

Exploration on the teaching reform of mechanical drawing in applied technical universities

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Abstract: The traditional teaching mode of mechanical drawing cannot adapt to the needs of the current applied talents. In order to make the mechanical drawing course serve the training of applied talents effectively, it is necessary to improve the traditional teaching mode of mechanical drawing. This paper explores the improvement of the teaching mode of the drawing course from the three aspects of teaching content, teaching method and assessment method, so as to make the course closer to the actual engineering, meet the needs of enterprises for talents, and improve the training quality of mechanical students.

Keywords: teaching reform, mechanical drawing, application-oriented university, practice

1. Introduction

The goal of an applied technical university is to cultivate applied professional and technical talents, and it is positioned in "highlighting the cultivation of corresponding professional ability and practical application ability"[1]. At present, the demand of enterprises for application-oriented talents is increasing. How to adapt to the needs of enterprises and cultivate application-oriented technical talents to meet the development of enterprises is a challenge to the teaching of applied technology universities. As an important basic compulsory course for engineering majors, engineering drawing has strong professionalism and practicality, it mainly cultivates students' professional ability of schedule drawing reading and drawing, lays a good foundation for later professional courses learning, and plays an important role in cultivating students' awareness of engineering norms and standards and improving their professional quality. Taking the engineering drawing course as an example, this paper discusses the problems and solutions in the course teaching process, trying to find a suitable reform way.

2. Reform in Education

2.1.1. Optimization of Teaching Content

Adjust and optimize the teaching content according to the engineering practice. The content of traditional cartography courses emphasizes theory and cannot meet the needs of enterprises in terms of application. Therefore, it is necessary to add practical links. By introducing enterprise engineering cases, the teaching content combining theory and engineering practice can be realized to stimulate students' interest in learning. Focus on the cultivation of traditional manual drawing ability, emphasize the practicability of teaching content, and update the content of teaching materials in time according to new standards and new documents, and use real photos to enable students to have a more comprehensive and intuitive understanding of the engineering application of drawing. At the same time, the content of professional knowledge such as metal technology, mechanical principles, and mechanical design is appropriately added to the course content, so that students have a clearer understanding of the

design and processing of engineering parts.

2.2. Optimization of Teaching Methods

Teaching method is recognized as an important factor that can affect the quality of teaching [2]. The traditional teaching method is mainly lectured by teachers and passively accepted by students and lack subjective initiative in the whole learning process, which often results in low learning efficiency of students. However, there are surveys found that students have generally adapted to this passive education model, and it is not acceptable for most students to change the teaching method, increase the students' subjectivity, and make students make more efforts in the classroom [3]. Therefore, in the optimization of teaching methods, we should not make drastic changes, but should proceed step by step to find the most appropriate method.

The current teaching methods include lecturing, discussion, question and answer, heuristic, inquiry, guidance, etc., each of which includes one or more systems, as shown in Figure 1. In the process of improving teaching methods, we should not blindly pursue mixed teaching methods, but still give priority to teaching and appropriately introduce other teaching methods as auxiliary means. On the one hand, we should respect students and make choices according to their actual acceptance; on the other hand, we should combine teachers' own characteristics and choose a method suitable for their own teaching method. As teachers, we should not only understand each teaching method, but also have the skills of flexible use of teaching methods, so that we can timely adopt the best method to improve the quality of teaching in the teaching process.

Studies have found that the most important way to stimulate students' interest in a course is to make students have a positive experience in learning. Therefore, in the teaching process, it is necessary to pay attention to the positive interaction with students, strengthen the communication between teachers and students, and use the online course platform to build a feedback mechanism of interaction between teachers and students, so as to timely grasp students' learning status and ideological status, and improve students' experience in the whole course learning process. In addition, make full use of new technologies and

new means to strengthen students' spatial thinking ability, using 3D software composition, 3D printing and virtual reality and other technical means, so that students can fully

understand the spatial structure characteristics of graphic lines, strengthen the spatial thinking mode.

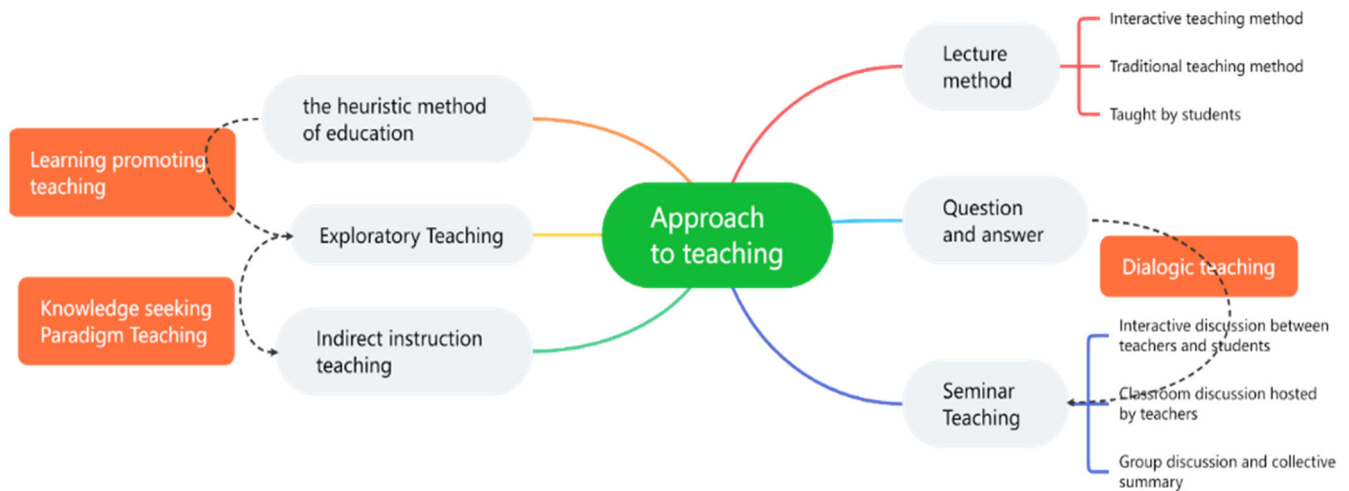


Figure 1. teaching methods

2.3. Optimization of Assessment Methods

From the survey of students, it is found that many students are resistant to examinations. Nearly 35% of students hope to replace examinations with periodic tests or homework.

In many cases, the examination content of exam-oriented education does not need to be memorized by students. It can be obtained by referring to relevant books, manuals and materials in engineering. What students really need to master is the method and idea of solving problems, rather than memorizing some concepts and formulas. Therefore, we really need to rethink whether it is reasonable to measure a student's mastery of knowledge and skills through a one-time closed-book examination.

Change the traditional concept of course assessment. replace examinations with evaluation, reduce the proportion of closed-book examinations, emphasize process evaluation, and conduct evaluation assessments on students' learning in multiple links, multiple directions, and multiple levels.

Guide students to learn practical engineering cases through hands-on practice based on practical engineering problems, deepen their understanding and mastery of basic knowledge, taking courses design, reports, papers, etc., comprehensively evaluate students' learning of course content, pay attention to the combination of theory and practice, cultivate innovative ability, and promote the mastery of applied skills.

3. Conclusion

Under the background of the construction of Applied

Technology University, the teaching of engineering drawing course is related to the development of students' professional quality and is an important course of engineering majors. For the teaching reform of mechanical drawing courses, on the one hand, it is necessary to strengthen the construction of course content and optimize the course structure; on the other hand, we should strengthen the connection between theoretical knowledge and practical exercise, so that the teaching of the course is more conducive to the exercise of students' practical skills and the improvement of innovative thinking. In addition to improving, it is necessary to adjust the assessment methods to more reasonably evaluate the knowledge and skills of students, and through various reforms, to promote the curriculum education of applied universities to better supply talents for enterprises.

References

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