

Research on the Improvement of School-Based Study Strategy Under The Condition of Small Class Teaching

--Take a Course in Soil Mechanics

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Abstract

This paper through summarizing teaching experience and consulting references carries out a research on "Improving school-based research strategy of small class teaching of soil mechanics in higher vocational colleges". The results show that school-based training has the following disadvantages under the condition of small class teaching: fewer students, fewer problems, slow teacher promotion; Limited teaching staff and small training results; Small class system school-based research and training, evaluation distortion, less discipline correlation, large limitations. After fully understanding the advantages and disadvantages of the small class system of school-based research and training, summarize the key problems existing in the school-based research and training strategy of small class system of teaching. In view of the key problems, the following solutions are put forward: To solve the problem of slow self-improvement of teachers under the condition of school-based research and training under the condition of small class teaching by adopting "bring in, go out"; Through "multi-linkage, fixed rewards and punishments" to solve the problems of school-based research teachers' promotion limitations, less discipline correlation, and distortion of school-based research evaluation under the conditions of small-class teaching; Solve the problems of less school-based research and training exchanges and high off-campus research and training costs under the condition of small-class teaching by "borrowing the network and communicating more". Through the implementation of the above countermeasures, the problems existing in "school-based research and training under the condition of small-class teaching" can be effectively solved, the overall teaching level and ability of school teachers can be improved, and the funding for research and training can be reduced.

Keywords

Soil Mechanics, Small Class System in Higher Vocational Colleges, School-Based Research And Training, Existing Problems, Solution.

1. Introduction

The century-long plan is based on education, and the plan of education is based on teachers [1]. Teachers are the core of education, and also the foundation for educating people for the country and talents for the Party. How to run a satisfactory education for the people has naturally become the focus of today's discussion. In the 21st century, education has undergone tremendous changes. Looking through China's "education history", it is not difficult to find that our country has experienced three stages of "not learning", "having to learn" and "learning to learn". Today's "learning" for higher vocational college education is to cultivate innovative ability, application and transformation ability of "compound" talents. In this case, "small class

teaching" came into being. For example, the definition of small class teaching usually refers to the small number of students in a teaching class. In the 1970s, the United States proposed "small class teaching" with an average class size of 25 students, German class size is similar to the United States with an average class size of 25 students, the average class size in the United Kingdom is 20-25 students, and the average class size in Canada is 25-30 students [1]. In the mid-1990s, China gradually experimented and carried out "small class teaching" in Shanghai, Beijing, Hangzhou, Nanjing and other places, and now the research on small class teaching is developing deeply and rational reflection is being carried out constantly [2].

In order to improve the quality and level of education, China refers to the number of "small class teaching" standards in developed countries in Europe and the United States, and combined with its own national conditions, the class size of "small class teaching" is controlled at about 35 people. With the promotion of small class teaching, class size has been reduced from more than 50 to about 35 in most parts of the country [3]. With the decrease of class size, education and teaching has gradually changed from the test of students' acceptance to the test of teachers' teaching ability. In a sense, the teacher's research, study and progress affect the daily teaching, and the daily teaching determines the quality of training talents. Therefore, teacher training plays an important role in teaching and personnel training.

2. Research status of small class system in school

2.1. Research status of small class system education

Since the 1980s, Chinese educators have carried out corresponding research on "small class teaching". Among them, Yuan Yuemei [4] et al. studied the application of small class teaching in organic chemistry and medicinal chemistry courses of medical majors, found the problems exposed in the teaching practice of organic chemistry and medicinal chemistry courses of small class teaching, and proposed corresponding solutions to these problems. Qin Sen [5] et al. conducted a research on the teaching mode of "large class teaching and small class discussion" in the teaching of Higher Mathematics based on the exploration of the mode of "large class teaching and small class discussion" in college public courses. Taking ideological and political courses as the research object, Xiong Jasmine [6] explored the application of small-class teaching in ideological and political courses with the help of small-class teaching methods and the teaching methods of "large-class teaching + small-class discussion". Song Xiaozong, Zhang Yonggui et al. [7] took the specialized basic course of mechanical manufacturing major as the research object and explored the promotion of small-class teaching to improve the teaching quality of the course "Basic of Mechanical Manufacturing Technology" with the help of small-class teaching mode. Wu Haixia [8] et al. applied "small class teaching" to "Water supply and drainage science and engineering major" and explored the role of small class teaching in the teaching process of professional courses in colleges and universities. Ye Song [9] et al. conducted a research on the necessity of implementing small class teaching in colleges and universities and published a paper titled "Thoughts on Implementing Small Class Teaching in Colleges and Universities". This paper discusses the specific strategies of implementing small class teaching in colleges and universities. Liu Haiyan [10] conducted research on the development of small class teaching in colleges and universities, published an article on the Restrictive Factors and Reform Measures of small class teaching in colleges and universities, analyzed the restrictive factors of small class teaching in colleges and universities, and put forward reform measures of small class teaching in colleges and universities.

2.2. Current situation of school-based research

With regard to school-based training, Liang Feng [11] conducted research on video lesson examples generated in microclassroom and published the paper "Application Research of Video

Lesson Examples Based on Microclassroom in School-based Training", which clarified the influence of school-based training on the improvement of teachers' teaching and research ability. Li Jing [12] studied the current situation of teachers' information-based teaching design and implementation ability in vocational colleges in Guangdong, and published the paper "Research on Improving Teachers' information-based teaching Ability Based on School-based Research", which clarified the role of school-based research in building information-based teaching teams. Yang Wengang [13] took the school-based research of "Three teachers in one" leading the professional development of vocational college teachers as the research object, and published an Analysis of the school-based research strategy of Leading the "Three teachers in one" leading the professional development of vocational college teachers, which clarified the importance of school-based research of vocational college teachers in the construction process of "three teachers in one". Taking school-based training in secondary professional schools as the research object, Xun Dayong [14] published the article "Building a Trinity "school-based research System to Promote Teacher professional Development", which clarified the promoting role of school-based research in teacher professional development and teacher continuing education. Taking the visual literacy of teachers in higher vocational colleges as the research object, Li Hui [15] published Research on the Cultivation of visual Literacy of Teachers in Higher Vocational Colleges Based on School-based research, which clarified the importance of school-based research in the cultivation of visual literacy of teachers in higher vocational colleges.

In recent years, research on small-class teaching [1-10] and school-based research [11-15] has increased year by year. At the research level, most of them are limited to "small class teaching research" or "school-based research research" alone, and few studies are conducted from the perspective of small class teaching in combination with school development, teacher development planning, discipline development and policy changes. In view of the above shortcomings, this paper carries out the research of "school-based research strategy improvement under the condition of small-class teaching", in order to better achieve the teaching goal of "educating people for the country and educating talents for the Party".

3. Problems existing in school-based research of soil mechanics courses under small-class teaching conditions

3.1. School-based research and training under small-class teaching conditions

Teachers' research and learning can be divided into off-campus study and school-based study. Off-campus study generally means that teachers are assigned to go to sister colleges or professional training institutions for research and learning. School-based research generally refers to a kind of teaching and research activities carried out on the basis of the school and with the teachers of the school as the main body. Both off-campus training and school-based training are designed to promote teachers' professional development and improve teachers' teaching quality.

Under the condition of small-class teaching, the soil mechanics course has the following advantages: It uses more mathematical knowledge, and the calculation is larger and more difficult, but the number of students is small and the types of problems are few, which is conducive to teachers to explain to more students; The number of classes is small, and the teacher can appropriately extend the knowledge; harmonious relationship between teachers and students; Good classroom discipline; High class efficiency; The small class teaching of "soil mechanics course" is also conducive to the implementation of individualized teaching, individualized teaching, classroom ideology and politics.

3.2. Problems existing in school-based research of soil mechanics courses under small-class teaching conditions

3.2.1. Characteristics of soil mechanics course under small class system

Soil mechanics is a branch of mechanics, which mainly studies the change of stress and strain of soil under relevant conditions (time, stress, temperature, etc.). It is the foundation of civil engineering, transportation, water conservancy and other projects, and this course is extremely important for civil engineers. Soil mechanics is a course that combines mathematical calculation with practical practice, and requires very high mathematical skills in soil pressure calculation, self-weight stress calculation, shear strength calculation, slope stability calculation and other chapters. Therefore, the high calculation requirement and the difficulty of the subject have become a major feature of the soil mechanics course.

Under the condition of small-class teaching, the soil mechanics course has the following characteristics: the number of students is small, usually about 30; The use of mathematical knowledge is more, the amount of calculation is larger; harmonious relationship between teachers and students; Good classroom discipline; High class efficiency; The small class teaching of "soil mechanics course" is also conducive to the implementation of individualized teaching, individualized teaching, classroom ideology and politics. How to teach soil mechanics well and how to learn soil mechanics well have become the top priority of the teaching task of "civil construction" major.

3.2.2. Problems in school-based research of soil mechanics courses under the condition of small class system

The number of students in small-class system is small, usually about 30 people, and the soil mechanics course has the characteristics of high calculation requirements and high discipline difficulty, so the following problems will be encountered in the implementation of school-based research and training.

Fewer students, fewer problems, slower teacher promotion

Soil mechanics is a classical subject with strong computation, and the number of students in small-class teaching is small, which reduces the probability of various problems such as calculation and new developments of frontier development. As the saying goes, a thousand people have a thousand Hamlets, so more students should have a lot of problems about soil mechanics knowledge. Due to the small number of students, the communication between students and students is reduced, and naturally the chance of thinking collision is greatly reduced, which leads to the reduction of knowledge problems encountered by students in the learning process of soil mechanics course. As the number of students decreases, there will be fewer questions about knowledge, and teachers will be less active in learning and improving in order to answer students' doubts. As a result, teachers will have less desire to acquire more, broader and richer knowledge and skills. Therefore, the soil mechanics course under the condition of small class system reduces the teachers' demand for more professional knowledge acquisition and career promotion to a certain extent.

The teaching staff is limited, and the training effect is small

School-based research generally refers to a kind of teaching and research activities carried out on the basis of the school and with the teachers of the school as the main body. The geographical environment of each school is different, and its teaching conditions and teachers are also very different. The importance of soil mechanics as a basic professional course for "civil engineers" is self-evident. "Three people, there must be my teacher, choose its good and follow, its bad and change", students are not only the teacher's students, but also the teacher's teacher, the more students, the more teachers and students learn from each other. Small class teaching reduces the opportunities for teachers to learn from students, which leads to difficulties for young teachers in accumulating teaching experience and new knowledge. If the school has no teachers

with rich experience and relevant professional background, the quality of school-based research and training of this course will be greatly reduced, and it cannot truly meet the needs of teachers for professional knowledge and skills.

The study of "three identical reforms" has great limitations

School-based research and training generally adopt the "three same changes" way, the so-called three same refers to peer real talk, peer real listening, peer real evaluation; A change pointer wrong real change. The three similarities of school-based research and training are mostly peer listening and evaluation, which greatly improves the efficiency of research and training and strengthens the pertinence of evaluation and teaching. Although the "Three identical reform" school-based research and training has the above advantages, it also has some shortcomings: 1. In the peer evaluation, more positive praise is given, and the problems are not talked about, which is difficult to get a true evaluation of the "lesson"; 2. Limiting peers to listen to lectures and evaluate courses has hindered the communication of various disciplines. The above "three same changes" research and training methods ultimately limit the improvement of teachers' teaching ability. 3. The evaluation of school-based research results mainly relies on quantitative indicators such as course completion and attendance records. However, these indicators cannot really reflect the practical ability and professionalism involved in the whole training process Whether the quality and other aspects have improved.

Emphasize the individual, neglect the team, the school has no connection with the promotion

The original intention of school-based training is to promote mutual learning among teachers, improve teaching quality, and promote the development of the school while reducing the research expenses. However, in practice, the school-based training in many schools is aimed at creating a certain teacher, while ignoring the development of the vast majority of teachers. Therefore, in terms of the development of the whole school, the overall teaching level has not been improved. Therefore, school-based research and training mostly stay on the improvement of the level of "a teacher", and do not link the development of the school with the personal improvement of all teachers, so that there is no correlation between the school's own improvement.

4. Solution strategy

The school-based research and training of soil mechanics course under the condition of small-class teaching has some shortcomings, such as small number of students, single problem, slow promotion of teachers, limited teachers, small effect of research and training, and large limitations. In view of the above shortcomings, the following improvement methods are proposed.

4.1. Bring in, go out

Under the condition of small-class teaching, the number of each class is small, the exposure problems are less, and the teacher promotion is slow, the following measures can be taken: Regularly organize the students of relevant majors studying soil mechanics to attend a unified large class, that is, organize 3-4 small classes to attend the same class; Invite relevant experts to carry out targeted lectures to systematically improve teachers' theoretical level; Formulate positive policies to encourage and support teachers to return to universities for further education and learning; Multi-disciplinary exchanges to enhance teachers' theoretical reserves; The combination of introduction and going out not only breaks the boundaries of disciplines, campuses and regions, but also promotes the joint teaching and research of various disciplines and reduces the corresponding research costs.

4.2. Multiple linkage, set rewards and punishments

In view of the shortcomings of school-based research and training, such as limited teachers, small effect of research and training, and large limitations of "three identical reform", schools can take the following measures: change the "focus on cultivating individuals" to "pay attention to the whole teacher group" to improve the overall progress; Hold more interdisciplinary school-based research and training, actively promote the mutual exchange and integration of multiple disciplines, and produce more thinking; Organize multi-class and continuous lesson studies in the form of "thematic" to promote the integration of teachers' knowledge of various subjects and the construction of the overall knowledge framework; Formulate relevant measures to punish those who do not tell the truth and do not evaluate the teaching in the process of school-based research and evaluation.

4.3. Use the network to communicate more

In view of the characteristics of high cost, limited time and low continuity of off-campus research, we can make use of modern information exchange technology to innovate the research mode, carry out online learning and online discussion, and regularly exchange resources, special discussion and lesson sharing.

5. Conclusion

The school-based study of soil mechanics course under the condition of small-class teaching has some shortcomings, such as small number of students, single problem, slow promotion of teachers, limited teachers, small effect of study, "three changes of the same" study and great limitations. In view of the above shortcomings, we can start from the direction of improving the teacher's theoretical level and changing the research and training ideas, and adopt such means as "introducing, going out", "multi-linkage, setting rewards and punishments", "borrowing the network, communicating more" to improve the shortcomings of school-based research and training under the conditions of small class teaching.

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