Research on the Whole Process-Oriented Course Evaluation Methods

Bo Xu, Weiwei Chen, Bo Liu
Institute of Command Information System, PLA Univ. of Sci. & Tech., Nanjing 210007, China
Lei Meng
Department of Foreign Training, PLA Univ. of Sci. & Tech., Nanjing 210007, China

ABSTRACT: The essay makes an in-depth analysis of drawbacks of existing traditional course evaluation methods and proposes a whole process-oriented one which could make quantitative evaluation of every step of study. On one hand, it could provide the teacher with timely feedback of teaching effect. On the other hand, it could stimulate students’ enthusiasm for learning. The using information systems for online testing and analysis could effectively promote the students' mastery of knowledge, reduce the workload of teachers in handling testing papers, and improve the teaching efficiency.

KEYWORDS: Whole process-oriented; Evaluation method; Examination Management

1 INTRODUCTION

Examination is an important way of teaching information feedback, an indispensable part of universities’ teaching process, an important means of promoting the teaching objectives to be achieved, a direct feedback of teacher’s improvement, and an effective means of the teaching effect inspection. Course teaching includes imparting knowledge and fostering capability. The former one is important and basic for the latter one. However, only learning of knowledge does not mean being able to think and solve problems. Students need to ponder and practice what they have learned and convert it to their own ability, so that students knowing how to think, how to innovate, how to use what they have learned to solve practical problems is the ultimate goal of teaching. The traditional way of course examination ignores the fostering of students’ capability, lacking a comprehensive assessment of students throughout the learning process, leading to the result that the students learn for passing exams[1].

This essay proposes a whole process-oriented course evaluation method which would fully stimulate students’ enthusiasm and guide the transformation from knowledge to capability. In teaching, the using information systems for online testing and analysis could effectively promote the students' mastery of knowledge, assist achievement of teaching objectives, reduce the workload of teachers in handling testing papers, and improve the teaching efficiency.

2 ANALYSIS OF TRADITIONAL EVALUATION METHOD

For a long time, the computer network-related courses of our university have been using the traditional evaluation method of closed-book exam, combined with experimental results and classroom performance. Usually a total marks is given with 20% of classroom performance, 30% of experimental scores and 50% of exam. This assessment method takes the testing of student learning effect as the main objective, but neglects the students' learning process evaluation. Through years of teaching, we believe that there are many drawbacks of the above conventional evaluation methods, mainly in the following four aspects.

(1) Testing students’ mastery of 'knowledge' is the main criterion in the traditional examination. By doing some typical practices to cram for the test, students could get a good mark even they do not work hard in class. Although in this way, students could get through the course examination, the knowledge would soon be forgotten, which cannot lay a solid foundation.

(2) Traditional test content often sticks to books, emphasizing on memorizing of "knowledge that should be understood" rather than understanding, not to mention the comprehensive application of knowledge. It leads to rote to learning without learning initiative and enthusiasm. The knowledge cannot be thoroughly understood and mastered.

(3) In teaching practice, it is found that the students who are active in thinking and practical application get lower scores than students who are good at rotting. Their real capability and quality
cannot be tested by traditional exams. Although the students of roting get high scores, the practical application of knowledge are out of the question, resulting in “high scores and low abilities” phenomenon.

(4) Traditional exam only concerned with the final scores, ignoring the whole learning process. Only after the end of the course, the students’ learning effect could be evaluated, with the best learning time missed.

3 WHOLE PROCESS-ORIENTED COURSE EVALUATION

3.1 Thought of whole teaching process management

In the whole teaching process management, the teacher is concerned about every aspect of the learning process and comprehensively evaluate the student's performance throughout the course [2]. Further speaking, from the beginning to the end of the course, the teacher needs to know the progress, quality of learning and learning outcomes of each student. The whole process management requires teachers to identify problems, correct the problem, and encourage students to complete learning tasks according to the teacher’s plan. Figure 1 is a schematic view of the whole process management stages. Seen from the figure, the teacher could take different evaluation criteria for different learning stages and learning effects.

![Figure 1. Schematic View of Whole Process Management Stages.](image1)

Only by completing the preview task, can students make a good interaction with the teacher, laying a solid foundation for learning new knowledge. But practice shows that the ratio of students who could complete the preview task does not exceed 20%, which is an important cause of the low efficiency of classroom teaching [3]. In the whole process teaching management, technical means could be used to schedule preview tasks, such as network teaching system, micro-class and MOOC and other forms. Through evaluating the time spent on preview and test, the preview effect would be determined, which improves students’ preview quality. In the teaching process, the teacher could make a subjective evaluation of each student's learning attitude through the group discussions, notes and classroom performance, and an objective evaluation of students’ learning effect according to exam scores, experimental scores and homework. With the above learning process, the teacher could make a comprehensive evaluation at any stage of learning, and encourage students completing learning tasks according to the plan.

3.2 Whole Process-Oriented Course Evaluation Method

Based on the thought of whole teaching process management, we have proposed the method for the whole process-oriented evaluation, as shown in Figure 2.

![Figure 2. Whole Process-Oriented Evaluation Method.](image2)

The total score of a course is detailed into classroom performance, experimental results and test scores, each of which is included in the total score with a certain percentage. Classroom performance is closely related with classroom teaching. Each learning stage would be evaluated. And the teacher could make fine management of teaching. In preview stage, teacher can adjust the course content according to prep test results. In classroom learning phase, quiz tests students understanding and acceptance of new knowledge could be known through class quiz. In review stage, teacher could schedule coaching sessions to make up for lack of classroom teaching through knowledge test, self-test and homework performance, in order to ensure the quality of teaching. In teaching process, teacher should pay addition attention to students’ learning attitudes, emotions and values, such as the students' language skills, cooperation skills, practice innovation, observation and analysis capabilities, self-learning ability, etc. Therefore, the classroom performance includes self-test, practical skills training and group discussions. With the quantitative scores of various aspects, teacher could guide students to actively participate in and complete all stages of teaching, and foster students' comprehensive capability and quality [4]. Experiment is an important part to convert knowledge into application. Teacher should provide a good experimental content and environment for students according to the teaching content. And it should be
evaluated according to students’ engagement and lab reports. The previous final exam should be extended to mid-term exam and phase testing, thereby facilitating the students’ enthusiasm and comprehensive evaluation.

4 EXAMINATION MANAGEMENT AND TESTING ANALYSIS MODEL

The above whole process-oriented evaluation method put forward higher requirements for teachers. In order to reduce the workload of teachers and to improve teaching efficiency, we designed and implemented ourCourse network teaching system which could assist teachers to complete the teaching task and to make whole process evaluation. ourCourse provides a full-featured online test questions management and online analysis, assisting teachers to make a level test each teaching stage. The structure of the model is shown in Figure 3.

![Figure 3. Examination Management and Testing Analysis Model.](image)

ourCourse is able to provide appropriate test at each stage of teaching, rather than relying on the traditional "one test for life" mode. Test results can be fed directly to the teacher as the evaluation of teaching effectiveness of previous stages, enabling teachers to timely adjust and improve teaching content. In order to develop students’ capability and to encourage students’ learning of something more textbook, the system provides students with the function of self-test of self-learning. In test questions management, the system provides functions of questions input, binding questions with knowledge or chapters (reflecting the learning stage), etc. In forming test paper forming, the system is able to provide homework, chapter test, knowledge test, midterm test and final test paper. In addition, the system can provide automatic rating and/or a hand scoring function, scores treatment and teaching effectiveness analysis. As a result, question bank management and test analysis module are capable of combining testing, marking, scoring and evaluation of teaching effectiveness. It could not only greatly enhance the teaching quality and efficiency, but also promote students’ self-learning, save time, manpower and financial resources, and make test scores more objective and fair.

5 CONCLUSION

Course learning is an important way for developing talents of technological innovation in the new period, and exam is indispensable for examining the effect of course. It could be said that the exam, as an important tool and means of course teaching, is done for teaching. However, with the change of personnel training objectives, the traditional test method has been unable to adapt to the requirements of fostering capability. By analyzing the shortcomings of traditional test, this essay proposes the whole process-oriented course evaluation methods, and apply it in actual teaching with the use of information system. Practice has proved that the whole process evaluation methods could effectively promote students' knowledge mastery, stimulate their enthusiasm for learning, enhance their overall quality, reduce the difficulty of the whole process evaluation with the use of information systems, reduce the workload of teachers, improve teaching efficiency, and lay a foundation for the improvement of course evaluation.

The next step is to study the main evaluation indicators scaling factor, and to optimize the implementation of the whole process evaluation method.

REFERENCES