Blended Learning Research of Optoelectronic Professional English Based on MOOC + Asynchronous Spoc

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Abstract: "Optoelectronic Professional English" relates to electronic science and technology, optoelectronic information science and engineering, applied physics and other majors, which enables students to read professional English literature to acquire new professional knowledge and information. It aims to familiarize students with the English expressions of professional articles, engineering materials and operation manuals in a relatively short time, and accumulate a certain amount of professional vocabulary. The main purpose is to cultivate students' ability of reading and applying professional English. This study takes the initiative to meet the national and social requirements for the training of new engineering talents, and reforms and improves the orientation, objectives and outline of "Photoelectric English" course to meet the needs of new engineering construction and talent training. We will build Online courses, integrate the teaching mode of Massive Open Online courses (MOOC) and asynchronous Small private online courses (SPOC), and explore the "student-centered" teaching mode. The blended curriculum teaching method is used to enhance students' learning interest and learning effect, improve students' "knowledge, ability and quality", so as to cultivate professional and international interdisciplinary talents, and provide important reference experience and methods for related majors to carry out various educational reforms and professional certification in the future, as well as the subsequent construction of bilingual courses.

1. Introduction

"Professional English" is a Chinese-English bilingual course for electronic science and technology, optoelectronic information science and engineering and other majors set up by the College of Optoelectronic Engineering in 2006. The course content is based on the self-written handout "Photoelectric Science and Technology English Handout", which is based on the latest English literature of widely developed and applied technologies of photoelectric major, such as optical fiber communication technology, imaging technology, laser technology, chip technology, nanotechnology, and so on. The teaching and cutting-edge scientific research are closely combined, so that students can master the advanced technological achievements and development trends in the field of optoelectronics. At the same time, it introduces the professional vocabulary, common sentence patterns and expressions of optoelectronic English, and teaches the morphological, syntactic and textual features of scientific English writing to help students get familiar with professional expressions and improve their ability of single sentence writing and text writing[1]. But blended courses bring new requirements and challenges to the creation of curriculum teaching teams. The combination of online and offline "golden class" education environment is more systematic and detailed than the requirements of traditional face-to-face teaching. To solve these problems, this study intends to adopt the teaching model of MOOC(Massive Open Online courses) [2-4]and asynchronous SPOC(Small private online courses)[5,6]. We can make use of abundant online teaching resources, reasonably design teaching content and publish teaching tasks. At the same time,

the teaching platform is used to manage class check-in and timely track students' learning situation, so as to improve students' learning participation and online learning effect.

2. Teaching Practice of "Optoelectronic Professional English"

The main construction contents of the project are shown in Figure 1.
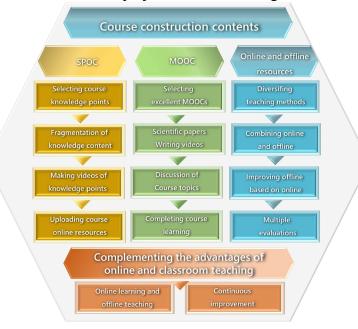

Fig.1 Course Construction Contents

2.1 Curriculum Top-Level Design

With "students as the center", the teaching objectives in line with the training requirements of new engineering talents should be reformulated to realize the organic combination of knowledge education, ability training and quality cultivation, and highlight the cultivation of innovation ability. We need to sort out the course teaching content, revise the teaching syllabus, ensure the complete knowledge system, and incorporate the cultivation of students' professional ability into the teaching process. Establish a sound course quality assurance system. The goal achievement evaluation system should be established, and the teaching effect should be evaluated by quantitative and qualitative evaluation, subjective and objective evaluation, self-evaluation and external evaluation, so as to comprehensively and objectively understand the teaching achievement situation and existing problems. And on the basis of the evaluation results, in view of the problems and deficiencies found, continuous improvement measures will be put forward.

2.2 Online and Offline Reform

In combination with the above adjusted teaching syllabus, the corresponding teaching content knowledge unit system is established. Through reasonable fragmentation of knowledge content, different fields of photoelectric professional English are taken as units to shoot, and the existing video shooting equipment of the college is used to produce online teaching SPOC video resources featuring knowledge expansion[7], showing cutting-edge technology and highlighting rigorous thinking. Excellent and established MOOC massive open online courses are selected as auxiliary courses to carry out online and offline hybrid teaching, expand the classroom and strengthen the function and role of classroom in ability cultivation[8]. In order to overcome the poor teaching effect of single teaching and the limitation of some non-professional ability cultivation, the teaching method is reformed, and the teaching method is transformed from simple teaching to diversified teaching.
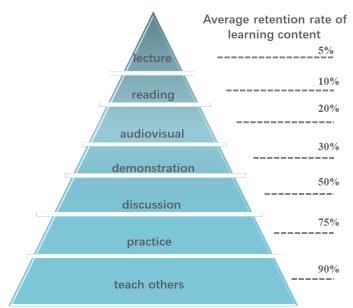
2.3 Classroom Teaching Design

Fig.2 The Teaching Process According to the Learning Pyramid

According to the characteristics of the course content, the teaching methods and modes of some knowledge are re-structured and designed, and the teaching content, teaching links and teaching methods are taken as the carrier to implement the ability cultivation in all aspects into the classroom. The classroom design is different from the teaching plan. On the basis of teaching plan knowledge, the cultivation of students' innovative ability, innovative thinking, logical thinking, teamwork ability and scientific literacy should be increased. The teaching process is arranged according to the learning pyramid (as shown in Figure 2). According to the offline teaching of the course objectives, we will identify the students' learning "interest points" as the "entry point", adopt various forms suitable for the course content and objectives such as exercise explanation, case teaching, special discussion, flipped classroom and so on to explain the key points thoroughly and break through the difficult points. For the comprehensive knowledge points, we will establish the knowledge map, and fully guide the students to achieve a clear cognition.

2.4 Bilingual Curriculum Teachers Construction

We will regularly carry out teaching and research activities and discuss personnel training model, curriculum system setting, textbook compilation, teaching methods and teaching content, courseware and video production, etc. Regularly activities such as open class and class competition are carried out. We will encourage teachers to participate in relevant seminars and training, improve the corresponding teaching and teaching research and reform level. At the same time, our teachers are encouraged to actively participate in scientific research projects, for grasping the forefront of technological development, and promoting timely updates of teaching content.

3. Conclusion

Relying on the course "Photoelectric Professional English", it carries out the teaching reform and practice of online and offline mixed teaching mode. Adhering to the education concept of "student-centered" and centering on the construction standard of "golden course", it not only carries out the reform of teaching methods and methods based on information technology, but also improves the advanced and challenging degree of teaching content. We will develop a new teaching model for exploring, speculating, and expanding practical knowledge. The design and practice of the online and offline mixed "golden Course" for Photoelectric Professional English can effectively promote the personalized and in-depth learning of college students, and provide important reference experience and methods for relevant majors to carry out various educational reforms and

professional certification in the future, as well as the subsequent construction of bilingual courses. For the post-epidemic era, It is of certain reference value for college teachers and students to realize high quality online and offline mixed teaching.

Acknowledgement

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