Teaching Practice of Accounting Based on Jigsaw Teaching Combined with PBL Teaching Method

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Abstract: This paper, which takes the "Basics of Accounting" course in secondary vocational schools as an example, analyzes the problems in the process of adopting problem-based teaching method(PBL), and then infiltrates a new teaching paradigm-jigsaw teaching method, so that the two supplement and compound each other, reconciling the imperfection of PBL. Jigsaw, as a teaching method, is not only conducive to students' communication, collaboration, critical thinking and leadership skills, but also to rouse students' enthusiasm and initiative in learning.

Keywords: Jigsaw teaching method, PBL teaching method, Secondary vocational accounting, Teaching practice

1. Introduction

As stated by the outline of "China's Education Modernization 2035" issued by the Central Committee of the Communist Party of China and the State Council, all colleges and universities ought to comprehensively improve the quality of curriculum construction, strengthen the overall design of the curriculum system, promote the way of training innovative talents, and implement teaching methods such as heuristic, inquiry-based, and cooperative-style. To cultivate students' creative spirit and practical ability [1]. Practice has proved that collaborative learning is the key to developing problem-solving and innovation capabilities. Nowadays, collaborative learning has become a fashionable method, especially the PBL, which is a student-centered education method based on constructivism theory. It was originally proposed by Don Woods, a scholar at the University of Manchester in Canada, and then gradually evolved into a teaching method, which is widely used in various fields of teaching [2].

It is crucial to improve the quality of accounting personnel training in secondary vocational school to continuously explore new forms of education and promote its reform and development. "Basics of Accounting" is a comprehensive applied science, focusing on the combination of theory and practice [3].The teaching content is abstract and difficult for students to understand. However, the current accounting teaching methods are relatively backward, like case-based teaching, heuristic teaching, direct practice teaching, etc., which cannot fully mobilize students' enthusiasm for learning, and the teaching effect needs to be improved. Therefore, this paper combines jigsaw with the problem-based teaching method to design the teaching of accounting courses. In this way, it changes the teacher-centered and "indoctrination" teaching mode of traditional teaching, and highlights students' independent learning and inquiry-based learning, so as to cultivate students' comprehensive skills, improve students' interest in learning, and achieve high-level and innovative learning goals.

2. Current Situation of Accounting Teaching

2.1 Students have limited classroom places, and teachers lack experience in group teaching

On the one hand, the development of team learning requires a corresponding learning environment, such as space and time. Because the current classroom location is basically fixed, it is difficult to create an atmosphere according to the requirements of team learning, and it is subjectively difficult to develop group discussions and team learning. On the other hand, the teamwork teaching method has higher requirements on teachers, requiring teachers to have the ability to organize, guide, summarize and other control skills. Due to teachers lack teamwork teaching experience, it is difficult to carry out activities, the traditional teaching is often the first option[4].

2.2 The teaching materials are more theoretical, and the information-based teaching materials are lacking

"Basics of Accounting" is more theoretical, it is hard to meet the needs of students' practical ability. Because the accounting course is a highly practical subject, it is necessary for students to understand the accounting process and form a certain sensory understanding of it. Therefore, new-form, three-dimensional, self-learning information teaching materials are necessary. Although the existing accounting textbooks are constantly improving, they are still in case-guided textbooks, and the construction of information-based textbooks is still lagging behind.

2.3 The traditional teaching method is single, and it is difficult for students to self-explore.

The traditional teaching methods are relatively backward, and the study of accounting theory is mainly based on case-based , while the interactive and heuristic teaching is seriously lacking Furthermore, the content of accounting is not only obscure and difficult to understand, but also involves the comprehensive application of multi-disciplinary knowledge such as tax law and financial management [5]. Therefore, it is more difficult for students to absorb and understand knowledge based on a single case-based teaching.

Based on the above teaching status, this paper intends to adopt a new teaching paradigm combining jigsaw and PBL teaching methods, aiming to improve students' comprehensive learning ability.

3. Disadvantages of Problem-Based Teaching

3.1 The problem distribution is simplistic, and the assessment and evaluation mechanism needs to be improved

During PBL teaching, group members need to solve the same problems and tasks. Due to the limited time for thinking about problems, many students often think on the same key point, so that students' viewpoints are superficial and single, which they haven't been further modified, deepened and improved [6].

In addition, there is a lack of rigor ways of evaluation .In the process of cooperation, some students have the phenomenon of taking heavier tasks and being "lazy", resulting in incomplete evaluation among group members and inability to obtain effective evaluation.

3.2 High time cost and low teaching efficiency

Effective learning should gain the right knowledge in a limited amount of time. For the PBL teaching method, the time spent by students to solve a problem is far longer than the time required for traditional teaching, because students spend a lot of time reviewing literature and researching problems after the task is assigned. Although the PBL teaching method divides the whole class into groups, there is no exact group size limit, so there will be more than 10 students in a group, which directly leads to a decrease in students' sense of responsibility. At the same time, teachers also need to spend a lot of time instructing students in class, but it is difficult to get a clear answer within the group, and the teaching efficiency is low as well.

3.3 There is a high requirement for students' autonomous learning ability, and there may be a phenomenon of "lazy"

After the task is issued, students need to use the time before class to prepare materials, which requires students to have strong self-learning ability, because without the guidance of teachers, students need to collect materials and solve problems by themselves [7]. Furthermore, each student's learning habits, self-control, self-directed learning ability and knowledge level are uneven, so for group members who are not strong in self-directed learning ability, there is no knowledge reserve before class, and no in-depth reflection on problems during class, there may be a phenomenon of "lazy".

4. The advantages of jigsaw teaching method

Jigsaw teaching method was first proposed by American Professor Aronson in 1971. Its main

purpose is to mobilize the enthusiasm of each learner and enhance partnerships within students. The basic process of Jigsaw teaching method is as follows: teachers decompose teaching task points → create study groups → assign tasks to each member in the group according to the serial number → regroup members of the same task → learn and discuss tasks internally → return to the original group explain their tasks to members → teachers explain the tasks → ask questions, internalize knowledge, and share problems. In conclusion, Jigsaw is a fruitful teaching method [8] with the following advantages:

4.1 Promote students' autonomous learning and enhance students' sense of responsibility

By Jigsaw teaching, teachers' responsibilities are gradually released, student-centred, and students' autonomous learning is emphasized. Each member has different problems, and each member of the team plays an important role. In this process, the relationship between members is not a competitor, but the pursuit of mutual cooperation. If a member of the team cannot fully express his or her opinions, the final evaluation of the entire group will be affected to a certain extent, so it can effectively solve the "lazy" phenomenon of PBL teaching.

4.2 High student participation, effectively improving teaching productive

Traditional teaching is teacher-centered, and students lack a platform to express themselves. While the jigsaw teaching method students need to brainstorm ideas in the "expert group". After thinking about it, the "experts" express their own opinions, and finally have a debate to achieve a more perfect result. Afterwards, the experts returned to the original group for sharing, imparting their views to the team members in a concise language, and accepting the arguments from the team members, so that the mesh-like collaboration method can effectively improve the participation rate of students and maximize students' thinking space [9]. At the same time, in the process of student discussion, the teacher's role as a helper can maximize the teaching efficiency.

4.3 Diversified question settings and multi-dimension teaching evaluation

During teaching, each member of the group has a corresponding problem, and each member needs to cooperate with each other and work together **to** finally address the problem. In addition, its evaluation methods are also diversified. The evaluation of academic performance includes expert test and whole-class evaluation, as well as process evaluation of self-evaluation, other-evaluation, and mutual -evaluation, which actually complements and improves the PBL evaluation method [10].

5. Jigsaw combined with PBL pedagogy

Jigsaw teaching method can improve students' learning efficiency and interactive communication ability, because each student only needs to complete a part of the tasks, and does not need to solve all tasks, which not only reduces time-consuming, increases students' sense of responsibility, but also avoids the phenomenon of "free-riding" [11]. At the same time, the knowledge acquired by students can be used timely with communication between students and guidance from teachers, the teaching efficiency is significantly improved [12]. Furthermore, the diversification of evaluation, according to the students' performance, including the process evaluation and the learning process evaluation, which makes up for the shortcomings of the PBL teaching method.

6. Teaching Implementation of Accounting Based on Jigsaw and PBL Teaching Method

The main process of teaching implementation includes:

6.1 Preparation before class

Before the class, the teacher will release an accounting teaching case and set up 3-5 pre-numbered questions, asking students to conduct it via searching the Internet or else to make a full preparation.

6.2 Create a group

Divide 40 students into 8 groups according to the principle of "homogeneity between groups and

heterogeneity within groups", and a group of 5 people (called "original group"), and the teacher assigns 5 questions to the students in the group, and each person corresponds to one question.

6.3 Group discussion

According to the needs of teaching, each "original group" is scattered, and the students preparing the same question will reorganize the "expert group" according to the number, forming a total of 5 "expert groups", thinking collision, and finally form the "expert group" opinion. If there is disagreement, you can consult the teacher. Finally, the members of each "expert group" returned to the "original group" and took turns to share the answers they had received. The teacher observes the activities of each group at any time, and the observer records the performance of each member during the discussion.

6.4 The teacher supplements and summarizes the problems

Based on the PBL teaching method, the jigsaw teaching method adds an after-school test to check and correct the answers after the test. At the same time, teachers give some explanations and supplements to students' tests and class discussions, and they have not mastered the knowledge and knowledge points, so as to effectively improve the students' performance [13]. Finally, teachers summarize the problems and propose further improvement measures to improve teaching efficiency.

6.5 Teaching evaluation

Teachers make a summary evaluation given students' communication dynamics. Measuring and evaluating according to students' analytical ability, communication, language expression ability and other dimensions during the evaluation.

6.6 Investigation of teaching outcome

After class, a questionnaire is conducted to obtain feedback from students, which is beneficial to the development and implementation of follow-up teaching, maximizing the efficiency of teaching. The object of this study is all the students who adopted the jigsaw teaching method after adopting PBL. A total of 117 questionnaires were sent out and 109 were received, with a recovery rate of 93.16%. After learning through group cooperation combining Jigsaw and PBL, students' feedback is shown in Table 1:

Table 1: The survey of student's satisfaction

Project	Total people	proportion
Accounting theory knowledge and application can be exercised	97	89.0%
Jigsaw teaching makes it easier to complete learning tasks	85	78.0%
After the group discussion, the problem of the pre-class case can be solved smoothly	86	78.9%
Discussions work better when members working on the same issue come together	78	71.6%
Compared with PBL, Jigsaw teaching is more conducive to creating a classroom atmosphere	98	89.9%
Prefer Jigsaw's teaching-style over PBL	90	82.6%

The research shows that: teamwork learning is conducive to creating a good learning atmosphere, for each member has the opportunity to express their own opinions, and the participation rate of is more higher, which gets rid of the "monopoly" speech of PBL teaching. As feedback from the students, after learning through jigsaw teaching, the students' knowledge and application of accounting theory have been improved, and the case resolution has been smoother than ever.

Secondly, before class, teachers issue materials, students learn independently in advance, and share and defend their opinions in the "expert" group, ensuring each student's participation and discussion, which also makes the learning atmosphere harmonious. The results show that nearly 90% of students believe that teamwork learning is conducive to creating a good atmosphere during class, because teamwork requires cooperation and face-to-face communication among members, which can not only improve their own expression skills. and can successfully settle the problem of case involvement.

Furthermore, the teaching methods, discussion forms, and assessment methods of teamwork learning are different from traditional teaching. Teamwork learning is more challenging. It tests students' comprehensive application of knowledge, communication and peer collaboration skills, which can enhance students' learning interesting and self-confidence. The survey results show that 82.6% of the students are more inclined to jigsaw-style teamwork learning, indicating that this kind of teamwork teaching has a positive effect on students' learning.

7. Teaching Implementation Guarantee Based on Jigsaw and PBL Teaching Method

7.1 Evaluation criteria need to be clear

It is key for teacher to understand the evaluation standard system. Effective evaluation standards include three parts: comprehensive **evaluation** standards, summative evaluation standards, and process evaluation standards. Maintaining completeness and specificity in the process of developing the evaluation criteria system aims to allow students to understand why tasks are done, which tasks are to be done, how they are done, and what team rewards are available. Therefore, the importance of informing students of evaluation standards in advance. Besides, teachers and students can discuss the evaluation standard together, so as to increase students' enthusiasm [15].

7.2 Cases should be selected precisely

The teaching of teamwork involves in peers supervise, discuss and speculate with each other [17]. In the process of students completing tasks, teachers, role transits from teacher-centered to student-centered. Therefore, teachers should pay attention to the following aspects in the process of gradually releasing their responsibilities to students:

Before class: The curriculum should be carefully designed and prepared. Group teachers use free grouping to achieve heterogeneous grouping. Secondly, the selection of teaching cases should be in line with the recent development area of the students, the design of the topics should be differentiated, and at the same time, the novelty of the materials should be taken into consideration [18].

During class: The teacher observes the discussion of each group and gives some inspiration to the group in difficulty. Teachers can provide students with a variety of learning environments, like playing related videos to further enhance students' background knowledge before the case discussion.

After class: Guide students to search relevant materials to further deepen their knowledge. At the same time, formulate a reasonable questionnaire, such as a five-level scale questionnaire, to collect student feedback in time, so that the later courses can be adjusted in time [19].

7.3 Create study groups properly

The whole class is divided into several groups according to grades, personality, gender, etc., and the group size is 4-6. It is more conducive to improving students' learning effect by adopting heterogeneous grouping and controlling the number of groups. Effective group includes four elements: active interdependence, face-to-face interaction, clear responsibilities, interpersonal and group communication skills[20]. In the process of cooperative learning, the teacher gives each group a material, forming a task that members rely on each other, and can only be completed by cooperation.

8. Summary

To sum up, the integration of PBL and jigsaw teaching methods is not only conducive to the cultivation of students' communication and collaboration, critical thinking and leadership ability, but also to stimulate students' enthusiasm and initiative in learning. Of course, teachers should make certain adjustments and updates in a timely manner according to the actual situation in the process of using jigsaw teaching method.

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