International Journal of Social Science and Education Research Volume 4 Issue 10, 2021
ISSN: 2637-6067 DOI: 10.6918/IJOSSER.202110_4(10).0004

Exploration and Practice of Bilingual Teaching of Production Planning and Control Based on EMI

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Abstract

Based on the teaching concept of integrating with the world and the teaching purpose of improving students' foreign language learning ability and professional knowledge level, bilingual teaching has become one of the key links in higher education. In this study, the production planning and control course is taken as the research carrier to study the teaching situation of the course. Combined with the experience of the existing EMI teaching mode, the implementation way of bilingual teaching is explored. At the same time, based on the principle of differentiation, this paper puts forward a diversified assessment system in order to cultivate professional talents with international communication ability, promote the unity of professional learning and English improvement between teachers and students, and improve the balance of teaching satisfaction.

Keywords

Production planning and control; EMI; Bilingual teaching.

1. Introduction

Production Planning and Control is the core course of industrial engineering major, with comprehensive contents and rich theoretical basis. It applies multi-disciplinary knowledge such as operations research and project management, and its teaching links involve teaching projects such as course design, case analysis and comprehensive experiment, so it has strong practicality [1].

In order to better accomplish and realize the goal of "by the middle of the 21st century, the construction of China's double first-class universities should reach the forefront of the world" proposed in the "Overall Plan for Promoting the Construction of World-class Universities and First-class Disciplines" issued by the State Council in October 2015 [2], this study takes the course Production Planning and Control as the research carrier. EMI teaching mode of teaching ideas and teaching methods, hope from the fundamental solution to bilingual teaching of specialized course teaching teachers is not balanced, single teaching design, course education of sonic problems, to improve students' professional knowledge reserves and the expression of English vocabulary, comprehensive design and improve the production planning and control of bilingual curriculum system, course materials, Apply the pluralistic teaching means and methods, construct the three-dimensional teaching mode.

2. Current Situation of Production Planning and Control Teaching

The teaching of Production Planning and Control is mainly based on theoretical study, and a large number of foreign cases have been introduced into the textbooks in recent years. However,

ISSN: 2637-6067 DOI: 10.6918/IJOSSER.202110_4(10).0004

the teaching curriculum system is constructed as a single Chinese teaching, and there are many deficiencies in the teaching process. Can not meet the increasingly international professional talents with international communication skills. At the same time, the degree of global integration makes the chinese-foreign cooperation in running schools with more attention, since 2015, yanshan university and curtin university in Australia for industrial engineering successfully opened the "3 + 1" project of undergraduate course teaching, teachers' teaching of industrial engineering at the university cooperation in running schools of the production planning management course for EMI teaching mode, the development of the course, It provides a way to further understand the difficulties and solutions of bilingual teaching, and accumulates some experience for domestic classes to carry out bilingual teaching.

3. Problems Faced By Bilingual Teaching of Production Planning and Control

3.1. Lack of Bilingual Teaching Materials

Teaching materials are the basis of teaching. In the existing teaching materials in China, there is no teaching material or reference book for bilingual teaching of Production Planning and Control. At present, Production Operation Management published by Tsinghua University Press is adopted as the main teaching material in the teaching process, and the contents lack of supporting resources for bilingual teaching. However, if the teaching materials are directly used in English, students may not be able to adapt to the teaching arrangement due to the different emphasis in foreign countries and the great difference between the teaching system and that in China.

3.2. The Bilingual Teaching Faculty Is Weak

As the implementors and guides of bilingual teaching, teachers have high requirements for English professional vocabulary mastery and oral expression ability. If teachers cannot accurately express the teaching content, the teaching effect will be greatly reduced. In contrast, in China, although there are more teachers with rich professional teaching experience, the lack of teachers who are familiar with the content of Production Planning and Control and have good English proficiency has caused a certain resistance to the development of bilingual teaching.

3.3. The Students' English Proficiency Is Uneven

A survey of college and graduated students shows that although most of them have passed CET-4 and CET-6 in college, they lack the ability to master professional English knowledge, and some of them can't even recognize simple professional English vocabulary and English abbreviations [3]. According to the current situation of students, there is still a gap between students' English ability and bilingual teaching objectives and requirements.

3.4. Teaching Process Design Problem

Single Chinese teaching course system construction and the Chinese/English bilingual curriculum system design in teaching content arrangement, teaching methods, teaching quality evaluation, student course examination there is a difference, for a long time, because of the limitation of education funds, teachers limitations of traditional production plan and control the teaching process is given priority to with "teaching method" teaching method.

4. Advantages and Feasibility of Emi Teaching Model in Bilingual Teaching

EMI teaching mode in English as a medium for teaching organization, professor knowledge as well as other exchange activities between teachers and students, in the process of teaching, the teachers and students English level the demand is higher, carried out in colleges and

ISSN: 2637-6067 DOI: 10.6918/IJOSSER.202110_4(10).0004

universities in our country is less, but its take the student as the center, to practice research as the guide, to carry out teaching activities regarding the question of teaching concept, to mobilize students' initiative, Cultivate students' ability to think and solve problems [4]. Bilingual teaching mode which USES two kinds of language teaching [5], have bilingual teaching in colleges and universities in our country, generally refers to the Chinese and English, with Chinese professor is given priority to, but most of the teachers only in professional terms into English, violation of bilingual teaching, disguised allowing students, which is based on professional knowledge in English learning, the teaching effect is poorer, Drawing on the experience of Emi teaching mode, this paper analyzes the feasibility of Emi teaching mode in the process of bilingual teaching from the perspectives of students, teachers and courses. Based on this, measures for bilingual teaching reform of Production Planning and Control are formulated.

4.1. Student Perspective

Undergraduates are in the prime of life, new knowledge and new things have a strong attraction to them, and students at this stage have obvious advantages in the ability to accept new knowledge and learn new methods. In addition, students have strong subjective consciousness, good development and other characteristics, which remove some obstacles for the development of bilingual.

4.2. School and Teacher Perspective

Schools to cultivate the high quality, the attitude of the innovative talents, to help the teaching effect of the new teaching method, teaching forms, teaching means, etc are encourage to try and focus on support, and by organizing training activities, has obtained the certain effect, improve the teachers' autonomous learning ability and teaching ability, for the bilingual teaching faculty.

4.3. Course Angle

The course "Production Planning and Control" is rich in content, which involves the planning, design, analysis, implementation and evaluation of production and service system. In addition, teaching activities such as course projects, case analysis and group discussion are interspersed in the teaching process to make the teaching scheme design more reasonable. At the same time, the campus network project makes resource sharing and information exchange very convenient, and the teaching materials about production planning and control can be updated in a timely manner. The new teaching methods and educational technical means provide a good teaching atmosphere and technical support for the implementation of bilingual teaching.

5. The Bilingual Teaching Reform of Production Planning and Control Based on EMI

5.1. Design of Teaching Objectives

5.1.1. Promote the Dual Goal of Professional Knowledge Learning and English Proficiency Improvement

In the teaching process, students can choose according to their own language level and demand for their course content fully absorb, through to the teaching materials in both English and Chinese have a choice of learning, training students' English listening, speaking, reading, writing and the ability of learning, thought, not only ensure professional knowledge acquisition and improve students' English ability.

ISSN: 2637-6067 DOI: 10.6918/IJOSSER.202110_4(10).0004

5.1.2. Improve the Teaching Quality of Professional Courses and Stimulate Students' Learning Initiative

Teachers and students interaction is an effective means to improve the attractiveness of course teaching. In EMI teaching mode, TRF (Initiation-Response-Feedback) [6], Check Comprehension [7], etc., are very common in teacher-student interaction in class. Link of the teaching idea of EMI, this paper, the design, through the bilingual teaching, the social sciences such as mathematics, economics and management, and mechanical engineering, engineering technology and industrial engineering and other basic theoretical knowledge into the classroom, with the help of EMI of interactive teaching mode, and realize the good communication between teachers and students, stimulate students interest in learning, make its master the basic principle and method of industrial engineering design, At the same time, it cultivates students' ability to analyze complex engineering and management problems of industrial engineering and develop systematic solutions or decision-making schemes. This goal not only pays attention to students' academic performance, but also pays attention to the cultivation of students' comprehensive ability and innovation ability as well as the improvement of their satisfaction, so that both sides of the teaching can achieve a balance of satisfaction.

5.2. Teaching Content Planning

Systemic knowledge should pay attention to the teaching content, due to the course content is more, have a certain relationship between chapters, teachers should help students put knowledge into line, the fed by line, finally to apply knowledge to the specific practical problems, such as the teacher put forward problems and guide students to the key points in the application of the production planning and control course, and the courses, For example, the course knowledge of operations research and statistics can be used to analyze and solve practical problems and get optimal solutions through modeling and computer, so that students can use what they have learned, understand and apply the theories and methods of production management, and avoid the teaching mode of only explaining knowledge points. The specific teaching plan includes three aspects.

5.2.1. Theoretical Teaching

In the theoretical teaching process, the method of combining online and offline is adopted, accounting for 1/3 of the total class hours. The teaching process, according to the original foreign textbooks and curriculum related materials, the development of syllabus, handouts and so on. In the process of teaching in class, the teacher's explanation, blackboard writing, courseware, lecture notes and communication between the students and all adopt English finish, after class, teachers provide students with the Chinese version of courseware and the worksheets, convenient students after class to review, and the Chinese answer students questions, solve students doubts, to build information bilingual teaching atmosphere, interpretation of bilingual teaching.

5.2.2. Case Teaching

The teaching content should increase the proportion of case teaching. Each chapter should introduce 1-2 excellent teaching cases from home and abroad, accounting for 1/3 of the total class time. In this teaching process, students are not familiar with the teaching mode, so the mother tongue is used at the beginning of the teaching, and then the second language is gradually used for part of the teaching. First by the students to form study groups for analysis, using the theory of curriculum knowledge to solve problems in case, in the end, to the teacher questions, students answer students take the initiative to report or check the students' study effect, so as to achieve the purpose of training students' oral English, improve the application

ISSN: 2637-6067 DOI: 10.6918/IJOSSER.202110_4(10).0004

level of students' knowledge of production management, train the students' ability to use English to think, to solve the problem.

5.2.3. Project-based Teaching

Project teaching guided by teachers, with the concept of project implementation, mainly by the student independently complete production line information collection, design and improve production planning, implementation and evaluation process, the use of production planning and control techniques and methods learned in the course, to solve complex problems in production and service practice, about a third of the total class hours. In the teaching process, the main teaching is in Chinese, supplemented by English. For example, the production line design and balance method of the project can be introduced in Chinese, supplemented by English terminology explanation, so that students can master the basic English vocabulary of production planning and understand the latest development of production system theory.

5.3. Teaching Method Design

5.3.1. Apply Diversified Teaching Methods and Methods to Increase the Interest of the Course

First, the traditional multimedia teaching method can be used, but the teaching process to students as the center, production planning and control in teaching course, in view of the student English condition reorganize the teaching content, professional background, will use the courseware slides in English and use English courseware before class and class, Chinese courseware push to students after class, helping students to preview before class and review after class, Improve the effectiveness of teaching.

Second, teachers can use the existing audio, images, tables and other network resources to equip audio and video in accordance with the key points of the course in the process of explanation, guide students to understand the course content and divergent thinking by using multi-directional interpretation, so that the explanation content is easier to absorb and the difficulty of understanding the key and difficult points is reduced.

Thirdly, teachers can use English real-time question-and-answer websites such as Kahoot, Quielet [8], and Ment [9] to carry out question-and-answer, exchange and debate activities, mobilize the classroom atmosphere, and give full play to students' initiative in raising questions and solving problems.

5.3.2. Build Three-dimensional Teaching Mode and Guide Diversified Learning Methods

Three-dimensional teaching mode [10] through the medium of teaching, clear and simple to help students build a professional knowledge base, introducing enterprise research, simulation, role playing and other diversified approach to learning, help students to strengthen knowledge, construct the three-dimensional mode of thinking, students actively and apply the knowledge, such as guiding students to participate in national, provincial and field competition, To improve the ability of students to apply what they have learned and ensure the quality of teaching, the details are as follows.

First, strengthen practical teaching. Teachers can adopt methods such as group or group cooperation, and adopt teaching activities such as research practice, case analysis and self-portrait video skits. Students can choose topics and conduct in-depth analysis by themselves, so as to transform classroom knowledge teaching activities into internal self-knowledge activities.

Second, combining Emi teaching concept, appropriately increase the proportion of extra-curricular practical activities, and carry out teaching activities by using methods such as discovery and inquiry to increase students' interest and field visits.

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Third, EMI mode of classroom interaction link set up and class learning task allocation, in both the teaching effect, in the process of bilingual teaching, draw lessons from experience, to explore after-school review link, the teacher may arrange learning content summary in English, to help students to study the courses that students combing knowledge system, understand the course content, Let the teacher know the student's learning progress and acceptance degree.

Fourth, the establishment of online and offline learning methods, the network is the main media for contemporary college students to participate in various activities, teachers should be teachers and students online interaction, network teaching and other teaching means horizontal extension. For example, as an online teaching platform, Super Star "Learning Tong" has been widely used in universities and colleges. With this platform, a bilingual online teaching platform can be built, which is convenient for students to preview before class and review after class, and provide students with learning resources such as syllabus, learning guidance, teaching courseware and so on. We can also interact with students through the learning platform, collect the feedback information from students, and the teachers can summarize the information and improve the corresponding links to improve the teaching efficiency. In addition, the platform will also set up bilingual teaching discussion module, students can put forward questions on the online platform, teachers on the website to answer in a timely manner, to achieve the communication between teachers, students and students without time and space restrictions.

Finally, on the basis of the online self-study students, teachers through offline interaction teaching, combining student scattered knowledge of online autonomous learning achievement, the interpretation of targeted students online feedback by the difficulty in the learning process, comprehensive and systematic carding knowledge summary, guides the student to the achievement of the share, discuss, and to form the knowledge structure of the system. Teachers can also find out some expanding materials, guide students to read and learn, design questions that inspire students' thinking, and discuss them together to help students master unit knowledge and improve the teaching quality of offline courses.

5.3.3. Other Teaching AIDS

With the rise of the computer simulation technology, simulation teaching continuously into the classroom, through practical operation, the simulation enterprise actual operation process, the sense of students is stronger, the aim of this study is in the teaching process of the production line by using the simulation software simulation teaching, through the establishment of a production operation system simulation model, design system performance indicators by the students, And run the model to find the bottleneck link, put forward the corresponding optimization strategy for improvement, and complete the evaluation.

5.4. Strengthen Teaching Resources Cultivation

5.4.1. Improve the Course Teaching Materials

Under the condition that students master a complete knowledge system of production planning and control course and bilingual teaching is the basic principle of means, Chinese teaching materials are the clue and English teaching materials are the supplement. The selection of bilingual textbooks in Chinese and English is not limited to "one book, one theory". The teaching process is mainly taught in English, supplemented by Chinese tutoring.

The teachers' project team members constructed and completed the bilingual teaching materials of Production Planning and Control, collected a large number of domestic and foreign cases, organized them into Chinese-English bilingual cases, made bilingual PPT, established a test question bank in both Chinese and English, and supplemented the deficiency of teaching materials in Chinese or English. Each chapter combines Chinese and English textbooks with video, text and multimedia materials to maximize students' access to information. Exercise

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students' ability to summarize and apply knowledge, and have the ability to learn original English textbooks.

5.4.2. Cultivate Bilingual Teachers

The teacher is the soul of education, bilingual teaching staff development can be based on the ordinary teachers team construction goals and steps, using the special policy support and special measures such as strengthen bilingual teachers resources, such as the specialized course bilingual education innovation and development base, realize the teachers' scientific research work, the formation of teachers' achievements in theoretical teaching, scientific guide specialized course bilingual education practice, at the same time, We should pay attention to the implementation of incentive measures for bilingual teachers, such as teachers enjoying bilingual teaching workload subsidy, giving priority to teaching evaluation, giving priority to annual assessment and so on, so as to stimulate the enthusiasm of bilingual teachers.

Therefore, we should strengthen the standardized construction of bilingual teaching of specialized courses, promote teachers to constantly improve their international vision, strengthen the study of foreign language materials, promote the level of professional scientific research, and improve the ability of English teaching. Secondly, we should strengthen the construction of bilingual teachers for specialized courses and pay attention to the intensive English training for teachers.

5.5. Establish A Diversified Assessment System

In the EMI course, the teaching evaluation takes into account the proportion of English use, the expression of students' opinions, the participation in international cooperation projects and other indicators, and comprehensively considers the process evaluation and result evaluation, which is obviously motivating for students. Referring to the evaluation system of EMI teaching mode, bilingual teaching and traditional teaching in common, from training students learning ability, increase the thinking ability of students, inspire students' active spirit, to measure evaluation approaches such as academic performance improvement design, plan including the final exam, experiment courses and level 3 assessment of project and other 4 parts, The final exam, as a direct way to test students' learning results and application ability, accounts for 50% of the total score, 25% for both Chinese and English. The experimental score, accounting for 15% of the total score, is evaluated from the aspects of students' experimental attitude, attendance, report content completeness, report format standard, and experimental operation process standard. Level 3 projects are carried out in groups, and the results of the projects account for 15% of the total results. Other assessment results are mainly composed of the usual homework results or research report results, accounting for 20% of the total score.

The course assessment system avoids the final examination as the only assessment path, so that the performance of students' learning effect is not completely dependent on the final examination, and students will be more devoted and more serious to complete this course.

6. Summary and Outlook

In the new era, the requirements of college students' education are constantly improving, so colleges and universities should make continuous improvement from the perspectives of teaching design, teaching resources, teaching content and examination system, and explore the talent training mode in the new century. Bilingual teaching becomes important means to cultivate international talents in the new period, the students and teachers as the main body, directly affect the quality of teaching, in order to achieve better teaching effect, teachers should constantly improve their level of English knowledge, pay attention to accumulation of frontier progress, improving the quality of teaching, students from their own perspective, improve their learning initiative, Actively read foreign literature to broaden academic horizon.

ISSN: 2637-6067 DOI: 10.6918/IJOSSER.202110_4(10).0004

Acknowledgments

Teaching Research and Reform Project of Yanshan University (2020KCGG11).

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