to learn.

3.3. Student Learning
In learning the course of Excel application in business, students must give full play to their initiative, and can carry out independent learning, cooperative learning and discussion learning, and actively use smart phones to carry out pre class preview, in class interactive discussion, after class review and inquiry learning.[9]

3.3.1. Learning before Class. Students should make full use of the teaching resources placed by teachers on the cloud teaching platform in Ketangpai to learn in advance, fully understand the contents to be explained in the classroom, operate the basic excel operations and cases involved once, discuss with other students or teachers in Ketangpai to solve the problems in time. For some special difficult problems that are not easy to discuss and understand in the network, they can be recorded and listened to the teacher carefully in class.
3.3.2. Learning in Class. Listen carefully, actively use smart phones to participate in classroom testing, classroom interaction, teaching evaluation, actively conduct on-site discussion, deeply understand some key issues and case content, and understand the content of the teacher's classroom explanation.

3.3.3. Learning after Class. Complete the assignment carefully and timely, and submit the assignment to the cloud teaching platform in Ketangpai within the specified time, and check the correction and feedback of the teacher's assignment in time. Make use of the teaching resources on cloud Ketangpai teaching platform and related Internet excel technology platform to expand learning, and constantly improve their Excel data analysis ability.

4. Blended Teaching Practice Evaluation

Compared with the last teaching effect based on the teacher's lecture mode, the blended teaching effect based on the cloud platform of Ketangpai teaching has increased the excellent rate of curriculum performance from 30% to 41%, the average score from 77 to 85, and the students have achieved better learning effect. On the basis of achieving better learning results, investigated students' acquiring Excel data processing ability (including basic operation, function calculation, case analysis, etc.), mastering learning methods (four indicators of active learning, inquiry learning, cooperative learning, case learning), improving learning spirit (five indicators of diligent learning, self-discipline, overcoming learning difficulties, helping others, and refining) and the positive role of Ketangpai cloud platform in the process of blended learning[10]. The questionnaire questions is shown in Table 1.

| Question number | Survey topics                                                                 |
|-----------------|-------------------------------------------------------------------------------|
| 1               | Improved Excel data processing ability (including basic operation, function calculation, case analysis, etc.) |
| 2               | Improved the ability of active learning                                       |
| 3               | Improved the ability of inquiry learning                                      |
| 4               | Improved the ability of cooperative learning                                  |
| 5               | Improved the ability of case study                                           |
| 6               | Strengthened the habit of diligent study                                      |
| 7               | Strengthened the spirit of study self-discipline                              |
| 8               | Strengthened the ability to overcome learning difficulties                   |
| 9               | Strengthened ability to help others                                          |
| 10              | Strengthened the practice of keeping improving                                |
| 11              | Ketangpai played an positive role in the process of blended learning         |
| 12              | For the mobile teaching, your suggestions are:                                |

Table 1. Questionnaire.

According to the survey questions shown in Table 1, 78 students who participated in the blended learning were investigated. In addition to item 12 in Table 2, the results of the first 11 items are shown in Table 2. In order to save space, in Table 2, the name of specific investigation topic is omitted, and only the specific question number is used to represent the corresponding investigation topic.
From table 2, it can be seen that for the first survey index: improved Excel data processing ability (including basic operation, function calculation, case analysis, etc.), 94.87% of the students very agree it, 5.13% of the students agree it, indicating that 100% of the students in this teaching practice have improved Excel data processing ability. For the second survey index: improved the ability of active learning, 93.59% of the students very agree it, and 6.41% of the students agree it, indicating that 100% of the students in this teaching practice have improved their active learning ability. For the third survey index: improved the ability of inquiry learning, 91.03% of the students very agree it, 6.41% of the students agree it, 2.56% of the students basically agree it, indicating that at least 97.44% of the students in this teaching practice have improved their ability of inquiry learning. For the fourth survey index: improved the ability of cooperative learning, 89.74% of the students very agree it, 7.70% of the students agree it, and 2.56% of the students basically agree it, indicating that at least 97.44% of the students have improved the cooperative learning ability in this teaching practice. For the fifth survey index: improved the ability of case study, 87.18% of the students very agree it, 10.26% of the students agree it, 2.56% of the students basically agree it, indicating that at least 97.44% of the students in this teaching practice have improved the ability of case study. For the sixth survey index: strengthened the habit of diligent study, 93.59% of the students very agree it, and 6.41% of the students agree it, indicating that 100% of the students in this teaching practice have strengthened the habit of diligent study. For the seventh survey index: strengthened the spirit of study self-discipline, 92.31% of the students very agree it, 6.41% of the students agree it, 1.28% of the students basically agree it, indicating that 98.72% of the students in this teaching practice have strengthened the spirit of study self-discipline. For the eighth survey index: strengthened the ability to overcome learning difficulties, 88.46% of the students very agree it, 8.97% of the students agree it, 2.56% of the students basically agree it, indicating that at least 97.44% of the students in this teaching practice have strengthened their ability to overcome learning difficulties. For the ninth survey index: strengthened ability to help others, 89.74% of the students very agree it, 5.13% of the students agree it, 5.13% of the students basically agree it, indicating that 94.87% of the students in this teaching practice have strengthened ability to help others. For the tenth survey indicator: strengthened the practice of keeping improving, 89.74% of the students very agree it, 5.13% of the students agree it, 5.13% of the students are basically in favor of it, indicating that 94.87% of the students in this teaching practice have strengthened the practice of keeping improving. For the 11th survey indicator: Ketangpai played a positive role in the process of mobile learning, 96.15% of the students very agree it, 3.85% of the students agree it, indicating that 100% of the students thought that Ketangpai cloud teaching platform played a positive role in blended learning in this teaching practice.
For the 12th survey content: students' suggestions. Many students suggested that more teachers should adopt Ketangpai cloud teaching platform for classroom management, strengthen the development of mobile teaching, and improve the teaching effect and quality.

5. Conclusion
Through the exploration and practice of this blended teaching, the ability of Excel data processing and business management of students were effectively improved; the ability of students' autonomous learning, cooperative learning and inquiry learning were cultivated; it strengthened the spirit of students' diligent study, self-discipline, overcoming difficulties, being willing to help others and striving for perfection; it realized the transformation of students from shallow learning to deep learning; it fully verified the positive role of Ketangpai cloud teaching platform in blended teaching.

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