

Exploration and Practice of Bilingual Teaching Reform for the Major of Engineering Management

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Abstract: With the deepening of globalization, the demand for bilingual talents in the field of engineering management is increasing. However, many application-oriented universities have been confronted with many problems over bilingual education for Engineering Management, such as relatively insufficient teaching resources, monotonous teaching modes and methods, imperfect evaluation system and uneven language foundation of students. In order to solve these problems, the bilingual education reform involving a range of strategies are put forward in this paper including optimizing curriculum setting, improving bilingual education and teaching resources, innovating teaching methods, establishing teacher evaluation mechanism, strengthening students' language training, and implementing stratified teaching. The reform and innovation of bilingual teaching of Engineering Management for undergraduate students is of great significance to the cultivation of international engineering management talents. Only through comprehensive reform and continuous exploration can we meet the demand of bilingual talents in the international arena by improving professional and English application ability and cultivating cross-cultural visions.

Keywords: Engineering Management, bilingual teaching, education reform

1. Introduction

Engineering management is a comprehensive major that integrates civil engineering, management, economics and information technology. The aim of this major is to cultivate students' theoretical knowledge and practical skills by covering courses related to construction engineering, project management and real estate development management, as well as practical training to transform the theory into practice. Under the background of "Belt and Road" initiative, the successful implementation and continuous promotion of construction projects not only require professional and technical supports, but also the support of talents with international vision and cross-cultural exchange ability. By cultivating international professionals who understand both technology and language, it is helpful to better communicate relevant technologies with foreign personnel, so as to stimulate new views and ideas [1,2]. Therefore, the bilingual teaching of Engineering Management is particularly important, which is conducive to promoting the exchange of theory and practice and strengthening the dissemination of technological innovation [3]. However, there are problems in the bilingual teaching in terms of teaching materials, teachers, teaching ability, teaching methods, curriculum setting and evaluation standards. In order to improve the quality and level of bilingual education, it is necessary to identify the major problems existing in the bilingual teaching of engineering management and find corresponding solutions to ensure the continuous improvement and development under the international arena.

2. Current Status and Problems of Bilingual Teaching of Engineering Management

Bilingual teaching of Engineering Management refers to the use of both Chinese and English languages during teaching and learning process to help develop students' professional English skills, cultivate international vision and cross-cultural communication skills. In recent years, many well-known universities at home and abroad have begun to offer bilingual courses in this major, covering engineering project management, engineering economics, engineering contract management and other bilingual courses. As far as the course mode is concerned domestically, it mainly includes the following types: The first one is semi-Chinese and semi-English mode, that is, teachers use Chinese to explain professional knowledge in class, and also use English for interactive communication and case analysis. This model is suitable for beginners and students with slightly weaker English skills, which can help them better

understand their professional knowledge and skills, as well as improve their English listening and speaking skills [4]. However, this model may lead to students' excessive reliance on Chinese and their inability to fully master the professional expressions in English. In addition, if the conversion between Chinese and English is not smooth or natural, it may affect students' understanding and acceptance. The second is the all-English mode, that is, teachers fully use English to explain professional knowledge in class. This immersive English model can improve students' English listening, speaking, reading and writing ability, so that they can better adapt to the development trend of internationalization. However, it requires that students have to be equipped with sufficient command of English, otherwise they may fail to understand the course content and lead to undesirable the teaching and learning effects. At present, an optimized bilingual teaching and learning mode is still under exploration, so as to improve students' professional English communication ability and achieve the expected effects in imparting professional knowledge. In the following, some main problems regarding the current bilingual teaching of Engineering Management among most universities are identified and discussed.

2.1 Relatively Insufficient Teaching Resources.

At present, the bilingual teaching of engineering management major is faced with problems of insufficient bilingual teaching resources, including the lack of bilingual teaching materials, bilingual teachers and teaching facilities. First of all, the textbooks, either introduced or self-complied introduced, often can not fully meet the needs of both teachers and students as most are lack of systematization and standardization or the price is relatively high. Secondly, as for bilingual teachers for this major, most cannot be meet the dual requirements in terms of both language and professional knowledge. Currently, many colleges and universities have incentive and assessment mechanisms in which more importance are attached to scientific research than the teaching study and practice. As a result, professional teachers are not willing to invest enough time and energy in bilingual course teaching, and most lack enthusiasm for improving their bilingual teaching ability [5]. Finally, in terms of teaching facilities and resource allocation, the effect of bilingual experimental teaching is severely limited due to the lack of emerging technologies or virtual laboratories. Many universities cannot provide real environment and scenarios for students to practice, which causes great difficulties to carry out engineering management activities in the bilingual environment.

2.2 The Monotonous Teaching Mode And Methods.

In the teaching process of engineering management bilingual curriculum, teachers tend to adopt the traditional teaching-style teaching and textbook-led teaching methods. This teaching method pays attention to the one-way transmission of knowledge, lacks interaction and participation, thus making it difficult to stimulate students' interest and enthusiasm in learning. As an alternative, diversified teaching method can guide students to take the initiative to participate in learning, actively think and solve problems, so as to better cultivate students' comprehensive quality and ability. In order to improve the bilingual teaching effect, many scholars have put forward an innovative teaching mode, that is, using the combination of online and offline methods, introducing flipped classroom, project learning and other teaching methods in a bilingual environment. In addition, engineering management is an application-oriented major, but the current teaching method is often a lack of practical opportunities in bilingual contexts, thus making it difficult for students to apply the knowledge to practical work within a bilingual setting.

2.3 Imperfect Evaluation System of Bilingual Education

At present, the bilingual course of engineering management still mainly relies on the written examination form to evaluate student' learning effect. However, this evaluation method can not fully exhibit students' actual learning status and ability. Although the exam can assess students' understanding of the course knowledge, it does not fully reflect their performance in important qualities such as teamwork skills, problem-solving, and innovative thinking abilities. Meanwhile, the final evaluation method often ignores the importance of process evaluation. This means that students' performance and efforts in the learning process may not be properly recognized and motivated, and therefore may affect students' learning motivation and participation [6]. In addition, for the bilingual curriculum of Engineering Management, students' ability to use English in a professional context is also an important aspect of evaluating their ability. However, the current evaluation system is often more inclined to evaluate students' mastery of professional knowledge, while the evaluation of English application ability is relatively ignored, thus leading to students' inability to effectively use English to communicate in practical workplace.

2.4 Uneven English Proficiency Levels Among Students

The difference in students' English ability is an important problem in bilingual teaching. Students with a good language foundation can better adapt to bilingual teaching and quickly master professional knowledge and skills, while students with a poor language foundation may have difficulty in keeping up with the teaching progress, which will affect their learning effect. This difference affects the learning effect of students, and also brings challenges to teachers' teaching. Moreover, there are differences in terms of students adapting to the bilingual teaching model. Some may be able to adapt to new teaching models, while others may take longer to adapt. Among them, some students may have difficulty in understanding professional knowledge due to language barriers, which leads to a lack of professional knowledge reserve and an inability to fully understand and apply what they have learned, which will affect their current study as well as future career development [7].

3. The Main Strategies of the Bilingual Teaching Reform of Engineering Management

In this part, some solutions are given to deal with the problems facing the implementation of bilingual teaching for the undergraduate major of Engineering Management.

3.1 Improving Education and Teaching Resources

In terms of teaching material resources, teachers should be organized to compile bilingual textbooks suitable for the characteristics of engineering management based on the actual situation of universities, so as to ensure that students are exposed to cutting-edge engineering management concepts and practical cases. At the same time, it is necessary to further improve the teacher training mechanism by introducing foreign teachers and overseas talents and inviting them participate in teaching and research work, so as to improve students' international vision and cross-cultural exchange ability. Moreover, in order to cater for the need of bilingual education and ensure that teachers have the ability of bilingual teaching, the staff training needs to be carried out, such as language training and cross-cultural communication ability training. Finally, high-quality teaching resources can be integrated through digital technology to realize resource sharing. For example, virtual reality technology can be used to simulate complex engineering management scenarios, so that students can conduct practical operations and bilingual communication in the virtual environment, which could considerably improve the bilingual teaching and learning effects.

3.2 Innovating and Optimizing Bilingual Teaching Methods for Engineering Management

In view of the problem of monotonous teaching mode, a variety of teaching methods can be introduced to enrich the classroom teaching mode and improve the bilingual teaching quality. For example, teachers can introduce real engineering management cases for students to analyze and discuss, or arrange students to role-play or group discussions to simulate the actual scenarios in engineering management in a bilingual way. This approach can help students to apply theoretical knowledge to practical situations, while improving their problem-solving skills and critical thinking. At the same time, teachers can also carry out personalized teaching according to students' actual situation and learning needs, so as to better meet students' learning needs and improve their learning effect. Also, teachers can use the online platform for remote bilingual teaching, through the digital teaching resources, online course platform by providing a variety of learning resources and more interactive learning tools, such as online test, study group discussion.

3.3 Establishing Evaluation Mechanism for Bilingual Education

In view of the problem that the current evaluation system is difficult to comprehensively evaluate students' English level and professional ability, diversified evaluation methods can be introduced to increase the evaluation of English application ability, learning process and non-verbal ability, so as to provide students with more objective and comprehensive evaluation. First of all, in addition to the final evaluation, teachers should also pay attention to students' performance and efforts in the learning process, such as classroom participation and group cooperation performance. Secondly, other evaluation parts such as group discussion, oral report, case analysis, etc. can be adopted, in order to have a better understanding of students' comprehensive learning performance and ability. Moreover, in order to encourage teachers to actively participate in the bilingual education reform process of Engineering Management, evaluation mechanism for bilingual teachers should be established involving the assessment of the teachers' teaching quality, teaching methods and teaching effect [4]. Meanwhile, a bilingual teaching reward system can be set up, in which bilingual teaching teachers with the outstanding

performance will be given recognition and rewards.

3.4 Strengthening English Training for Students and Implementing Stratified Teaching

In the face of the uneven English level among students, comprehensive measures can be taken by strengthening students' basic language training, carrying out language ability evaluation and implementing stratified teaching. First, it is necessary to carry out the language ability assessment in order to better understand the students' language level. Through the evaluation, students can understand their language skills in all aspects of listening, speaking, reading and writing, as well as students' language application skills in the fields of daily communication and engineering management. This can help teachers to better grasp the language level of students, and provide a reference for the subsequent teaching [6]. Secondly, according to the results of students' language ability assessment, teachers can implement stratified teaching. Specifically, teachers can divide the students into different levels, before the different teaching plans and teaching contents are made for the students at each level. In this way, the students with poor language ability can keep up with the teaching progress, while the students with better language ability can be more fully developed. Therefore, the stratified teaching can better meet the needs of different students and improve the quality and effect of teaching.

4. Summary

With the deepening of globalization, it has become urgent to cultivate engineering management talents with international vision and cross-cultural communication ability. In this paper, we discuss the current situation of bilingual teaching in the major of Engineering Management, and analyze the existing problems and challenges. In view of these problems, a series of reform measures and suggestions are put forward, such as improving the teaching environment and resources, strengthening the cultivation of students' English ability, adopting a diversified teaching methods, establishing a comprehensive assessment and evaluation system for bilingual teaching, etc. Through the implementation of these measures, development of bilingual teaching in Engineering Management can be considerably promoted. In the future development, the bilingual teaching of Engineering Management still needs to be explored as the practice of bilingual teaching reform is a long-term and arduous task. Only through continuous reform and practice, can we improve the teaching level and quality of Engineering Management, thus cultivating more high-quality engineering management talents.

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