



Discussion on the Innovation and Development of Civil Engineering Teaching Methods

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Abstract

With the progress of the times, contemporary people have put forward higher requirements for the quality and beauty of buildings. As a big construction country, it is extremely short of the talents of construction engineering. Especially with the development of the times, the traditional architecture has been unable to meet the needs of development. Civil engineering has attracted the attention of the society in recent years. As the main position of talent training, colleges and universities need to innovate the teaching of civil engineering in combination with the development of the current era, so as to improve the teaching quality and provide outstanding talents for social development. But at present, there are still some problems in the teaching of civil engineering in China. As a result, the supply of talents in the field of civil engineering in China is in short supply and cannot meet the needs of the current era. This paper will put forward some suggestions on the innovation and reform of the training methods of comprehensive ability of civil engineering students.

Keywords

Civil engineering, Teaching method, Innovation and development

Introduction

Civil engineering major has high requirements for students, which requires students to have solid professional knowledge, strong logical thinking and teamwork ability (Ren Liang, Liu Qingyun, & Wang Kai, 2022). In the past civil engineering teaching, many teachers deviated from the main content of the teaching, and the way of class was relatively simple, which led to the students' comprehensive ability could not meet the needs of the actual work. Therefore, in the new era, it is necessary for civil engineering teachers to formulate corresponding teaching plans with the teaching purpose of cultivating students' comprehensive ability as the teaching goal. Improve the quality of teaching and provide reliable comprehensive talents for the society.

1. Civil engineering requires the ability of the student

1.1 Strong logical thinking ability

Civil engineering major has high requirements for students' logical thinking ability, so it is necessary to pay attention to the cultivation of students' logical thinking ability in civil engineering teaching. When learning civil engineering, drawing drawings is indispensable. Students need imagination ability when drawing drawings, and students need to draw the floor plan of the buildings they need to construct, which is the most basic requirement for students majoring in civil engineering. If students have poor logical thinking ability, they cannot meet the needs of professional learning. Civil engineering belongs to the engineering specialty, with strong comprehensiveness (Huangqian, 2022). Mainly study mechanics, civil engineering, hydraulic engineering, etc, there are certain difficulties in learning, students need to

learn a relatively wide range of content.

1.2 Teamwork ability

Teamwork ability is also a necessary ability to study civil engineering. Whether in learning or future work, teamwork is indispensable. During the study, the drawing of some drawings needs to be completed by the team, and in the work, it needs to be completed by the whole team. In the process of completing some projects, from the beginning of planning to the implementation, members of a team need to carry out a reasonable division of labor. Only when everyone carefully completes what needs to be completed can the entire project be carried out smoothly. If members are weak in cooperation and sense of honor, it will affect the development of a certain link of work, and then affect the whole project. Therefore, the staff engaged in this field need to have strong cooperation ability to ensure the smooth completion of the task. Some students are weak in teamwork at the beginning of learning, which will affect the whole task process. This requires teachers to pay attention to the cultivation of students' cooperation ability in teaching, so as to promote the all-round development of students.

1.3 Solid basic knowledge

Because of the strong comprehensiveness of civil engineering, students must do a good job in learning basic knowledge to facilitate future application. For example, in engineering survey, it is necessary to apply certain instruments to assist measurement. This requires students to learn how to operate the instrument and then apply it in the actual measurement (Li Dong & Liu Shi, 2022). The use of instruments is the most basic content. Many students do not pay attention to the study of these knowledge when they study at ordinary times, which leads to poor grasp of basic knowledge and will affect the follow-up work. In the study of structural engineering, mechanics is a basic discipline and the most widely used discipline. In mechanics, some mechanical formulas are the most basic contents. In learning, students need to learn these formulas, and then comprehensively apply these contents. If students do not have a solid grasp of the basic formula of mechanics, they will encounter some difficulties in the final application, which will affect their final learning results. Therefore, when teaching, teachers need to pay attention to the teaching of students' basic knowledge, lay a good foundation for students, so as to promote the development of students.

2. Problems in civil engineering teaching at present

2.1 The students' learning attitude is not correct

In the teaching of civil engineering major, there is a serious problem that students' learning attitude is not correct, which will greatly affect the final learning results of students. In the teaching of civil engineering in many colleges and universities, there is a phenomenon that students are absent from work. There are also some students who do not complete the tasks assigned by the teacher on time, do not listen carefully in class, and are distracted (Yang Yonggan, 2021). These are all manifestations of the students' incorrect learning attitude. The management of colleges and universities is different from that of middle schools. The management of colleges and universities is relatively lax, which requires students' consciousness. However, if many students are not under strict management, they will reduce their energy to study, which is not conducive to students' learning. And in the management of colleges and universities, students can freely use electronic equipment. Some students can't resist the temptation of electronic devices during their study, and spend a lot of time playing games, brushing videos, etc, which can't guarantee the quality of learning. The quality of students' learning attitude has a very obvious impact on their learning achievements. However, in colleges and universities, most students do not correct their learning attitude, which affects the learning results and is not conducive to the development of students.

2.2 Teaching process does not pay attention to the cultivation of students' basic knowledge

In the teaching of civil engineering major in colleges and universities, some teachers do not pay attention to the cultivation of students' basic knowledge, which leads to insufficient development of students' ability and affects their final development. Among civil engineering majors, basic knowledge is the most important content. If students do not have a solid grasp of basic knowledge, they cannot carry out subsequent teaching work. However, in most colleges and universities, the teaching task is relatively tight, and students need to learn theoretical knowledge and practice in the course of one semester. In order to catch up with the teaching progress, some teachers ignore the cultivation of students' basic knowledge and pay attention to the cultivation of students' ability, which ultimately affects the learning effect of students. Many teachers give relatively few explanations on basic knowledge in class, so they choose to let students use the time after class to consolidate knowledge. However, the students' consciousness is low, and it is easy for them to have a

poor grasp of basic knowledge, which affects their development. And teachers have a shallow understanding of students' basic knowledge, which leads to many problems in students' basic knowledge. Lack of a solid grasp of basic knowledge is not conducive to the improvement of students' comprehensive ability, which is one of the more serious problems in current teaching.

2.3 The teaching method is relatively simple, unable to meet the needs of student development

Single teaching model is one of the serious problems in civil engineering teaching at present. In colleges and universities, many teachers are relatively older, and these teachers are heavily influenced by traditional teaching model. Therefore, many teachers adopt relatively simple teaching model in the teaching process, which leads to poor learning quality of students. In the past civil engineering teaching, teachers often use PPT teaching way. In class, the interaction frequency between students and teachers is low, and students' sense of participation in class is insufficient, which leads to the decrease of students' interest in learning, and thus affects students' learning outcomes. In college teaching, teachers need to pay more attention to the choice of teaching model, otherwise they cannot attract students' attention. The boring classroom atmosphere can not better drive students' enthusiasm for learning, which will lead to students' inability to concentrate in the classroom, thus affecting the quality of students' learning. However, many teachers do not realize the impact of teaching mode on students, especially in the teaching of civil engineering, the theory is strong, a single teaching method will reduce the quality of students' learning, not conducive to the development of students.

2.4 Students have less practical experience

Civil engineering is a profession that combines theory with practice, which not only requires students to have solid theoretical knowledge, but also needs students to accumulate experience. Civil engineering students need extensive experience in order to meet the needs of future jobs. However, in the teaching of civil engineering major in many universities, there is a problem that students have little practical experience. Among civil engineering majors, practice course is necessary content. However, due to the lack of time, inadequate site facilities and other factors, there are some problems in the implementation of practical courses, which will lead to the lack of practical experience of students, and then affect the development of students (He Yan, 2020). Due to the influence of some factors, offline courses in many colleges and universities cannot be carried out normally. As a result, some hands-on content can only be carried out by watching videos, etc. which will make students have no chance to do practical operation, thus affecting the cultivation of students' hands-on ability and the accumulation of practical experience. However, in the process of curriculum development in colleges and universities, the development of practical courses is often neglected. This is not conducive to the accumulation of students' experience, and will affect the development of students' comprehensive ability.

3. Concrete measures to train civil engineering students' comprehensive application ability

3.1 Strengthen the management of students, correct students' learning attitude

When colleges and universities cultivate the comprehensive ability of students majoring in civil engineering, they need to strengthen the management of students and correct their learning attitude, so as to ensure the teaching quality and promote the development of students. As students generally have poor self-control, it is impossible to meet the needs of students' development only through the supervision of students. This requires teachers to strengthen the supervision of students' in class status to ensure the quality of students' listening. Class is the best time to learn knowledge, teachers need to maintain the class order in the class, to ensure that every student can listen carefully. When teaching, teachers can ask students to hand in their personal mobile phones, tablets and other electronic devices in a unified way to avoid students playing with mobile phones in the classroom. Secondly, teachers can urge students to learn by increasing the number of examinations. Regular examinations are conducted within the class to test students' recent learning achievements. In addition, teachers should pay attention to the homework check of students at ordinary times, so as to prevent some students from copying homework and affecting their personal learning effect. By strengthening the management of students, students' learning quality can be guaranteed, which can lay a good foundation for the cultivation of students' comprehensive ability and promote their development.

3.2 Strengthen the training of students' basic knowledge

Civil engineering majors have high requirements for students' basic knowledge. In the past, many teachers did not pay attention to the training of students' basic knowledge, which led to students' poor grasp of basic knowledge and affected the improvement of students' comprehensive ability. If universities want to cultivate outstanding talents, it is necessary to strengthen the teaching of students' basic knowledge content, lay a good theoretical foundation for students,

so as to promote the development of students. Teachers need to spend more time explaining basic knowledge in class to strengthen students' basic knowledge training, which can effectively improve students' learning quality. Secondly, teachers should pay attention to the quality of students' learning after class and assign corresponding homework to consolidate the learning content after teaching. Timely check students' homework and make evaluation. Find out the areas where students do not have a solid grasp of basic knowledge, strengthen training, ensure the quality of basic knowledge learning, and promote the development of students. For example, when learning mechanics, students need to master a lot of relevant mechanical formulas, so teachers can arrange students to memorize them after class. Before the next class, teachers can conduct random classroom checks to test students' learning results. This can not only save time, but also consolidate students' basic knowledge, improve teachers' teaching quality, and then enhance students' comprehensive ability and promote students' development.

3.3 Change the teaching methods, add vitality to the classroom

The change of teaching methods is an important way to improve students' comprehensive ability. Especially in the teaching of civil engineering, the traditional teaching methods can not meet the needs of student development (Jia Yucai, 2017). This requires teachers to change the traditional teaching methods, innovation teaching mode, add vitality to the classroom, so as to improve the quality of classroom teaching. In the past teaching, teachers often use PPT to teach, teaching mode is relatively simple. In the innovation of teaching methods, teachers can use PPT, video, group interaction and other ways to teach, which can well improve the classroom teaching atmosphere, thus improving the quality of teaching. When teaching in the classroom, teachers need to increase the frequency of interaction with students, which can not only improve students' participation in the classroom, but also alleviate the boring atmosphere in the classroom, which is conducive to the improvement of students' learning quality. For example, when learning to draw, teachers can choose several students for drawing competitions, which can not only stimulate students' enthusiasm for learning, but also cultivate their creative ability. The effect of this teaching method is better than the traditional teaching mode, and it can cultivate students' comprehensive ability and promote their development.

3.4 Provide students with practical opportunities

In order to improve students' comprehensive ability, colleges and universities need to provide students with practical opportunities when setting up civil engineering major. In the past teaching, many colleges and universities have ignored the development of practical courses, resulting in unbalanced development of students. Therefore, it is necessary to strengthen the implementation of practical courses and provide opportunities for students to practice, so as to promote the development of students. First of all, universities need to do a good job of equipment, so as to meet the needs of students' practice. The first is the level and theodolite, which are the most basic tools for measuring data. The school needs to introduce a large number of equipment to meet the needs of students. Secondly, it is necessary to provide students with a place for practice, so as to simulate the scene of engineering measurement, which is conducive to the improvement of students' practical ability. The school needs to regularly check the progress of practical courses in different classes, such as the frequency of use of laboratories in each class, to avoid insufficient opportunities for students to practice and affect their development. In addition, the campus practice alone cannot meet the needs of students' development. Colleges and universities also need to cooperate with construction enterprises around the school, so that students can directly contact with the content of future work, which is very helpful for students to accumulate practical experience. In addition, through the internship in enterprises, students can communicate with employees of enterprises and learn experience, which can greatly improve students' professional skills and promote their development.

4. Conclusion

Talent is the foundation of national development. In recent years, the cultivation of talents in the field of construction is increased. The teaching of civil engineering specialty has a great influence on the development of society. Colleges and universities need to realize the importance of civil engineering teaching and provide excellent talents for the society. There are many problems in the teaching of civil engineering in the past, leading to poor teaching quality and students' learning quality can not be guaranteed, which is not conducive to the development of students. All colleges and universities need to pay attention to the problems in the teaching process, timely reform and innovation of teaching methods, and adapt to the development of the times.

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