Research on Teaching Methods of Mechanical Drawing

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Abstract. Combining the teaching practice and academic analysis, we explored and studied various teaching methods of "Mechanical Drawing" to stimulate students' interest in learning and to improve the quality of teaching. It mainly includes a good teacher-student relationship, a combination of various teaching methods, good first class, intensive teaching and process evaluation. According to the characteristics of students and the teaching content, the teaching methods can be scientifically set up to achieve good teaching quality and talent training results.

Introduction

As a curriculum platform for the basic courses of engineering technology, the engineering graphics course shoulders the important mission of cultivating students' spatial thinking ability, creative form configuration ability, engineering culture quality, and image thinking and innovation consciousness. Mechanical drawings are the main tools used to express design ideas in engineering design, manufacturing and construction. It is very important to train students' basic theoretical knowledge and practical operation ability. Every engineering and technical personnel must master them skillfully. Correctly understand the factors that affect the teaching effect of the course. In the teaching, according to the characteristics of the teaching content and the degree of student acceptance, timely sum up the teaching experience, flexibly change the teaching method to explain, fully mobilize and stimulate students' learning motivation and interest, so that they can take the initiative Active learning, in order to achieve a good talent training effect.

Academic Analysis

The mechanical drawing course is open to freshmen. Students have just risen from high school to college, and their enthusiasm for learning is relatively high. However, the basics of student learning and spatial imagination are uneven. The course is closely related to the student's professional knowledge, but the student has not yet studied a professional course, has not conducted a production internship, and lacks a perceptual understanding of the design engineering expression. The course is theoretically strong and students are boring to learn for them.

How to reduce the difficulty of learning, stimulate students' interest in learning, enrich the imagination of students' space, and ultimately improve the teaching effect is an important issue before us.

Teaching Methods

Good Teacher-student Relationship

Love students, teachers and students understand each other and trust each other. In teaching, teachers should lead by example, be strict with themselves, and be generous with others. Teacher care will promote active learning. The teacher cares and encourages the students' learning. We must promptly affirm the advantages and progress of the students, and promptly and patiently help solve the difficulties encountered in the study. In the communication with students, try to adopt a positive and
stimulating attitude, so that students can clearly feel their progress and the teacher's affirmation. A good teacher-student relationship is conducive to students' enthusiasm for learning and improvement in academic performance. Respect students, care for students, and combine strong professionalism, responsibility and student status, so that students are willing to learn the course with the teacher. During the learning process, some students have fears and difficulties in space imagination. Teachers should encourage them in time to enhance their confidence in learning the course. Take a real student case from previous years. It's not good to start learning for him. He understood the contents of the teacher, but his homework was not good. Other students finished half an hour, and he couldn't do it right for two or three hours. But he had always insisted not to give up, and gradually improved from the beginning of the fourth chapter. He told me that the shape of the object could be imagined faster than before, and then he learned more smoothly. His work became better and better, and the mistakes became less and less. His final results of the two semesters are also very good. Encourage adherence to Chapter 4 has an effect.

**Combination of Various Teaching Methods**

Drawing courses are generally arranged in multimedia classrooms. Make full use of audio-visual media such as slide projections, combined with physical models, to enable students to obtain vivid and specific perceptual knowledge. Contrast with the projection map, and pay attention to the manual drawing of the blackboard, so that students can master the method of analyzing graphics and the steps of drawing graphics. This can help students build space imagination and thinking ability more effectively. The combination of multiple methods can give full play to the intuitiveness, organization and rigor of blackboard drawing teaching and the richness of content and expression of multimedia teaching, which is conducive to improving students' interest in learning and focusing on classroom attention.

For example, when explaining the intersecting lines of three-dimensional intersections, students are difficult to understand according to the traditional teaching methods, which leads to poor ability of students to draw pictures. Through the visual demonstration of multimedia teaching animation, students can easily understand and accept, thus improving teaching efficiency and teaching effect. The lack of production practices when learning part and assembly drawings can be presented to students through a combination of multimedia and related video.

**Good First Class**

Whether the students' interest in learning directly affects the learning effect behind, the role of the first class is especially important. A good beginning is half the battle. In the first lesson, students are shown some parts drawings, assembly drawings, and products made by CAD and Solidworks. Let students feel the ability they can achieve after completing this course, which will arouse students' interest in learning.

**More Practice**

Mechanical drawing is a course that requires more practice to master. In the teaching, students can use their hands and brains to complete the learning content. For example, the physical analysis method and the line surface analysis method are two basic methods for looking at the three views. The teacher must explain the content clearly, and the students should do enough exercises. The teacher grasps the student's learning situation in time through the student's homework. Identify problems based on job feedback to promote students' mastery of knowledge. In this way, students can think about problems in their study, find problems in their homework, and try to find ways and means to solve problems, so that students can enter the learning state without knowing it, and gradually develop students' passive and active learning habits.
Process Assessment

Mechanical drawing is a step-by-step course. The content before and after is closely related. If students do not learn the front of the course well, the content behind will be very difficult. Through process assessment, supervision and feedback, most students can keep up with the progress of the study. So the process assessment is especially important for this course. The most important thing in process evaluation is the usual work. The teacher counts the usual homework scores into the total scores, which causes the students to pay attention to the usual study. Seriously completing each assignment is a powerful guarantee for learning this course.

Summary

In short, "Mechanical Drawing" is a basic, practical and practical course. We need to innovate and reform this course in teaching practice. In teaching, students are always the mainstay and teachers are the leaders. Fully mobilize students' interest and enthusiasm, and constantly innovate teaching concepts, so as to achieve the goal of inspiring students' thinking, tapping students' potential, and cultivating students' ability, and delivering qualified technical talents to the society.

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