

Exploration of Network Synergy Teaching Method for Plasticity Forming Principle

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Abstract: According to the characteristics of plasticity forming principal course, this paper puts forward the method of network synergy teaching, and completes the design of network synergy teaching of plasticity forming principle under the guidance of the method. Through teaching practice, it is found that the method can not only realize the network synergy teaching well, but also optimize the teaching content and promote the improvement of students' comprehensive quality. Therefore, the network synergy teaching method of plasticity forming principle is of great significance to improve the teaching quality of plasticity forming principle.

Keywords: Plasticity forming principle; Network synergy; Exploration of teaching method

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1. Introduction

The principle of plasticity forming is an important professional basic course, which is of great significance for improving students' professional quality and cultivating their innovative ability. However, this course involves a lot of abstract content and requires a lot of calculation and data analysis, which puts high requirements on students' abstract thinking ability and mathematical foundation. At the same time, with the continuous improvement of the society's requirements for talents, the traditional teaching methods have been difficult to meet the needs of teaching. In the "Internet+" era, in order to improve the comprehensive quality of students and cultivate their innovative ability, colleges and universities are actively exploring new teaching models. Network synergy teaching is a new teaching mode, which changes the traditional classroom teaching mode of "one-to-many" of teachers, and turns "many-to-many" into "many-to-one". Network synergy teaching uses network information technology to build a platform, which takes students as the center, connects students, teachers and other learning resources, and realizes the collaborative interaction between teachers and students, students and students. Network synergy teaching can realize the sharing of high-quality educational resources and complementary advantages. At present, traditional classroom teaching and network synergy teaching are generally adopted in the teaching of plasticity forming principle in colleges and universities. In the network synergy teaching, teachers and students, as well as students and students can realize the advantages of complementary, information sharing, and then achieve the purpose of resource sharing, complementary advantages, mutual promotion.

2. Characteristics of Plasticity Forming Principal Course

The principle of plasticity forming is one of the basic courses for materials engineering majors, which covers all aspects of metal plasticity forming process. Theoretical basis, experimental equipment and process technology are all the main content of this course, and also the basis for students to learn follow-up courses. Therefore, the course has a pivotal position in the whole professional knowledge system. The course is difficult to learn, with many knowledge points, abstract concepts, and formulas that are difficult to understand and remember, so students are generally afraid of difficulties in this course. In view of this situation, the teaching method is particularly important. Adopting the appropriate teaching method can help students better understand the knowledge point and improve the learning efficiency.

In the course of plasticity forming principle, the traditional teaching mode mainly adopts "filling" teaching method, that is, the teacher

teaches according to the order of the content of the textbook, and the students passively accept the knowledge. Although this teaching method is easy for students to understand and master the knowledge points of the course, it also has some shortcomings: Firstly, because the classroom teaching time is limited, students are easy to lose interest in learning; Secondly, students are prone to be weary of studying; Thirdly, it is difficult to improve students' ability to solve practical problems. In order to solve the above problems, this paper puts forward the network synergy teaching method. Network synergy teaching combines network technology with traditional teaching mode, and students can learn and communicate online. At the same time, teachers can also combine classroom content with practice to encourage students to learn and think independently. Network synergy teaching mainly includes three aspects: The first is the establishment of professional website or blog; The second is to establish an online question-answering platform; The third is to establish online communication platforms such as QQ groups or WeChat groups. Through the construction and application of these platforms, we can realize the functions of distance learning, information exchange, learning management and interactive question answering.

3. Network Synergy Teaching Method

Network synergy teaching method is a new teaching method developed on the basis of computer technology and network technology. Its purpose is to make full use of various teaching resources and improve teaching quality and efficiency. This new teaching method emphasizes the synergistic interaction between teachers and students, and gives full play to students' enthusiasm and initiative in learning. Network synergy teaching methods include "flipped classroom", "micro class", "MOOCs" and other forms, the essence of which is to promote the combination of students' independent learning and teachers' intensive teaching. In "flipped classroom" teaching, teachers release micro-course videos, PPT and other learning materials before class, organize students to carry out group discussions in class, make micro-course videos of key, difficult and doubtful contents and upload them to the online learning platform, and students learn key and difficult knowledge through watching micro-course videos. In the "micro-lesson" teaching, teachers use multimedia technology to make the key and difficult knowledge into multimedia micro-lesson videos and upload them to the network learning platform. Students learn the key and difficult knowledge by watching the micro-lesson videos. In the "MOOCs" teaching, teachers use multimedia technology to make MOOCs videos of key and difficult knowledge and upload them to the online learning platform. Students learn the key and difficult knowledge by watching the MOOCs videos. The network cooperative teaching method realizes the sharing of resources and the interaction of information, and realizes the two-way support for teachers and students. Specifically, the network synergy teaching method can solve the drawbacks of traditional classroom teaching: in the traditional classroom, the teacher needs to explain to all the students, while in the network synergy classroom, students can access the platform at any time to learn. In the traditional classroom, teachers can only explain a certain knowledge point, while in the network synergy classroom, teachers can choose different knowledge points to explain according to different course contents. In the traditional classroom, the information exchange between teachers and students is one-way, while in the network synergy classroom, the communication between teachers and students is two-way.

4. Teaching Design

The teaching design of the plasticity forming principle course mainly includes the following aspects: 1) The overall design of the course mainly includes the course objectives, course content, teaching methods and means, assessment methods, etc.; 2) Course content design mainly includes teaching objectives, teaching content and means, assessment methods, etc.; 3) Network synergy design mainly includes the design of learning resources (including the establishment and maintenance of teaching courseware and virtual experiment environment, etc.), the design of network synergy platform (including the construction and maintenance of online discussion areas, etc.) and the construction of student learning management system.

Based on the above design, it is constructed that the network synergy teaching platform of plasticity forming principle. The platform first sets the overall goal of the course, and sets the corresponding learning goal in the learning content of each chapter, and then sets the virtual experiment environment and students' independent learning resources (such as learning forum) of each chapter. Finally, an online discussion area is set up for students, in which students can discuss and exchange questions. At the same time, in order to meet the needs of students at different levels, the platform also sets up corresponding assessment methods and establishes a student evaluation system. In addition, the platform supports online communication between teachers and students. This platform can not only realize the network synergy teaching of plasticity forming principle, but also carry out many teaching activities.

5. Teaching Effect

The teaching of this course is student-centered. Network synergy teaching assigns learning tasks before class, carry out real-time teaching interaction in class, and finish homework, experiment report and homework question answering in time after

class,so as to promote students'understanding and mastery of knowledge and stimulate students'learning interest.The teaching effect is mainly reflected in the following aspects: firstly,it is helpful for students to grasp the key points of knowledge;Secondly,it can enrich the classroom content and make the teaching more effective;The third is to improve students'learning interest and enthusiasm;The Fourth is to realize the interaction between teachers and students.The fifth is to promote the improvement of students'comprehensive quality.For example,the network synergy teaching of plasticity forming principles can make students have a deeper understanding of knowledge and cultivate their self-study ability,innovative thinking ability,teamwork spirit and comprehensive quality.

6. Conclusion

Based on the analysis of the characteristics of the plasticity forming principal course,this paper puts forward the network synergy teaching method,and puts the method into practice through the teaching design.The course of plasticity forming principle has the characteristics of strong theory and practice,which makes the network synergy teaching method possible.Through network synergy teaching,the limitation of time and space can be broken,so that more students can have access to high-quality educational resources.Secondly,the network synergy teaching method can make full use of network resources,such as online courses,forums,collaborative platforms,etc.,to realize the sharing of teaching resources and improve teaching efficiency.In addition,the network synergy teaching method can also stimulate students'learning enthusiasm and initiative,and improve students'learning results.

However,the network synergy teaching method also has some challenges,such as how to guarantee the teaching quality,how to protect the students'learning rights and interests.Therefore,future research needs to further explore the implementation mechanism of network synergy teaching method to solve these problems.In general,the network synergy teaching method of plasticity forming principle is a potential teaching reform measure,which is worthy of further popularization and application.In the future teaching process,we should continue to pay attention to the implementation effect of network synergy teaching method,and constantly improve and optimize the teaching method to improve the teaching quality of plasticity forming principal course.

References:

- [1]Xuan Xiao,Qingzhu Sun&Chaoyong Zhao et al.Teaching Research and Practice of Metal Plasticity Forming Principle[J].Reading and Write Periodical(Journal of Education and Teaching),2019,16(12):73.
- [2]Xuzheng Qian,Liming Wang,Feng Huang et al.Discussion on Teaching Mode and Application Effect of the Course of Metal Plasticity Forming Principle[J].Neijiang Science and Technology,2021,42(06):29-31.
- [3]Ningkang Luo&Yi Mei.Teaching Design and Practice of the Course of Metal Plasticity Forming Principle[J].Academic and Practical,2022(03):120-123.