

Teaching Reform of 《Applications of Excel in Accounting》 based on "PBL+MOOC" Mode

Mingzhu Luo ^{1,a}, Bei Xie ^{2,b*}

¹Guangdong University of Science and Technology, College of Finance and Economics, Dong Guan, China

²Guangdong University of Science and Technology, College of Computer Science, Dong Guan, China

Abstract: With the updating of the concept of education and the innovative application of science and technology in the field of education, the education teaching mode is also iterative, for the current "Excel in Accounting" teaching mode is too traditional and other teaching status quo, this paper integrates the "PBL + MOOC" model to explore its reform design in the 《Applications of Excel in Accounting》 teaching and demonstrating the specific application of the actual teaching and learning, and finally through the analysis of the learner's participation and completion of homework on the effectiveness of the implementation of this mode of teaching and learning evaluation, in order to improve the teaching effect and quality of the course.

1. Introduction

The improvement of undergraduate education quality has been given a prominent position by education reform. Many undergraduate education reforms emphasize interdisciplinary knowledge and skill cultivation, enabling students to more comprehensively cope with complex social problems. In addition, education reform is increasingly inclined to integrate information technology and adopt online education, virtual laboratories, and other methods. This not only improves teaching effectiveness, but also cultivates the skills that students need in the digital age. Problem-Based Learning (PBL) is a teaching method based on problem solving. Iryna Lytovchenko et al. studied online problem-based learning and found that students' attitudes towards problem-based vocabulary learning were positive[1]. Man Xiaou's study showed that through PBL, students are more likely to achieve better results in terms of depth and breadth of knowledge, and the teaching method is conducive to playing the role of the main body of students and cultivating the spirit of teamwork[2]. Aras Bozkurt et al. revealed the trends and mode[3], and Chinese MOOC has formed a huge educational resource base and a powerful online education system under the support of the government and the promotion of major educational institutions, but behind these developments there are also hidden problems such as low student participation, uneven course quality and low course completion rate[4]. The organic combination of the two teaching modes of PBL and MOOC breaks the traditional boundaries between inside and outside the classroom, and synthesizes the advantages of the two teaching methods to maximize the use of time and achieve better teaching results[5]. Application of Excel in Accounting" is a comprehensive and operational course

designed to train students to use Excel in solving financial accounting problems in the skills, and more importantly, to train students in experimental operation ability, comprehensive analysis of problems and problem solving ability, and in the traditional teaching methods of the course, teachers generally reflect the use of the teaching form is too monotonous, and the students' learning activities are also The traditional teaching method of this course, teachers generally reflect that the teaching form is too monotonous, and the learning activities of students are also monotonous, and the effect of learning is not obvious, or reduced to pure operation class teaching. Therefore, it is of high research value to explore a teaching mode with good learning effect to improve the effectiveness of teaching and learning in this course. Therefore, this paper carries out the course reform of 《Applications of Excel in Accounting》 based on "PBL+MOOC" mode, which can provide a teaching reference experience limited to the scope of the discipline and based on the characteristics of the course.

2. Course reform design of 《Applications of Excel in Accounting》 based on the model of "PBL+MOOC"

2.1. Course Resource Design

According to the course characteristics of this course and the related MOOC resources, the course resources are designed in the form of learning videos, operational materials, rich text and so on.

^a2657952439@qq.com, *Corresponding author: ^b491053801@qq.com

2.1.1 Learning Video

The learning video of this course consists of two parts, on the one hand, there is a QR code of operation video at the end of the textbook chapters, so that students can scan the code to watch the video, and on the other hand, there are related video courses on China MOOC.

2.1.2 Operational materials

Establish the course group team in the Learning Channel, for the course learning content based on the Learning Channel platform in the resource library to establish a class-sharing operation database, these operation materials can be downloaded from the platform to use.

2.1.3 Rich Text

Through the way of posting discussions on the Super Star Learning Pass platform, students themselves take the initiative to summarize the key points of knowledge of each course, which enables students to review their own knowledge, and also enables other students to share the knowledge summaries on this platform and reflect on their own learning content and effects.

2.2. Course Activity Design

Based on the "PBL+MOOC" model and the characteristics of the course, the main types of teaching activities and the corresponding types of learner learning in this course are shown in Figure 1 and Figure 2 below:

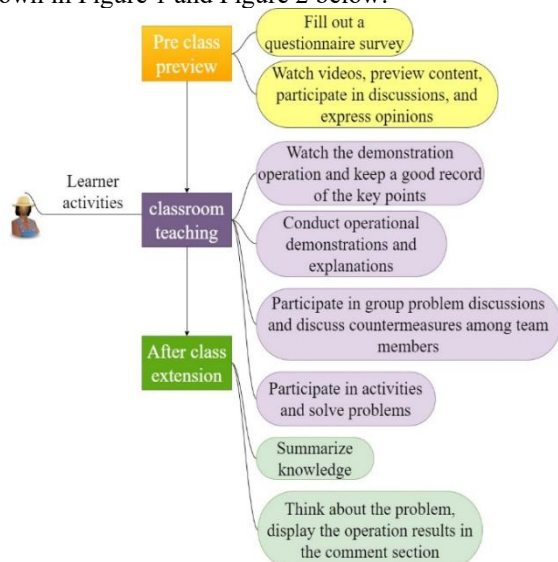


Figure 1. learning activities of 《Applications of Excel in Accounting》 based on "PBL+MOOC" model.

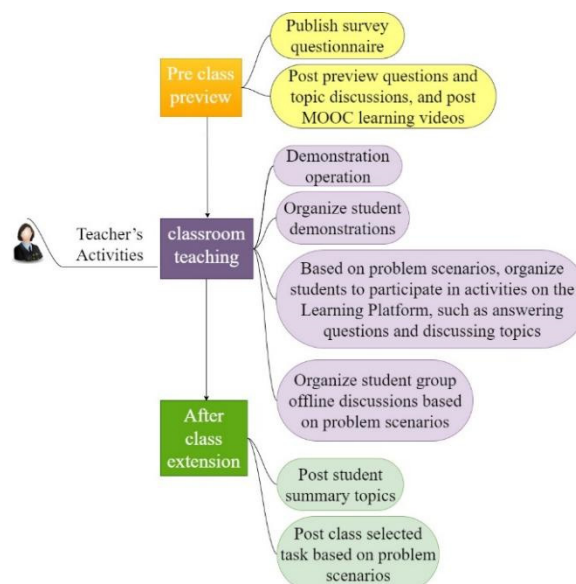


Figure 2. Teacher's Activities of 《Applications of Excel in Accounting》 based on "PBL+MOOC" model.

2.3. Course Problem Scenario Design

The questions in the course were designed for the pre-course, in-course and post-course sessions respectively. The questions are generally in the form of study pass topic discussions, case reflections, video viewings, and so on. For example, before the class in order to guide students to effectively prepare, in the study of Excel pivot table function, in the study of the pass released "data can be vivid?" Such a question, and then give three respectively using the ordinary form, insert graphics and insert pivot table / chart data operation results screenshots, for the same set of data, guide students to think about the differences between the three methods of operation, feel the power of the pivot table function, attracting students to pre-study knowledge. We also provide the video "The Powerful Pivot Table" for students to discuss "Where is the difficulty of pivot table operation?". This brings learners into the problematic situation of learning content, and also provides teachers with the teaching focus of the lesson. Another example, in the class study of Excel management of accounts receivable, students need to carry out group discussions, the release of the case-related issues, "please summarize the company's accounts receivable according to the case of the management of the problem", in the students to discuss the completion of the issue, and then released "What do you think of the Excel features After the students have finished the discussion, the topic of "What Excel functions do you think can help the company to solve these problems" will be released for discussion, and the learning video of the chapter will be provided, so that the learning path based on the problem can be realized by guiding the discussion through the problem, advancing the learning process through the problem, and providing the video resources.

3. Specific Teaching Cases of PBL+MOOC Mode in 《the Application of Excel in Accounting》

In order to more clearly demonstrate the specific application of the "PBL+MOOC" model in the 《Applications of Excel in Accounting》, this chapter selects a specific class case to illustrate its realization path. To "Excel in accounts receivable management" as the learning theme, the learning objective is to enable students to have the ability to manage and analyse data, to be able to carry out the ageing analysis of accounts receivable, to be able to manage and count the basic data of accounts receivable, the use of Excel to make provision for bad debts, and to improve the awareness of risk.

Before the class, the teacher releases a questionnaire survey on the Learning Channel platform to understand the students' mastery of the course content learning, and releases pre-designed problem scenarios by posting topics for discussion on the platform, such as "What are the risks arising from improper management of accounts receivable?" and provide the background of the discussion case, asking students to analyse the possible risks from the case and express their views, and then provide the relevant MOOC learning video, asking students to watch it and answer the question "What functions of Excel can help accounts receivable management?", helping students master the learning points in advance. to help students master the learning points in advance.

In order to do a good job of curriculum reform, in the teaching process, the instructor must abandon the past fill-in-the-blank teaching, and pay more attention to the learning process of students [6]. Teachers for the pre-course survey of students' learning foundation, found that the accounts receivable record table and basic statistics for students is simple content, while the preparation of accounts receivable ageing analysis table is difficult for students, so the preparation of the accounts receivable record table is set up as a group task, requiring students to complete the preparation of the table for group discussion, and the completion of the results will be displayed in the Learning Channel platform, students can promote each other's learning by sharing their work; and For the accounts receivable ageing table, teachers need to make students understand the application of IF and AND functions and the principle of preparation, which can be set up as a quiz question or a discussion question through the Learning Channel activity, such as "How to understand the significance of the IF function in the accounts receivable ageing table?" Lead students to think, and at the same time in order to test the learning effect of students, you can let the students to demonstrate, explain the operation steps, and invite other students to summarize and evaluate the skills of its operation.

After the class is usually arranged in the form of online tasks, in the study of the content of this class, students are required to reply to the online "Tell me about the operating points of Excel management of accounts receivable" and other issues, and you can also ask the students to download the literature related to the management of accounts receivable, guiding the students to take the initiative to

utilize MOOC and other online learning resources for Self-learning.

Teaching evaluation is very important to the feedback of teaching activities, which runs through the whole process of teaching and learning [7]. So students' learning in this class are converted into course points and evaluated with numerical data, thus forcing students to treat the course more actively and positively.

4. "PBL + MOOC" model in the 《Applications of Excel in Accounting》 teaching and evaluation of the effectiveness of implementation

4.1. Analysis of learners' participation in learning

The degree of learner participation in learning is a dimension to consider the effectiveness of the implementation of the teaching mode of a course, based on the "PBL + MOOC" model, the course 《Applications of Excel in Accounting》 allows more students to become active in learning, and improves their participation in learning. As shown in Figure 3, before and after the implementation, the number of students with high composite scores increased significantly and the number of failures decreased.

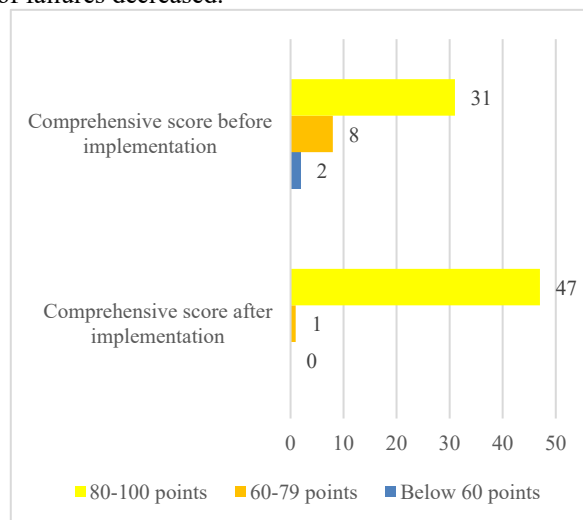


Figure 3. Comparison of comprehensive score situation

In addition, it can be found in Figure 4 that the number of topics in the course of study was significantly increased in this model, and the number of students responding to participate in the topics was improved, and the average participation in each topic was improved.

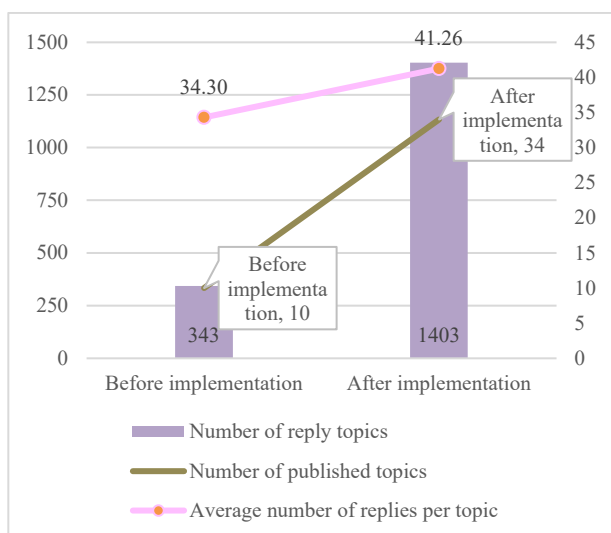


Figure 4. Comparison of topic participation

4.2. Analysis of learners' homework completion

It can also be found in Figure 5 that before and after the implementation of the model, the average score of students' homework has been greatly improved, and the completion rate of homework has also been improved.

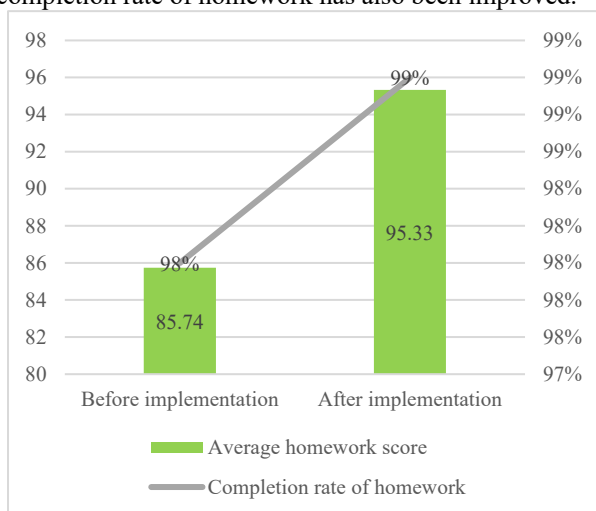


Figure 5. Comparison of homework completion

5. Conclusion

MOOC, as a large-scale open online course based on the internet and aimed at the general public, has become a disruptive innovation in the traditional education field and has also opened up a new era of online education. Especially in the context of the epidemic, its advantages in education, such as large-scale, openness, and online features, are further highlighted. However, the effectiveness of self-directed learning among students in the vast learning resources is not very good, and PBL teaching method can significantly increase communication and interaction between students and teachers and students, inspire students to learn how to think. PBL teaching method is problem oriented, making up for the blindness of MOOC teaching method, allowing students to carry out learning in a targeted manner in front

of abundant online resources. The teaching reform method that integrates "MOOC" online resource learning with "PBL" teaching method not only retains the advantages of "MOOC" education, but also highlights the concept of "teaching as the leading and learning as the center" by integrating "PBL" method. It pays more attention to the cultivation of students' problem-solving thinking and ability, which is suitable for improving the quality of daily teaching reform. Especially for courses like 《Applications of Excel in Accounting》 with strong theoretical comprehensiveness and heavy practical teaching hours, it is undoubtedly very suitable.

References

1. Lytovchenko I , Ogienko O, Kriukova Y, et al. (2022) Online Problem-Based Learning: Possibilities for Engineering Vocabulary Acquisition in ESP Course at Technical University. *J. International Journal of Information and Education Technology*.12(9).
2. Man X O, Han K. (2023) The Application of PBL Teaching Method in the Teaching of Public Administration Courses. *J. China Metallurgical Education*, (04):28-31+34.
3. Bozkurt A ,Ela Akgün zbek, Zawacki-Richter O. (2017) Trends and Patterns in Massive Open Online Courses: review and Content Analysis of Research on MOOCs (2008-2015). *J. International Review of Research in Open & Distance Learning*, 18(5). DOI:10.19173/irrodl.v18i5.3080.
4. Wang Y F, Quan L T, He H Z. (2023) Review and inspiration of MOOC development in the United States. *J. Heilongjiang Education (Theory and Practice)*, (12):89-92.
5. Zhang S. (2020) A three-dimensional teaching model for software engineering courses based on PBL and MOOC. *J. Computer Education*, (3).
6. Yang X G, Gao T, Zeng Z G. (2022) MOOC and PBL classroom teaching integration pathway - based on organic chemistry laboratory teaching. *J. Contemporary Chemical Research*, (21):144-146.
7. Shen X, Xie J, Zhou C G. (2022) Implementation and exploration of blended interactive teaching in engineering university chemistry courses. *J. Contemporary Chemical Research*, (05).