

Application of the Teaching Mode of "Homework First" in the Course of Construction Engineering Evaluation

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Abstract

Based on "Taking students as the center" (Student Center, SC) ideas of teaching reform, which proposes the "homework first" type to the students before class learning assignment, lay down course management rules, strictly manage the learning process through detailed course assessment program, in order to carry out the individual work and group work, cultivating the learning ability of students, as well as to enhance students' learning effect and exercise students' cooperation and communication ability.

Keywords

"Homework First" Teaching Mode; Construction Engineering Evaluation; Curriculum Rules; Inspection Plan.

1. Introduction

Recently, the Ministry of Education has paid great attention to undergraduate education and put forward the "Four Regression", which required colleges and universities to eliminate "bird courses" and create "golden courses". Through teaching reform, students are actively guided to self-management and active learning, stimulate their desire for knowledge, improve learning efficiency and enhance their ability of independent learning. However, a lot of college students, who had experienced intense College Entrance Examination, enter flabby stage, such as lacking study enthusiasm and study targets, when they graduated from university, suddenly found that they obtain nothing, then started to complain the school, to suspect education. Minister Chen requested that the undergraduate education needs to return to common sense. which means the education should focus on students' hard work and guide students to seek true knowledge and practice true skills. The connotation construction and quality improvement of education should be reflected in the learning results of every student. Reasonable "burden increase" should be carried out to improve the degree of academic challenge of college students, so as to stimulate students' learning motivation and professional interest, and change the situation that students can graduate easily. While the teaching reform of "homework first" mode tries to construct reasonable course work in the course of "construction engineering evaluation", strictly manages the learning process, guides students to study independently and collaboratively, and exercises students' active exploration ability and team cooperation spirit.

2. Introduction to the teaching reform of "homework first" type course

The 21st century is the era of knowledge economy. In this new era, information technology makes knowledge memory no longer important. What important is to cultivate people who can learn, who can think, who can solve problems and who have the ability to innovate. The "Student-Center" teaching reform thought regards student learning as the end, while teacher's teaching is only a means to help students to learn. Based on the teaching reform idea of "Student Center", the teaching reform of "Construction Engineering Assessment" course is to try to make teachers assign preview and self-study homework before each new knowledge is about to teach, and then implement the homework through an effective assessment system. In the class, teachers are mainly responsible for improving the knowledge learned by students and forming a complete knowledge system. The teaching mode of "homework first" can fully mobilize students' learning initiative and cultivate technical talents.

3. Formulate course rules and assessment plan

In the "homework first" teaching mode, students usually have more time to study and more homework, it is necessary to reflect the assessment of the learning process in the course assessment, therefore, "homework first" mode modifies the examination proportion of teaching outline, and also increases the proportion of grades to 50% (including 25% individual grade, group grade 25%), and formulated the detailed rules of the course.

The course teaching principles: the implementation of project-type cooperative learning, with student autonomy as the main, the implementation of the curriculum project team and group independent management system. Establish a three-level organization structure in the class: curriculum project team (curriculum management team) - curriculum study group - individual. Curriculum management team is made up of two class representative and a teacher, curriculum assessment on construction project management for the project team, take together, head of the joint project, two class on behalf of the classmates are optional, respectively responsible for the team performance and individual performance appraisal, the class representative responsibility and discipline supervision, assist teachers to teaching. The two classes set up 10 study groups, each group elected the leader to set up the organization of the group, determined the learning objectives and mottos, formulated the rules and plans of the group study, organized the group study and completed the homework. Individuals are responsible for their own personal homework, including pre-class preview, class presentation, attendance and homework.

4. Compile the list of assignments for the construction engineering assessment course

Under the teaching mode of "homework first", the design of homework before class is very important. Learning with homework is a kind of targeted learning. Before students go to class, teachers need to customize pre-class homework for them, including preview content, targeted pre-class exercises, self-test questions or other homework. For quantity and ease practice before class, teachers should fully take into account the students' awareness of existing structure, reasonable design using the theory of the zone of proximal development, the number of exercises should not be too much, difficult to properly, should let the students feel there is a certain challenging, stimulate students' interest in learning, help students to use the old knowledge to complete the transition to the new knowledge.

According to the syllabus and objectives of the course, the course "Construction Engineering Evaluation" closely revolves around the main line of the measurement of construction quantities and the cultivation of the calculation ability of construction cost, introduces a practical construction engineering example, decomposes the teaching material content, and computes the course assignment list. The course assignments are divided into individual assignments and group assignments.

Individual assignments require students to complete them independently outside of class, so that students can gradually master learning methods and gradually cultivate their ability to think independently, analyze and solve problems. In the course of architectural engineering assessment, there are a number of pre-class homework and a number of after-class homework that need to be completed by individuals. Before class, we use cloud classroom video teaching courseware to pre-class and ask questions, and the amount of homework is basically no more than 40 minutes. Group work requires team members to complete cooperative learning. Cooperative learning is a learning method based on individual independent learning. It is a way for individuals to fully demonstrate the research problem through dialogue, discussion, debate and other forms, so as to achieve learning goals. Collaborative learning is not only beneficial to the development of students' individual thinking ability, the enhancement of the communication ability among students and the tolerance ability among students, but also beneficial to the development of teaching activities and students' acquisition of knowledge. In the course of architectural engineering evaluation, several group assignments are designed which are closely related to the actual engineering, mainly centering on the actual engineering to calculate the construction quantity and its valuation.

5. Learning process management and assessment

In the teaching reform of "homework first", the amount of homework in peacetime increases, and the proportion of scores in peacetime increases. Therefore, we must strictly manage and examine the learning process in peacetime, and put the list of course homework into practice. Personal performance assessment: personal performance includes 15 preview assignments before class, 5 assignments after class and midterm exam. Personal comments in class and being late and absent from class are extra points and deductions. Pre-class preview homework must be completed before class, can not be made up, answer questions in class, according to the answer condition assessment of preview quality; Homework and midterm exams will be judged by teachers.

Team performance assessment: the team performance consists of 10 assignments (most of which are set around the actual project) and excellent group class presentation. Group speech and error correction will be extra points. If the group work is not submitted in time, the points will be deducted. The selection of excellent work can be determined democratically according to the vote of the course management team (teachers, class representatives and leaders). The display of excellent work can motivate each group and exercise students' expression ability; You can also find a group of common problems to solve together.

Individual and group results for dynamic statistics, regularly announced to students every two weeks, so that students know their usual results in the chest, but also encourage students to treat the usual assessment seriously.

6. Analysis on the application effect of teaching reform of "homework first" type course

Taking Chongqing Technology and Business University as an example, the "homework first" teaching reform has been applied in two classes (62 students) of the asset appraisal major of Grade 18. The teaching course is "Construction Engineering Evaluation", and a questionnaire survey of course teaching has been conducted at the end of the semester. The results are analyzed as follows.

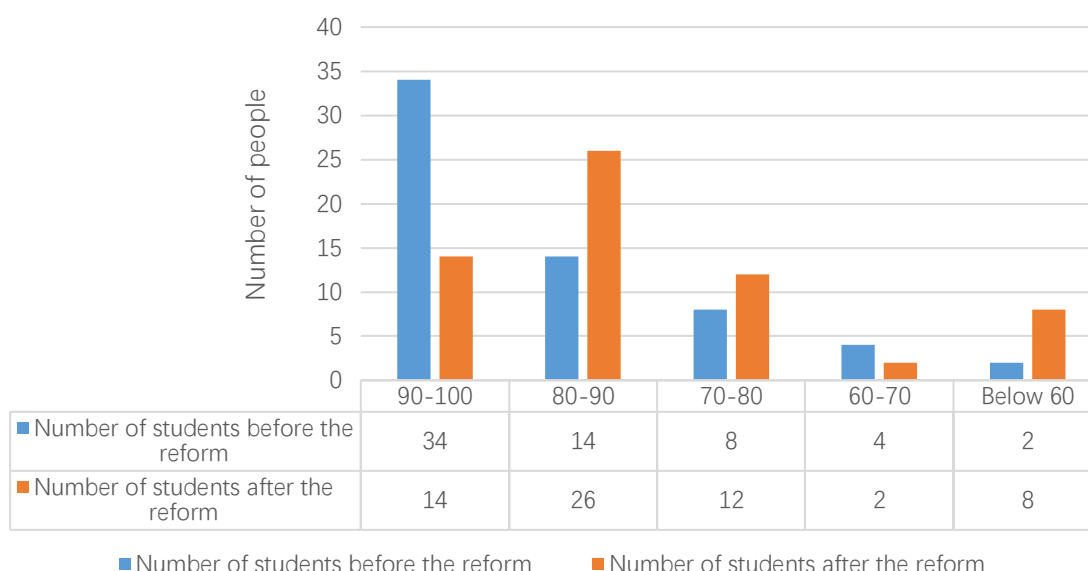


Fig. 1 Comparison of course scores

6.1 Contrastive analysis of course results

The teaching reform of "homework first" emphasizes preparing before class and completing group work after class. After the course, there are 14 students who score 90 ~ 100, 26 students who score 80 ~ 90, 12 students who score 70 ~ 80, 2 students who score 60 ~ 70, and 8 students who score

below 60. Compared with the last year before the implementation of the reform, the usual grades after the reform have a strong degree of differentiation, and basically consistent with the final grades; Before the reform, more than half (59%) of the students scored more than 90 points. Students will get marks if they attend classes on time and hand in their homework on time, and their usual scores are high without distinction. The comparison of course scores is shown in Figure 1.

6.2 Contrastive analysis of the result of course total evaluation

After the application of the teaching reform of "homework first", the total score of the course was distributed as follows: 4 students scored 90 ~ 100, 24 students scored 80 ~ 90, 12 students scored 70 ~ 80, 14 students scored 60 ~ 70, and 8 students scored below 60. Compared with the students of the last year before the implementation of the reform, the rate of excellent and good grades of the courses after the reform has increased (31% before the reform and 45% after the reform), indicating that the students have a better grasp of the curriculum knowledge and better teaching effect after the reform. The comparison of the total course scores is shown in Figure 2.

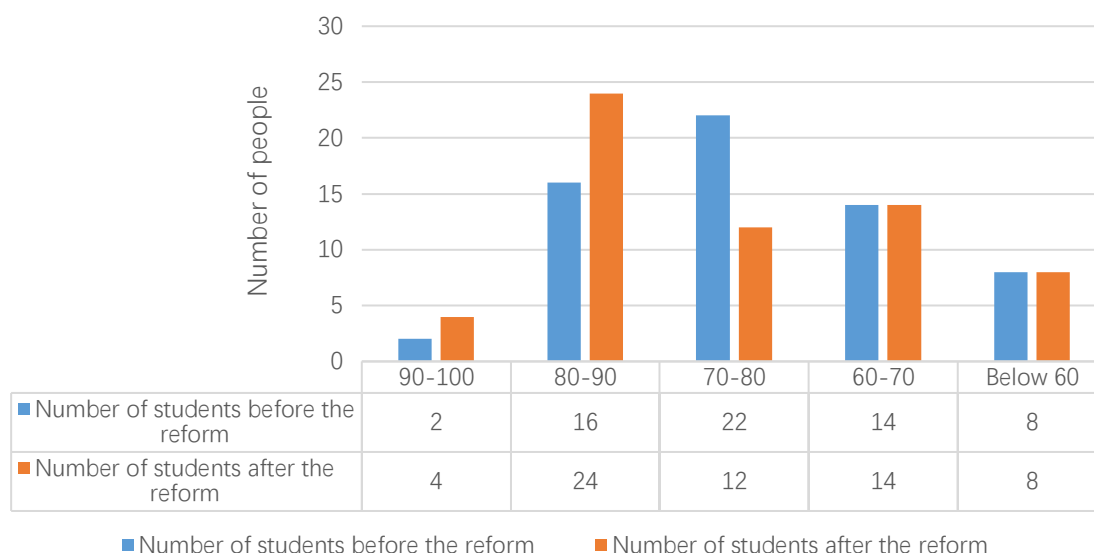


Fig. 2 Comparison of the total score of the course

6.3 Investigation on the function of homework preparation before class

According to the questionnaire, in terms of the help of pre-class preview homework to course learning, 6 students think it is very helpful; 40 found most of the content helpful; 16 people thought the effect was moderate; There are more than 75% students who think that previewing homework before class is helpful to their study.

6.4 Investigation of the role of group work

According to the questionnaire, 16 students found the completion of group work helpful to the course learning. 32 found most of the content helpful; 14 people thought the effect was moderate; There are more than 78% of students who think group work is helpful to study.

Teaching reform of "homework" type of application, the effect is remarkable, relative to the traditional teaching mode, students in degree is high, the more fully play the subjective initiative of students, to strengthen the management of the learning process, reasonable "loading" for college students, the student's course grade has obvious improvement, and students to "homework" type of pattern recognition is improved.

However, there are still some problems in the application as follows: (1) Students do not adapt to learning habits. Many students are used to the traditional teaching mode, did not develop the habit of pre-class preview, for the pre-class homework can not correctly understand, it can not be completed

in high quality. For students with poor learning consciousness, the teaching effect is not good, for those who are not interested in the course, lazy, lack of self-discipline of students, learning before class has become a burden, it is impossible to complete this link. (2) The problem of "free rider" in group work completion. Some students do not complete group work by themselves and rely on other team members. Group work has no effect on this kind of students, so it is necessary to consider how to design the assessment system to avoid this kind of problem.

7. Conclusion

Compared with the traditional teaching mode, students in the "homework first" teaching mode have a high degree of learning investment, strict learning process management, increase the proportion of ordinary grades, dynamic and transparent course assessment, students have a stronger grasp of knowledge and ability cultivation, and a higher degree of recognition for the "homework first" teaching mode. However, if the school adopts this model for all courses, it means that teachers have to assign homework to students for every course. Students will be overwhelmed and lose interest in learning. It is suggested that not only professional expansion courses, but also core courses of the major should adopt this way, and other courses should still follow the traditional mode. In addition, there are still some problems in the operation of the "homework first" teaching mode, which requires teachers to adjust the course work and assessment system dynamically, and constantly improve it in the practice of teaching reform

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