

Practice and Exploration of the Flipped Classroom in the Teaching of Financial Software Application Course

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Abstract—Internet plus has added new features to the flipped classroom, making the flipped classroom a new popular orientation of teaching model reform. Taking the “Financial Software Application” course of Guangdong University of Science and Technology as an example, the paper discussed the whole process and the teaching content of the flipped classroom from three stages, that is, pre-class preparation, internalization in class, and feedback after class, and put forward suggestions and a new evaluation system for flipped classroom reform. It provided a reference for the reform of the curriculum of application-oriented undergraduate colleges and helped schools improve the quality of teaching.

Keywords—flipped classroom; financial software application; teaching mode; suggestion

I. INTRODUCTION

In 2017, the value of the internet education market in China reached 250.2 billion yuan, increasing by 56.3 percent from a year earlier, according to the report, *Thematic Analysis on Internet Education Market in China in 2018*, published on Baidu Assembly of Partners. In next few years, the internet education will remain growing at a high speed. The education is undergoing upgrading and transformation from the traditional offline teaching to the combination of offline and online education. By integrating virtuality and reality, it not only breaks the limitation of time and space, but also diversifies the teaching methods, strengthens the interaction in teaching forms and shares educational resources.

In 2010, Program for Medium and Long-term Accounting Talent Development (2010-2020) issued by the Ministry of Finance pointed out that, currently, the structure of accounting personnel in China was beyond reasonable, as the accounting talents of calculating type was all but saturated, whereas the complex ones in high level are in short. The system and market management for the development of these personnel are not perfect [1]. Therefore, the government, together with universities, enterprises and all walks of life, have worked hard for 10 years to train a number of high-level management personnel who have international vision and are equipped with related knowledge about inner control and information technology, as well as finance, accounting and market rules. In

order to enhance our influence in the field of international accounting, Ministry of Finance, in May 2018, formulated Implementation on the Cultivation of International High-End Accounting Personnel, selecting high-end talents with prominent professional competence and rich experience who master English and accounting disciplines at home and abroad in universities and colleges, government departments, enterprises and institutions. Those who participate in this selection shall take many assessments like written exam and interview. Candidates will be trained to join in foreign academic exchange, as well as help to research and formulate the accounting standard at home and abroad. Therefore, in the era of “Internet plus”, the financial management undergraduate in universities and colleges should seize the opportunity, update teaching ideology and use modern technology, such as flipped classroom, MOOC, micro-classroom and visual reality, to innovate the mode to cultivate personnel[2].

II. THE FLIPPED CLASSROOM TEACHING MODE

In foreign countries, the Internet plus exerts huge effect on the technical approaches and methods to train talents in universities, so the internet courses become large-scale and integrate online openly, in which the most influential one is MOOC. MOOC was proposed by two Canadians, Dave Cormier and Bryan Alexander and promoted in U.S.A. In 2010, Harvard University first launched a series of internet courses. Then, other world-class universities like Oxford University, Yale University, Massachusetts Institute of Technology and Princeton University joined MOOC. With the media publicity, it soon raised general attention of the society, becoming a heated topic in education. In China, we have put it on the agenda that we would realize the training mode of applied undergraduate personnel through modern information technology methods of education. Ministry of Education, in 2010, formulated and published Educational Informationization Development Plan in Ten Years (2010-2020). It indicated that we should integrate information technology with education, establish information teaching environment and innovate teaching methods. Since the online video courses were published by Harvard University and other world-class universities in 2010, the first “video courses of universities in China” had been launched on websites including iCourse, Sina

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and NetEase in November 2011. Meanwhile, we have translated and introduced courses from world-class universities, TED and Khan Academy, which could be downloaded for free by netizen on related websites of these schools[3]. The major features of MOOC are big data on campus, flipped classroom, teaching by robots, breaking educational barriers, assignments and tests given by computer randomly, remedying interactive defects between teachers and students by information technology, enhancing students' independent study ability and cooperation through learning community, online and offline discussion.

MOOC provides rich resources for flipped classroom teaching. The flipped classroom was initiated by Salman Khan, a Bangladeshi-American, who recorded videos by himself to teach his nephew and niece, and achieved effective outcome. To help more children to get the access to this educational resource, he put his first teaching video on the YouTube in November 2016, and established the website Khan Academy in 2007. It was the chemistry teachers at Woodland Park High School in Colorado, Jon Bergmann and Aaron Sams, that made real attempts to "flip" the traditional classroom teaching. Beginning in 2007, they uploaded the course videos and PPT courseware to the Internet, so that students can watch the videos to preview before the class, and mainly discuss and practice in class. This would strengthen understanding of the students about the course knowledge and improve their enthusiasm to study. The flipped classroom was first carried out in primary and secondary schools in the United States, and was successfully applied in the universities since 2007, such as Miami University, Middle Tennessee State University, etc.[4]. Gerald C. Gannod of the Department of Computer Science at the University of Miami and other teachers adopted the flipped classroom teaching method in courses like Software Engineering. They separated the course content into 65 paragraphs of podcast lecture materials in advance, and set the length of each podcast within a few dozen minutes. Students can learn the teacher's podcast lectures for many times in the extracurricular time. In the classroom, students can ask the teacher about their confusion during self-study, and the teacher arranges the tasks, that allow the students to complete on the spot. This enhances the interaction between the teacher and the students, and students themselves. The flipped classroom also provides convenience for professional experts [5].

III. DESIGN OF TEACHING PROCESS OF THE FINANCIAL SOFTWARE APPLICATION BASED ON THE FLIPPED CLASSROOM

The flipped classroom divides the teaching into three stages, namely pre-class, in-class, and after-class. Before the class, the students learn the micro-video recorded by the teacher or the MOOC online course to understand the key knowledge of the course and the operating skills of the software. During the class, students operate and discuss about the financial software through task assignment and role play, which enables the knowledge truly absorbed by students. After the class, to further consolidate the key knowledge and operational skills, students need to finish a certain amount of homework, and submit it to the World University City Cloud Space Platform [6].

A. Pre-class design

According to the teaching content, the teacher selects or edits the pieces of the relevant courses from the MOOC platform for the students to prepare for class. For courses without the matched online teaching materials, teachers can record their own videos with video recording software, mobile phones, and video cameras. In order to prevent students from visual fatigue, the micro-course video should last about 10-15 minutes. Moreover, the video file should be small for copying and saving. The financial software application course can be divided into seven modules: system management, general ledger system, report management system, salary management system, fixed asset management system, procurement and response system, sales and receivable system. Each module contains multiple sub-modules whose videos are within 15 minutes. All these videos and resources of courses have been uploaded onto the "Financial Management Professional Resource Library" platform of Guangdong Science and Technology College, and students on- and off-campus can download and learn them via mobile electronic devices such as computers, mobile phones or iPads whenever and wherever they prefer. In addition to recording micro-video courses, teachers also need to carefully prepare teaching aid resources, such as courseware, experimental cases, course standards, lecture plans, training instructions, exercise books, etc., which have been uploaded to the online platform of the World University City. For example, the Finance and Economics College of Guangdong University of Science and Technology has newly built the "Financial Management Professional" resource library, and uploaded more than 30 basic compulsory courses, professional compulsory courses, professional optional courses, professional group selection courses, and professional practice courses to the platform, for students to preview and review. If students encounter knowledge points that they do not understand during the preparation, they can discuss with each other or check the information online to find answers to the questions. Through this process, students will master the methods of self-learning, cultivate the habits of teamwork, and improve their ability to find solutions independently. For questions that cannot be solved, they can ask the teacher through QQ, WeChat, and the World University City Cloud Space Interactive Communication Platform to strengthen exchanges and bonds between teachers and students.

B. Internalization in class

In class, the teacher has become the learner rather than the lecturer, while the student has transformed from the passive recipient of knowledge to the protagonist of learning. Teachers should design the topic of classroom discussion, inspire students to think, keep the discussion on the right track in time, and ensure that the classroom is carried out around the topic. According to the needs of the project, the students are classified into several groups (virtual companies) where there are different positions such as financial supervisor, cashier, cost accounting, tax accounting, etc. Through the work assignment and cooperation, students should complete the economic business process of an enterprise during an accounting period. When finishing the business operations, each group need to send representatives to demonstrate operation the software, and share difficulties and solutions

during learning process. Members of other groups should watch and ask questions on the spot. In the last part of the class, teams conduct mutual evaluation. Then the teacher summarizes the class and gives a comprehensive evaluation of the presentation of each group. For completely theoretical topics, teachers can also use the new classroom management tools such as Rain Classroom and Ketangpai to test in the class, so as to understand how much the students have mastered the content of the lectures, and make adjustment of the progress of the lectures and details. In this way, knowledge is internalized and transformed into the students' ability step by step.

C. Consolidation after class

After the class, students are required to sort out the key knowledge of the course by the mind mapping tool. In some projects, students could be asked to write to share their experiences and feelings. If condition permits, teachers can lead students to enter the school-enterprise cooperation company for on-site experiential learning.

IV. SUGGESTIONS ON APPLICATION-ORIENTED UNDERGRADUATE FINANCIAL MANAGEMENT MAJOR FLIPPED CLASSROOM TEACHING

A. Improve teachers' informatization-based teaching level and classroom control ability

In the flipped classroom teaching mode, knowledge points should be introduced to students before the class through the micro-course online video. This requires the teacher to be proficient in using the commonly used micro-course production tools such as Camtasia Studio, PPT. Camtasia Studio can be used for screen recording, video editing, menu production, recording, adding subtitles, video compression and video viewing, etc. PPT can be adopted for courseware production and recording. In addition, teachers should also do better in organizing and controlling the class, to stimulate students' enthusiasm for learning and encourage students to actively participate in classroom interaction. However, they should also maintain the normal and stable classroom discipline, allowing students to have heated discussion and intense debate without disrupting the class order. In case of student irregularities, they should stop them in time to keep the normal teaching.

B. Improve students' ability to learn independently

To carry out Flipped classroom, students should have strong self-control ability, and have learned the knowledge specified by the teacher before the class and watched the micro video. In this way, teachers can skip the knowledge introduction to conduct sub-project teaching. Otherwise, it is difficult for students who do not understand the class content to keep up with the pace of flipped the classroom. In order to urge students to prepare for the class in advance, teachers can monitor the class by checking video viewing rate, pre-testing and other methods. Set quick response questions and required questions according to the content of the micro-course video, and give rewards or punishment based on the answer by adding or deducting the individual and his group's usual scores. The

scores of each group are updated and projected in real time to foster a positive atmosphere of competition among the students.

C. Take care of backward students

In the teaching, teachers should teach students in accordance with their aptitude, and pay attention to backward students. In the speech session, each student, rather than a few outstanding students, should have the opportunity to give a speech on the stage. To this end, teachers must pre-allocate class hour, and ensure that every student in each group has the opportunity to show their work and make speeches in a whole semester, so that every student can enjoy the flipped classroom.

D. Optimize the evaluation system of course assessment

At present, many colleges and universities still conduct final assessments, of which 40% are usual scores and 60% are final exam results. The usual grades are mainly composed of 30% attendance + 40% of assignments and 30% of classroom performance. While the final exam result is mainly determined by test score. The financial software application is a very practical course whose final exam is based on hands-on exercises. Some schools have purchased an examination system that is compatible with the course to organize the examinations. The examination system randomly extracts questions from the preset test library, which effectively assesses the practice ability of students, and greatly reduces the difficulty and workload of teachers in scoring practical exercises. However, for schools that do not have such a financial software test system, the final evaluation of the course is a problem for teachers. At present, students are asked to save screenshots of important documents (such as invoices, accounting vouchers, trial balances, reports, etc.) in a folder or in a WORD document, and compress it and submit to teachers when finishing the test. The teacher manually scores the key items based on the student's screenshots. This traditional evaluation mode is not reasonable under the teaching mode of flipped classrooms and needs to be reformed. In the new assessment criteria, the usual performance accounts for 60% of the overall assessment score while the final exam score accounts for 40%. The usual grades consist of pre-class preparation, in-class performance, and after-class learning (as shown in TABLE I). Among them, the main assessment of pre-class preparation is the video learning situation and the completion of the work before class, which are mutually important. The performance in the class is mainly composed of five sub-modules: classroom presentation, module operation, case discussion, classroom attendance, and peer-to-peer evaluation. Each sub-module accounts for 20% of the total score. After-class study is mainly composed of home and teacher evaluation, accounting for 70% and 30% respectively. As for the final exam, we can change the traditional classroom assessment method, and design case practice problem for each student in the form of large assignments. For example, each student uses his own name as the name of the set of tests and the operator, and the last letter of student number as the account number and the operator number. Then create test set and complete the business of a small business including the general ledger, report forms, salary, fixed assets, receivables, and payable modules. One month is allowed for students to finish the whole process, and finally submit the backup file.

This method can comprehensively examine students' mastery of the software and their ability to understand the business, and can also avoid the plagiarism among students.

TABLE I. THE USUAL PERFORMANCE EVALUATION SYSTEM BASED ON FLIPPED CLASSROOM

Evaluation stage	Item	Weight
Pre-class preparation(account for 20% of usual performance)	Learn from video	50%
	Work before class	50%
In-class performance(account for 60% of usual performance)	presentation	20%
	Module operation	20%
	Case discussion	20%
	Attendance	20%
	Peer-to-peer evaluation	20%
After-class learning(account for 20% of usual performance)	homework	70%
	Teacher assessment	30%

V. CONCLUSION

The internet plus has made possible the flipped classroom which breaks through the traditional teaching mode and integrates pre-class online learning, classroom discussion and display, and after-class feedback evaluation. The teacher guides the students and controls the class to achieve the original intention of flipped the classroom. Of course, there is no solution that fits a diversity of problems. Flipping classroom

teaching mode is not applicable to all courses, nor is it appropriate for all the content of a course. Teachers should capitalize on it appropriately with proper objects, people, time, and place to achieve the best teaching performance.

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