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Exploration and Practice of College English Teaching Based on OBE Concept Under the Background of Emerging Engineering

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Abstract

Based on the new requirements of emerging engineering construction for talent cultivation and combined with OBE concept, this paper explores the path of college English teaching reform. By expounding the guiding significance of emerging engineering and OBE concept for college English teaching, analyzing the existing problems in current college English teaching, it conducts teaching practice exploration from aspects such as the setting of teaching objectives, the construction of curriculum system, the innovation of teaching modes, and the reform of evaluation system. The practice results show that the college English teaching reform based on OBE concept has effectively improved students' English application ability and engineering practice literacy, providing reference experience for college English teaching under the background of emerging engineering.

Keywords

Emerging Engineering, OBE Concept, College English, Teaching Practice

1. Introduction

OBE (Outcome-based Education) concept is known as "outcome-oriented education concept". It starts from the results to reversely guide the design of the teaching process, breaking the traditional "teacher-centered" model and turning to a "student-centered" teaching process design. OBE education concept requires that when designing courses, it should be clear what achievements students should achieve after learning the course, reform and innovate based on the understanding of these achievements, and design teaching methods suitable for students so that they can better achieve the expected results[1]. OBE concept emphasizes the cultivation of students' learning outcomes and abilities, and pays more attention to students' comprehensive quality and problem-solving ability. In the reform of college English teaching based on OBE concept, teachers no longer only impart knowledge, but pay more attention to students' learning process and thinking ability. Teachers set clear learning goals, guide students to actively participate in learning activities, and timely feedback students' performance through formative evaluation and other methods, so as to stimulate students' learning motivation and autonomous learning ability.

Emerging engineering is a new paradigm of engineering education proposed in China based on the new needs of national strategic development and the new situation of international competition. It is an urgent need to actively respond to the new round of scientific and technological revolution and industrial transformation, develop the new economy, and cope with future strategic competition. Emerging engineering adheres to the construction concept of "based on the present, aiming at the future, and taking the initiative to reform", promotes the overall innovation and reform of higher education theoretical research, content and methods, organizational models, and practical systems, and strives to cultivate innovative and outstanding engineering talents who can adapt to and lead future engineering needs[2].

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Emerging engineering emphasizes that students should have an international perspective, be able to carry out international exchanges and cooperation in related professional fields under cross-cultural backgrounds, and enhance their international competitiveness.

OBE education concept, through the "reverse design and forward implementation" of the teaching process, enables students to truly realize the transformation from passive learning to active learning, and achieve the learning effect of the integration of "learning, knowing and doing". It has important guiding significance for the construction of college English teaching design, teaching objectives, curriculum system, and teaching staff under the background of emerging engineering, provides a thinking direction for the construction of college English courses in engineering colleges and majors, and helps solve the problems existing in college English for engineering students. OBE education concept is conducive to building a college English curriculum system that adapts to the construction of emerging engineering and highlights school-based characteristics, and helps cultivate innovative engineering talents with professional knowledge, foreign language ability and professional quality.

2. Existing Problems in Current College English Teaching

2.1. Disconnection Between Teaching Objectives and Emerging Engineering Needs

Emerging engineering talents need to have the ability to conduct technical exchanges, academic discussions, and project cooperation in the international engineering environment. College English teaching needs to break through the traditional general English teaching mode and turn to engineering English, academic English, cross-cultural communication English, etc., to help students master skills such as reading professional literature in the engineering field, writing technical reports, and communicating in international conferences, and improve their communication and cooperation ability in international engineering scenarios. The traditional college English teaching objectives mostly focus on the cultivation of general English ability, ignoring the special needs of engineering students, and failing to fully consider students' future English application needs in international exchanges and technological innovation in the engineering field, resulting in the disconnection between students' English ability and actual engineering application[3].

2.2. Lack of Targeted Curriculum System

At present, the content of college English courses is mainly based on general English textbooks, with less content such as professional vocabulary in the engineering field, engineering technical document writing, and international engineering case analysis, which cannot meet the needs of emerging engineering students for professional English ability. The curriculum setup lacks hierarchy, making it difficult to adapt to the learning needs of students with different majors and different English levels[4]. There is a lack of personalized English teaching modules for different engineering majors (such as artificial intelligence, intelligent manufacturing, new energy, etc.), making it difficult to meet the specific needs of each major.

2.3. Single Teaching Mode

At present, college English classroom teaching is mainly based on teachers' lectures, and students passively accept knowledge, lacking opportunities to practice English in real engineering scenarios. Teaching methods have not effectively integrated information technology, which cannot stimulate students' learning interest and initiative, and it is difficult to cultivate students' autonomous learning ability and innovative thinking. There is a lack of immersive and interactive teaching scenarios (such as virtual engineering projects, international cooperation simulations, etc.), and students have limited initiative and practical opportunities. The construction of digital teaching resources (such as engineering professional

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English databases, intelligent language training platforms) lags behind, failing to make full use of information technology to improve teaching effects.

2.4. Imperfect Evaluation System

The evaluation method of college English is mainly based on the final exam, focusing on the assessment of language knowledge. The evaluation of students' English application ability, cross-cultural communication ability, autonomous learning ability, etc. is insufficient. There is a lack of process evaluation and diversified evaluation, which cannot fully reflect students' learning results and ability development. There is a lack of dynamic evaluation of students' English application ability in engineering practice scenarios, making it difficult to truly reflect students' comprehensive language literacy.

3. Practice of College English Teaching Reform in Emerging Engineering Based on OBE Concept

3.1. Clarifying Teaching Objectives

According to the training standards and industry needs of emerging engineering talents, combined with the "College English Teaching Guide", hierarchical and classified teaching objectives are formulated. The college English teaching objectives are divided into basic objectives, improvement objectives and expansion objectives. The basic objectives require students to master general English knowledge and skills; the improvement objectives, for different engineering majors, aim to cultivate students' engineering English reading, writing and oral expression abilities; the expansion objectives focus on cultivating students' cross-cultural communication ability, academic English ability and international engineering cooperation ability. For example, students majoring in mechanical engineering need to master professional English vocabulary in the field of mechanical engineering and be able to write English technical reports; students majoring in computer science and technology need to have the ability to read international cutting-edge academic papers and participate in international academic exchanges.

3.2. Building a Modular Curriculum System

General English module: Consolidate students' basic English language skills, including English grammar, vocabulary, listening, speaking, reading and writing, laying a foundation for subsequent learning. Engineering English module: According to the needs of different engineering majors, set up courses such as engineering technical English, reading of engineering science and technology literature, and engineering English writing, teaching professional vocabulary, technical document writing norms and academic communication skills. Cross-cultural communication module: Set up courses such as cross-cultural communication, international business etiquette, and international engineering cooperation case analysis to cultivate students'cross-cultural communication ability in the international engineering environment[5]. Academic English module: For students who need to take postgraduate entrance examinations and further study, set up courses such as academic English writing, academic speech, and international academic conference simulation to improve their academic English level.

3.3. Innovating Teaching Modes

Project-based learning (PBL): Combine the reality of engineering majors to design English teaching projects. For example, let students work in groups to complete the writing and display of an English feasibility report for an international engineering cooperation project, so that students can improve their English application ability and team cooperation ability in project practice. Blended teaching: Use online teaching platforms (such as Xuexitong, Rain Classroom,

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etc.) to integrate high-quality English teaching resources and carry out blended teaching combining online autonomous learning and offline classroom teaching. Online, course videos, learning materials, test questions, etc. are provided for students to learn independently; offline classrooms carry out interactive discussions, case analysis and practical exercises[6]. Situational teaching: Create real situations such as international engineering conferences, technical negotiations, and project reports, allowing students to communicate in English in simulated scenarios, enhancing their language practice ability and adaptability.

3.4. Reforming the Evaluation System

Construct a diversified and process-oriented evaluation system, including formative evaluation and summative evaluation. Formative evaluation accounts for 40%, covering classroom performance, group cooperation, online learning, project assignments, etc., focusing on the evaluation of students' learning process and ability development; summative evaluation accounts for 60%, mainly based on the final exam, assessing students' mastery and application of English knowledge. At the same time, enterprise experts and foreign teachers are invited to participate in the evaluation, and students' English ability is evaluated from the perspective of engineering practice and international communication to ensure that the evaluation results are more in line with the training needs of emerging engineering talents[7].

4. Analysis of Teaching Practice Effects

4.1. Improvement of Students' English Ability

Through the reform practice, students' English application ability has been significantly improved. A class of students majoring in mechanical design in Bengbu University can be taken as an example. Before the reform, the average score of students in the engineering English reading test was 65, and after the reform, it increased to 82; in the simulated international engineering cooperation project, students' fluency in English expression and accuracy in the use of professional terms have been significantly improved.

4.2. Enhancement of Learning Interest and Autonomy

The innovative teaching mode has stimulated students' learning interest, and the enthusiasm of students to actively participate in classroom activities, online learning and project practice has been greatly improved. A questionnaire survey shows that 85% of students believe that project-based learning and situational teaching make English learning more interesting and practical, and 78% of students have developed the habit of autonomous English learning.

4.3. Improvement of Talent Training Quality

The college English teaching reform based on OBE concept has effectively supported the realization of the training goal of emerging engineering talents. Students not only have enhanced language ability, but also can skillfully use English to solve engineering professional problems, such as clearly explaining technical innovation points in English in international competitions, or independently handling English technical documents during internships. Students' participation and performance in international engineering competitions and academic exchange activities have been significantly improved, graduates' competitiveness in enterprise employment has been enhanced, and employers' satisfaction with students' English application ability and cross-cultural communication ability has been improved.

5. Conclusion and Prospect

This study explores and practices college English teaching under the background of emerging engineering based on OBE concept. By clarifying teaching objectives, building a modular

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curriculum system, innovating teaching modes and reforming the evaluation system, it has effectively improved students' English application ability and engineering practice literacy. However, there are still some deficiencies in the teaching reform, such as the need to further improve teachers' engineering English teaching ability, and the need to strengthen the connection between teaching resources and the actual needs of the engineering industry. In the future, it is necessary to continue to deepen the reform, strengthen teacher training, integrate high-quality teaching resources, promote the deep integration of college English teaching and the training of emerging engineering talents, and provide strong support for cultivating emerging engineering talents with international competitiveness.

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