Construction and Application of OBE-based Multiple Formative Assessment System in the "Micro-lecture + PAD Class"

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Abstract

To construct a scientific and effective curriculum assessment system of higher education is an effective measure to improve classroom teaching quality, a powerful guarantee to enhance students' classroom participation and enthusiasm, and an important way to achieve fair learning evaluation. Based on a brief introduction of OBE and a comprehensive review of the current research situation of formative assessment, this paper analyzes the existing problems in the curriculum evaluation of higher education, constructs an OBE-based multiple formative evaluation system, and tries to apply it in the "micro-lecture + PAD class". Finally, the author carries out a controlled experiment and makes a quantitative analysis of the relevant data obtained in the experiment. The results of the study show that the OBE-based multiple formative assessment system plays a positive role in promoting students' academic performance, improving their autonomous learning ability, and enhancing their self-confidence.

Keywords: OBE, multiple formative assessment, micro-lecture, PAD

1. Introduction

With the development of educational reform, the Central Committee of the Communist Party of China and the State Council (2020) issued *The Overall Plan for Deepening Educational Evaluation Reform in the New Era*, which clearly pointed out that the evaluation tools should be innovated, and modern information technologies such as artificial intelligence and big data should be employed in learning evaluation. Therefore, the construction and application of OBE-based multiple formative assessment system in blended teaching are of great theoretical and practical significance.

In terms of theoretical value, most of the current research on blended teaching reform focuses on the reform of teaching methods. There are few studies on the optimization of blended teaching effects through the reform of the curriculum evaluation system. Guided by the OBE concept, this paper explores the construction and implementation of the multiple formative evaluation system in the "micro-lecture + PAD class", which can further enrich the related studies on the application of the formative assessment system under the blended teaching mode.

In practice, this study helps to guide teachers and students to pay attention to the role of formative assessment in improving the effect of classroom teaching. Through the construction of multiple formative evaluation system, students' classroom enthusiasm and participation can be improved, and their learning effect can be enhanced.

2. Literature Review

2.1 OBE

OBE, outcome-based education, is actually a result-oriented education. This educational philosophy was first put forward by American educator William Spady. As Spady (1994) states, outcome-based education means clearly focusing and organizing everything in an education system around what is essential for all students to be able to do successfully at the end of their learning experiences. This means starting with a clear picture of what is important for students to be able to do, then organizing the curriculum, instruction, and assessment to make sure this learning ultimately happens. Since the concept was put forward, it has been receiving great attention from scholars all over the world.

Burke J, a British educator, applied OBE to classroom teaching practice and pointed out that OBE can help learners develop autonomous learning ability and improve their academic level (Burke, 1995). MH Davis (2003) further expanded the connotation of OBE and proposed the idea of applying OBE to curriculum evaluation.

Different from the previous content-oriented education model, the OBE concept is essentially a reverse teaching design model. Teachers should first clarify the teaching goals and then determine the teaching methods and implementation plans according to the teaching goals, so as to help students improve their ability and enhance their learning effect. The OBE concept pursues "student-centered" in practice. All teaching activities are designed to be student-centered, focusing on student' gains and highlighting ability-based education. In the design of teaching activities, four principles are emphasized, namely "clarity of focus", "expanding opportunities", "high expectations", and "designing back". All teaching designs, teaching processes, and teaching activities are carried out around "what to learn" and "how to learn". While paying attention to students' knowledge acquisition and ability training, the improvement of comprehensive quality is also concerned.

2.2 Formative Evaluation

2.2.1 Studies of Formative Evaluation Abroad

American educators Beckhaus and Blom (2007) first introduced the concept of formative evaluation into the field of education. They believed that formative assessment can evaluate the content that students do not understand in the process of teaching.

Blake and William (1998) summarized the main characteristics of formative assessment, including assigning rich, diverse, and challenging tasks, carrying out high-quality discussions in class, and conducting evaluation methods that combine self-evaluation and peer-evaluation. Besides, high-quality interaction between teachers and students is also very crucial.

American educational expert Stufflebeam believed that the most important purpose of the evaluation is not to prove but to improve. His viewpoint laid the theoretical foundation for the subsequent development of formative assessment (Xu, 2001).

Scholar Carol Boston (2002) pointed out that formative assessment can improve students' learning effect. He believed that the feedback information in formative assessment can help students better improve their behavior and learning efficiency.

To sum up, foreign scholars generally believe that formative assessment plays an important role in improving the effect of classroom teaching, but how to build an effective formative assessment system in the mixed classroom and how to quantify the effect of formative assessment on improving the classroom teaching quality are rarely mentioned.

2.2.2 Studies of Formative Evaluation at Home

In National Knowledge Infrastructure (CNKI), 78 effective journal papers were screened out by taking "formative assessment" and "blended teaching" as keywords after eliminating repetitive and irrelevant literature.

After reviewing the literature, it is found that the number of journal papers published on this topic is increasing year by year, and after 2016, it has shown a blowout growth.

Through the analysis of these papers, it is found that the research on formative assessment of blended teaching in China can be divided into two kinds:

In terms of theoretical research, some scholars have made a theoretical review on the research scope, research objects, research methods, research contents, main characteristics, and development trends of formative assessment (Yuan & Shu, 2017; Huang et al., 2019); other scholars have constructed a framework of formative assessment system from the theoretical level and emphasized that the quality of classroom evaluation is very important to improve the quality of classroom teaching (Li & Zeng, 2008).

In terms of empirical research, scholars mainly focus on the study of evaluation methods, evaluation contents, and evaluation quality in blended teaching, and combine relevant data to confirm the positive role of formative evaluation in improving classroom teaching quality. For example, Xuefeng Wang (2016) explored the dynamic impact of formative assessment on college students' English writing proficiency; Yuhong Jiang and Hong Zhou (2010) carried out an empirical study on the promotion of students' autonomous learning by using formative assessment; Jinsong Fan and Peiying Ji (2017) adopted the many-facet Rasch modeling approach to investigate the use of teacher-assessment, self-assessment, and peer-assessment in translation teaching in the college English program.

2.2.3 Summary of Related Studies Both at Home and Abroad

To sum up, the research on formative assessment system has attracted extensive attention of scholars, but there are still some shortcomings. Most of the studies lack the support of experimental data, so they cannot provide constructive suggestions for the specific implementation of the proposed theoretical framework. Even if there are some researches

supported by empirical data, due to the problems such as data collection and sample size, these studies are still lack of sufficient breadth and depth. For example, some studies are limited to one single assessment tool, lacking a holistic and systematic view, and fail to consider how to combine the current teaching practice and the requirements of formative evaluation to develop a multiple formative evaluation system. Moreover, the current research on the application of information technology in learning evaluation is mainly focused on writing evaluation, but with the continuous advancement of "Internet Plus Education" and the improvement of mobile learning platforms, how to incorporate mobile learning results into the evaluation system will become an important topic for educators to study and solve.

3. Main Problems Existing in Current Curriculum Evaluation of Higher Education

As the most indispensable part of the teaching process, the role of learning evaluation cannot be ignored. However, it is undeniable that there are still many problems in the current curriculum evaluation of higher education.

3.1 Insufficient Understanding of the Importance of Curriculum Evaluation

Many teachers only regard curriculum evaluation as a task that must be completed at the end of the semester. The purpose of course evaluation is purely to complete the tasks assigned by the school and give students a score. They do not really realize the important role of curriculum evaluation in helping students enhance their learning effect and improve their learning habits as well as learning ability. Under the influence of such misconception, teachers will naturally not take the initiative to design a scientific and reasonable curriculum evaluation model, and it is even more difficult to require them to make a fair, objective, and comprehensive evaluation of students.

3.2 Over Simplification of the Evaluation Criteria

At present, curriculum evaluation of higher education is mainly based on the summative evaluation, and the final exam results of students are seen as the core indicators to measure the learning effect of students. This kind of evaluation method ignores the comprehensive performance of students in the course of learning, which is obviously not conducive to the cultivation of students' autonomous learning ability, logical thinking ability, and innovative consciousness. On the one hand, lower test scores will affect students' self-evaluation, which is not conducive to the cultivation of students' self-confidence; on the other hand, a single evaluation standard will mislead students and make them mistakenly believe that the purpose of learning is to achieve high scores in the examination, which hinders the development of students' comprehensive quality and the cultivation of critical thinking, and even leads students to cheat in exams to get high scores.

3.3 Lack of Flexibility of the Evaluation Methods

In determining the total score of a student, the final exam score often accounts for a large proportion, while the usual performance is only used as a supplementary reference. However, considering the number of students taught by college teachers every year, it is unrealistic to require teachers to make an objective and fair evaluation of each student's daily performance in the absence of scientific evaluation methods. As a result, for a long time, students' usual performance is usually based on their attendance scores. This kind of evaluation method is similar to summative evaluation, which has great irrationality. It cannot objectively present students' learning attitudes, learning achievements, and the progress they have achieved in the course of learning, nor can it dynamically reflect the changes in students' learning motivation, learning methods, learning enthusiasm, learning ability, and knowledge mastery degree in the learning process. As a result, we have difficulty in making timely adjustments in teaching objectives, teaching content, interactive mode, and teaching methods according to the changes of students, thus it would be impossible to truly achieve high-level teaching.

3.4 Lack of Comprehensiveness of the Evaluation Subjects

At present, the evaluation of students' learning is basically completed by teachers alone, but teachers' evaluation is inevitably subjective and limited, and it is easily affected by their own likes and dislikes. Teachers can only have a general knowledge of students' learning conditions from their test papers, homework, and course reports, but cannot make an objective and comprehensive evaluation of students' learning process and learning attitudes, which may ultimately lead to the irrationality of the evaluation results. Therefore, the multiple formative assessment requires both teachers and students to participate in curriculum evaluation. The evaluation results should include not only teachers' evaluation but also students' self-evaluation and peer-evaluation. Only in this way, can we to the greatest extent avoid the unreasonable evaluation results caused by a single evaluation subject, and realize the justice and fairness of the evaluation results.

To sum up, due to the various shortcomings exposed by the traditional evaluation system in practice, the reform of the curriculum evaluation system brooks no delay.

4. Construction of OBE-based Multiple Formative Assessment System in "Micro-lecture + PAD Class"

4.1 Introduction to the Blended Teaching Mode

4.1.1 Micro-lecture

"Micro-lecture" refers to the recording of the whole process of teaching activities around a certain knowledge point with video as the main carrier. The prototype of micro-lecture was first seen in the "60-second Course" proposed by LeRoy A. McGrew of the University of North Iowa in the United States (McGrew, 1993), and "The One Minute Lecture" (OML for short) proposed by T.P. Kee of Napier University in the United Kingdom (Kee, 1995). In 2008, David Penrose, a senior instructional designer and online service manager of San Juan College in New Mexico, proposed the concept of micro-lecture. He proposed five steps for making micro-lectures, list the core concepts of teaching; write a 15-30 seconds introduction to provide context for the core concepts; record 1-3 minutes of video; design after-class tasks for students to consolidate what they have learned; upload teaching videos and after-school tasks to the online platform (Shieh, 2009).

As a new teaching method, its advantages are obvious.

Firstly, the class time is shorter. The duration of a micro-lecture is generally 5-10 minutes. Compared with the traditional 45-minute class, during the learning of micro-lectures, students are less likely to lose interest in learning due to fatigue. In a traditional classroom, when a teacher explains the key points, students must be fully engrossed. Otherwise, they are likely to miss a certain knowledge point, which may be of vital importance for the understanding and mastery of the whole unit. However, in the 45-minute class, students' attention cannot always be kept highly concentrated. Micro-lectures can avoid this problem. Most of them only last for ten minutes, and the knowledge points are concentrated and not scattered, which is more conducive to the learning of students. The learning efficiency of students is greatly improved, and the workload of teachers is also reduced.

Secondly, the teaching goal is clearer. Compared with traditional classes, the biggest difference of micro-lectures lies in the word "micro". This "micro" is not only reflected in the shorter teaching time, but also in the more concise teaching content. In this way, the educational goals are clearer and it is easier for students to know what they need to master. With the help of micro-lectures, students can easily understand and master knowledge points through pictures, videos, and the teachers' explanations. Therefore, students can have a deeper understanding of these knowledge points.

Thirdly, the teaching content is more targeted. Micro-lectures can provide targeted explanations for students' weaknesses. For example, teachers can use micro-lectures to explain the difficult points according to their learning feedback. They can also show students' excellent homework on the online platform.

Although micro-lectures have incomparable advantages over the traditional classroom, it may not be a good idea to rely solely on micro-lectures to develop flipped classroom. Last year, the author carried out a SPOC-based teaching reform (Lou, 2020). The results showed that the SPOC-based blended teaching mode did improve students' learning effect and enhance students' autonomous learning ability to a certain extent, but the overall effect was lower than expected. In this teaching model, students can only rely on a self-learning task list to conduct the self-learning activity on the online platform before class. Therefore, it may be difficult for some students to master the difficult points of the course. At the same time, this kind of online autonomous learning process lacks an effective supervision mechanism. Some students' learning enthusiasm drops sharply after several classes, resulting in the phenomenon of weak knowledge commanding and poor understanding.

In view of this, the author attempts to try another teaching mode to improve the teaching effect.

4.1.2 PAD Class

The PAD class (Presentation, Assimilation, and Discussion) is an original teaching mode proposed by Professor Zhang of Fudan University in 2014. It combines the advantages of traditional classroom teaching with the student-centered teaching philosophy of flipped classroom and strives to ensure the effectiveness, accuracy, and systematicness of knowledge acquisition.

According to Professor Zhang (2014), the core concept of the PAD class is to allocate half of the class time to the teacher's presentation and the other half to students' discussion. The presentation and discussion are separated so that students can have one week in between for self-paced and individualized assimilation. The PAD class emphasizes formative evaluation and takes students' diversified learning needs into consideration.

Similar to the traditional classroom, the PAD class also emphasizes teachers' teaching first and students' learning later. It is clearly divided into three stages, namely teachers' presentation (Presentation), students' assimilation (Assimilation), and interactive discussion (Discussion), and that's why it is called PAD class.

4.1.3 Implementation of the "Micro-lecture + PAD Class"

The study adopts a blended teaching mode of "micro-lecture + PAD class", taking their respective advantages to complement each other. Through the establishment of a teaching model with "classroom teaching and discussion" as the main part and "the autonomous learning of micro-lectures" as the supplementary part, it aims to make up for the shortcomings of the traditional teaching mode, and better improve students' comprehensive ability.

As for the specific implementation process, it could be mainly divided into three steps.

In the first step, teachers will teach the key and difficult points of the unit and help students clarify the knowledge context of the unit.

In the second step, the students conduct independent learning by watching micro-lectures after class and then complete the assignment called "Liang Kao Bang" by themselves. Here "Liang" refers to the part of knowledge that they think they have mastered the best after listening to teachers' lectures and completing the autonomous learning after class; "Kao" means "test". Here students need to summarize the part of knowledge that they think they have commanded very well, and put forward it in the form of questions to test other students in the next class; "Bang" means "help". Students may still have doubts after teachers' presentation and their self-learning. Then, they need to summarize their problems and seek help from their classmates or teachers in the discussion section.

In the third step, there is a class discussion. Students participate in class discussions, answer questions and solve doubts according to the framework of "Liang Kao Bang". The combination of micro-lectures and PAD class not only improves students' classroom learning efficiency, enhances their autonomous learning ability, but also effectively reduces students' fear of difficulties. As a result, more and more students are willing to join in the classroom discussion.

4.2 Construction of Multiple Formative Assessment System in "Micro-lecture + PAD Class"

4.2.1 Overall Design Concept of Constructing a Multiple Formative Evaluation System

In specific practice, given the problems existing in the curriculum assessment system of higher education discussed in the previous chapter, the curriculum evaluation system should be reformed from the aspects of evaluation criteria, evaluation methods, and evaluation subjects, so as to eventually construct the multiple formative evaluation system.

In terms of evaluation criteria, it is suggested to adopt multiple evaluation criteria. The evaluation should be carried out from different dimensions: vertically, the multiple formative evaluation should run through the whole process of students' learning, and the evaluation of students should not only be carried out in the final examination but also be reflected in each question answering, interactive discussion, micro-lecture learning and so on; horizontally, the assessment should be combined with the learning objectives of the course to evaluate students from multiple aspects.

In terms of evaluation methods, they should be flexible and diverse. The purpose of OBE-based multiple formative evaluation system is no longer limited to evaluating students' academic level, but also to help students find the gap between their current academic level and their learning goals, and help them narrow the gap, keep approaching the goals, and ultimately achieve their learning goals. Therefore, the evaluation method should reflect students' learning process as comprehensively as possible, so that students could adjust their learning attitudes and learning strategies according to the evaluation feedback.

In terms of evaluation subjects, under the guidance of OBE educational philosophy, both students and teachers should participate in the course evaluation. Students are not only the object of evaluation but also the subject of evaluation. They need to make an objective evaluation of their own and their classmates' learning performance. This will not only make the course evaluation more objective and comprehensive but also exercise students' observation ability and logical judgment ability in the process of evaluation. Finally, teachers should give timely feedback on the evaluation results to the whole class to help students find out their shortcomings and further improve their academic performance.

4.2.2 Construction of Multiple Formative Evaluation System in "Micro-lecture + PAD Class"

To maximize the advantages of the blended teaching mode, it is indispensable to form a multiple formative evaluation system. According to the requirements of OBE educational philosophy, teachers need to reverse design a multiple formative evaluation system according to the learning objectives, and closely integrate the evaluation process with the teaching process. Here the author will take the course *An Introduction to Linguistics* as an example to illustrate the construction of multiple formative assessment system.

The OBE-based multiple formative evaluation system should first start by making clear students' target learning results and clarifies the knowledge-based goals, skill-based goals, and affective goals that students should achieve through the learning of this course.

According to Bloom's taxonomy of educational objectives, this course focuses on three levels of teaching goals. At the knowledge level, students are required to master the basic concepts and theories of linguistics, as well as the main research fields of various branches of linguistics. As for the skills-based goals, students are required to integrate theory with practice, be able to use linguistic theories to explain common language phenomena, master the laws of language acquisition, and learn to integrate linguistic knowledge into other professional courses. At the affective level, through student-centered learning, students can gradually form logical thinking ability, critical thinking ability, problem analysis, and problem-solving ability, and establish good professional ethics and habits.

To objectively and comprehensively measure the achievement of students' learning goals, it is obviously difficult to rely solely on traditional summative assessment. Therefore, a formative evaluation system should be adopted. Only in this way can students' academic performance be scientifically evaluated. The specific implementation of the OBE-based multiple formative evaluation system in *An Introduction to Linguistics* is shown in Figure 1.
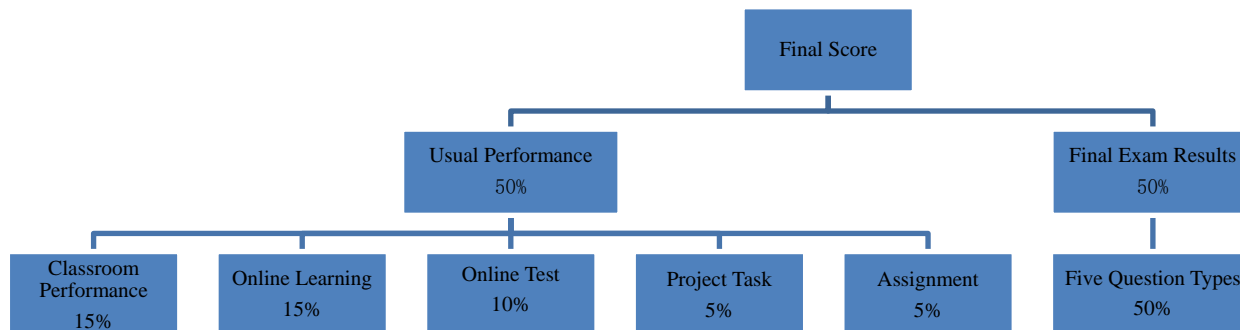

Figure 1 The OBE-based multiple formative evaluation system in "micro-lecture + PAD class"

As can be seen from Figure 1, in the total score of a student, the usual performance accounts for 50%, and the final exam results account for 50%. In the usual performance, classroom performance accounts for 15%, including students' attendance, questioning, and answering. Online learning accounts for 15%, including micro-lectures learning and online discussion. Online tests account for 10%, students are required to finish an online test for each unit after completing the relevant learning so that they can have a clear idea of their knowledge mastery degree in time. Project task accounts for 5%, which mainly assesses the students' project completion quality. This part of the score is weighted by the teacher as well as the student he himself and his classmates. Assignments account for 5%, which mainly evaluate the quality of the students' homework. The last one is the final exam score, which accounts for 50% of the total score. The final examination is composed of different types of questions, aiming to assess students' mastery of knowledge in an all-around way.

In this way, the assessment of students' academic performance is divided into various sub-items, so that the achievement of students' learning objectives is comprehensively analyzed. The record of the usual performance is completely dependent on modern teaching tools. For example, the online learning platform can automatically record students' micro-lecture learning and online testing. The system will also automatically keep the students' scores after teachers complete the homework grading on the online learning platform. In addition, the use of mobile teaching tools facilitates teachers to timely record and provide feedback on students' classroom performance and the quality of the project tasks. At the end of the semester, teachers only need to export students' learning data from the online learning platform and mobile teaching tools. On the one hand, this evaluation mode ensures the overall assessment of students' academic performance, and on the other hand, it truly reduces the workload of teachers.

5. Application of OBE-based Multiple Formative Assessment System in "Micro-lecture + PAD Class"

To quantify the positive impact of the multiple formative assessment system on students' academic performance, the author selected two classes in English major to conduct an experiment. There were 25 students in the experimental class, and so was the control class. The average score of the experimental class in *Advanced English* last semester was 77.88, while that of the control class was 78.20. After statistical analysis, the p value was 0.882, indicating that there was no significant difference between the two classes on their English competency ($p > 0.05$).

Through the 16-week experiment, both classes adopted the blended teaching mode of the "micro-lecture + PAD class". And they were taught by the same teacher. While keeping other variables basically the same, the only difference lies in the choice of the assessment system. The experimental group adopted the multiple formative evaluation system guided by the OBE concept, while the control group adopted the traditional summative evaluation system.

In order to examine the impact of different evaluation methods on students' academic performance, both the

experimental group and the control group took the same test at the end of the semester. Besides, to better track the impact of multiple formative assessment system on students' autonomous learning ability, learning interest, and learning effect, the author conducted one same questionnaire survey on the students in the experimental group before and after the experiment. The following are the results of the experiment.

5.1 Data Analysis of the Test

The two classes adopted the same teaching model. The experimental class adopted the multiple formative evaluation system, while the control class adopted the traditional evaluation method. At the end of the research, the students in the two classes took the same final exam, the results of which were compared with the Independent Samples T-Test.

Table 1. Statistics of final examination scores

Class	N	Mean	Std. Derivation	t	p
Experiment Class	25	85.32	5.36	5.032	0.000
Control Class	25	78.52	4.11		

From Table 1, it is clear that the scores of the students in the experiment class were significantly different from that of the students from the control class. (p=0.000, p<0.05), which clearly indicated that the average score of students in the experiment class (83.62) was significantly higher than the average score of students in the control class (75.64). Since the average scores of these two classes in *Advanced English* last semester were of no significant difference, it is believed that the students in the experiment class have made greater progress after the 16-week intervention of multiple formative assessment compared with the students in the control class. In conclusion, the application of OBE-based multiple formative assessment in the "micro-lecture + PAD class" could effectively improve students' academic performance.

5.2 Data Analysis of the Questionnaire Survey

A questionnaire was designed to investigate the impact of multiple formative assessment system on students' autonomous learning ability and learning interest, as well as their attitudes towards the multiple formative assessment system. It was designed by referring to Yuhong Jiang and Hong Zhou's questionnaire (2010), and on this foundation, the author made some modifications to better serve the experiment. The students in the experiment class were given a questionnaire survey before and after the experiment. Finally, the influence of formative assessment on students' learning behavior and learning attitude was analyzed by comparing the data before and after the experiment.

The number of valid questionnaires before and after the experiment was respectively 24 and 25. The questionnaire consisted of 12 questions. Question 1-5 aimed to investigate whether the multiple formative assessment could improve students' autonomous learning ability, question 6-8 aimed to explore whether the multiple formative assessment system could help to enhance students' learning interest and self-confidence; question 9-12 aimed to know students' attitudes to OBE-based multiple formative assessment system.

Each question was followed by 5 numbers, students needed to use the number 1-5 to express their views on one specific question. 5 meant "completely agree", while 1 indicated "completely disagree". And 4, 3, and 2 showed different degrees of agreement. The questionnaire required students to choose the number that best reflected their actual thoughts. The higher the score, the more the students agreed with this statement.

Table 2. Whether the multiple formative assessment could improve students' autonomous learning ability

Questions	Scores (Pre-test)	Scores (Post-test)
1. I always make a study plan for myself and put it into action.	2.56	3.24
2. I often reflect on my learning style and make self-adjustment.	2.44	3.42
3. I often discuss ways to improve the learning effect with my teachers and classmates.	2.21	2.94
4. I think the self-study after class is as important as the teachers' presentation.	3.88	4.32
5. I think autonomous learning with the aid of micro-lectures is very important to learn this course well.	3.15	4.16

Table 3. Paired sample statistics of pre-test and post-test results of question 1-5

Class	Test	Mean	Std. Derivation	t	p
Experiment Class	Pre-test	2.85	0.67	-7.318	0.002
	Post-Test	3.62	0.60		

As can be seen from Table 2 and Table 3, the average scores of the first 5 questions at the beginning and end of the semester were 2.85 and 3.62 respectively, which means there existed a significant difference between the scores of pre-test and post-test (p=0.002). In other words, by the end of the semester, students' awareness of autonomous learning has increased significantly.

Table 4. Whether the multiple formative assessment could help to enhance students' learning interest and self-confidence

Questions	Scores (Pre-test)	Scores (Post-test)
6. I like to learn this course.	2.96	3.55
7. I think this course is very useful.	2.87	3.81
8. I can learn this course well.	2.68	3.34

Table 5. Paired sample statistics of pre-test and post-test results of question 6-8

Class	Test	Mean	Std. Derivation	t	p
Experiment Class	Pre-test	2.84	0.14	-6.827	0.021
	Post-Test	3.57	0.24		

From Table 4 and Table 5, it's clear that the average scores of the three questions before and after the experiment were 2.84 and 3.57 respectively, which also showed a significant difference (p=0.021). This indicates that after the application of the OBE-based multiple formative assessment system in the "micro-lecture + PAD class", students had a much greater interest in learning the course and their self-confidence has also been greatly enhanced.

Table 6. Students' attitudes towards the multiple formative assessment system

Questions	Scores (Pre-test)	Scores (Post-test)
9. I think daily performance should be an important indicator for evaluating students.	3.12	3.79
10. I think that in addition to the teacher's evaluation, students should also participate in the evaluation of their own and their classmates' learning.	3.24	4.12
11. The assessment indicators of the formative evaluation system point out the direction of my efforts.	2.95	3.76
12. Formative evaluation system can help me improve my learning motivation.	2.56	3.52

Table 7. Paired sample statistics of pre-test and post-test results of question 9-12

Class	Test	Mean	Std. Derivation	t	p
Experiment Class	Pre-test	2.97	0.30	-13.494	0.001
	Post-Test	3.80	0.25		

From Table 6 and Table 7, it is obvious that after the experiment, the students in the experiment class had a more comprehensive and objective understanding of the formative evaluation system. Therefore, they generally held a positive attitude towards it.

To sum up, from the above analysis of the questionnaire, it can be seen that the implementation of multiple formative assessment system in the "micro-lecture + PAD class" is very helpful in improving students' autonomous learning ability and enhancing their learning interest and self-confidence. Most of the students think highly of this evaluation system, and believe that it points out the direction for their academic progress.

6. Conclusion

Through the above experimental data, it is safe to draw a conclusion that the multiple formative evaluation system under the guidance of the OBE concept has a very positive impact on improving students' academic performance, enhancing students' autonomous learning ability, increasing their interest in learning, and clarifying their direction of learning. Therefore, the construction and implementation of a scientific and reasonable evaluation system play an important role in the process of blended teaching. The author believes that as this concept is accepted by more and more scholars, more and more colleges and universities will apply the multiple formative evaluation system to curriculum evaluation in the future. In this way, students' academic performance will be objectively reflected, and teachers' teaching strategies will be timely adjusted according to students' feedback, so as to realize the common growth of teachers and students.

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