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The exploration and practice of the teaching reform of technical English for mineral processing based on the innovative talent cultivation mode of the teaching-oriented Universities

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ABSTRACT

Technical English for Mineral Processing was a compulsory course for the majors in mineral processing engineering. It has strong pertinence, practicability and specialized background. However, the traditional teaching mode of college English is difficult to achieve the teaching objective of specialized English. Based on years of teaching practice of Technical English for Mineral Processing, this paper makes a thorough analysis of the characteristics of this course and explores the teaching reform from the perspectives of teaching material selection, teaching methods, teaching means and teaching effect evaluation.

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KEYWORDS

Technical english for mineral processing;
Teaching reform;
Teaching method.

INTRODUCTION

Anhui University of Science and Technology is a teaching-oriented engineering university. *Technical English for Mineral Processing* is a professional course in our university. As an important part of the courses for the majors in mineral processing engineering, it aims to cultivate students' abilities to read and translate the technical literature of mineral processing and enable them to master the necessary professional vocabulary, get familiar with the writing characteristics and translation skills of English literature of science and technology and apply the basic English skills in practice. Therefore, special English is not only the extension of the basic college English teaching, but also the combination and

practice of basic college English teaching and specialized courses. As an important tool to cultivate the comprehensive ability of undergraduates majoring in mineral processing engineering, it plays an important role in cultivating the innovative talents^[1].

Technical English for Mineral Processing has clear teaching objectives as well as strong pertinence and practicability. Compared with the basic English learnt in the university, it has the characteristics of special English itself. *College English Teaching Syllabus* makes it clear that students should take obtaining the information required by the specialty with English as a tool as the guiding thought; special English is characterized by large amount of information, accurate and concise language, straightforward statement and complete and

stereotypical sentence structure; the learning purpose of the undergraduates is to use English for the specialty learning and work. Therefore, the teaching at this stage should obtain the professional knowledge with the language as the tool to achieve purpose of professional communication.

Since mineral processing engineering specialty is a very professional subject and the understanding of teaching objective, teaching syllabus, teaching material and teaching characteristics may have the specialty particularity, it's necessary to make practice and exploration at the same time. In order to make *Technical English for Mineral Processing* play its intended role and benefit the students, in the process of teaching practice, based on the teaching experience of the seniors in teaching-research section of mineral processing engineering, we have made a series of teaching strategy improvements in teaching material select, teaching methods, teaching means and teaching effect evaluation. Now, the paper expounds from the following aspects, hoping to communicate with readers and thus lay a foundation for the improvements in course setting, teaching level and quality and teaching requirements.

TEACHING MATERIAL SELECTION

The key of teaching is the teaching material. It's very important to select the appropriate teaching material, but the optional teaching materials are limited in China at present. Our college selects *Technical English for Mineral Processing* edited by Prof. Lu Xianjun. The book covers the basis of mineralogy, crushing and grinding, screening and classification, gravitational segregation, heavy media separation, electromagnetic separation, floatation, gold extraction, product dehydration and tailings disposal, involving the most commonly used technical vocabulary. In addition, it's closely linked to the students' professional courses with moderate difficulty. However, it lacks the equipment specifications and front-line dynamics of the mineral processing engineering specialty. Thus, we need to add the contents compiled by ourselves on the basis, including the front-line dynamics of the specialty, writing format of the relevant academic paper and instructions for the commonly used mining equipments. Moreover, we also process the contents of the book and inter-

perse it with pictures based on the professional courses of mineral processing, in order to stimulate the students' learning interest with the specific animation instances or equipment flow charts and interconnect it with the basic professional courses.

TEACHING METHOD

Learning the teaching material

Specialized English has different specialized vocabulary, grammatical structure and rhetorical device^[2]. Thus, the limited number of subject types in the teaching material can effectively help students get familiar with the common vocabulary and language characteristics of the secondary discipline of mineral processing engineering. We usually study the typical texts carefully in the classes to analyze the law of vocabulary formation, summarize the common root and provide answer race, matching, guessing and other vocabulary training forms in the classes, so that the students can connect the basic specialized knowledge with the English expression rapidly and master the commonly used specialized vocabulary and expressions in the field of mineral processing engineering. This teaching method not only raises, students' enthusiasm for learning, but also significantly improves their reading and communication abilities.

Reading publications on science and technology

As is well known, the frontier information of all fields first appears in the key and core journals, so it's very necessary to guide students to selectively read the academic periodicals of this field. In addition to the aged and influential scientific journals like *Nature* and *Science*, the English versions of some domestic core journals in this field, like *Journal of the China Coal Society* and *Journal of China University of Mining and Technology*, are also introduced to students. In addition, the database resources bought by our library are used to guide students to study on the common foreign periodical retrieval websites (such as: Elsevier ScienceDirect and Springer-Link e-journal), mobilize their thirst for knowledge and improve their enthusiasm of active reading. We arrange publication reading once every two week. Students select a scientific article to interpret in class and communicate on the network in

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groups, which greatly stimulates their interest in learning English and achieves good teaching effect.

Training of writing the abstract of sci-tech literature

Abstract in sci-tech literature is characterized by refined language and concise words. It's an important part of the scientific papers. For undergraduates, it's very difficult to write the whole paper in English, but it's very necessary to grasp the skill of writing the abstract of the scientific papers in English. First of all, students are guided to get familiar with the structure of abstract (it's composed of four parts, namely, objective, methods, results and conclusion), get familiar with the main idea of each part, and summarize some common expressions in each part, such as "The principle of... is outlined."; "The aim of this study is to examine..."; "The result shows that..."; "The course program described above is..." etc.^[3] Through the repeated practice, students can gradually grasp the writing mode. It's found through the random inspection for the graduation theses of students majoring in mineral processing engineering that the overall writing level of abstract has been improved obviously.

Reading and translation of equipment specification, front-line dynamic of the specialty and other commonly used written literature

In order to make specialized English learning more practical and extensive, we add the training of the reading and translation skills of knowledge related to mineral processing factories and enterprises and front-line dynamics of the specialty. We add the equipment specification translation of mineral processing, like coal preparation plant, dewatering machine, screening and crushing equipment, magnetic separator and caution. We also guide students to read the internationally famous mineral magazines and know the latest front-line dynamics of the specialty to lay a good foundation for working in the mineral enterprises.

TEACHING MEANS

In addition to the traditional writing on the blackboard for teaching and multimedia teaching, the computer lab of our college also provides the digital re-

source, which is an important teaching means. The network teaching platform in the computer lab offers wide room for the communication between teachers and students, which not only helps students extend their knowledge about specialized English and deepen the understanding of knowledge points, but also effectively practices their the ability to find and deal with the specialized English information. Assignment, question-and-answer, message and other settings on the platform strengthen the individual communication between teachers and students, well make up for the inadequacy of classroom questioning, raise their enthusiasm for learning specialized English and improve the construction of this course.

REFORM OF THE EVALUATION SYSTEM

Since technical English for mineral processing emphasizes adaptability, we cannot fully adopt the evaluation means of traditional English. We divide the evaluation into three parts: usual performance of listening, speaking, reading and writing, literature reading score and examination score. Literature reading score is obtained by letting students randomly select the foreign literature question database through the test item on the network platform, complete the questions and submit the answers in the prescribed time under the control of the computer. Through the adjustment of the evaluation system, students change the method of learning by rote and master specialized English as a professional skill. It also changes the traditional means of evaluating students' quality based only on the examination scores. After years of trying, it not only strengthens students' ability to master specialized English, but also practices their comprehensive ability.

CONCLUSION

At the beginning of the 21st century with the rapid development of science and technology, in order to own the technology and efficiency of the independent intellectual property rights in the field of mineral engineering, it's necessary to have the ability of keenly capturing the achievements and latest front-line dynamics of the international field. Undoubtedly, for students majoring in mineral processing engineering, the mastery of spe-

cialized English is very important. Through the teaching of this course, we not only explore an effective method of education, improve the teaching ideas, teaching objectives, curriculum setting, teaching contents and teaching methods of this course in the education of the mineral processing engineering specialty, but also cultivate a batch of high-quality compound talents in mineral processing, thus winning the acceptance and appraisal from the relevant enterprises. At the same time, in the teaching process, the teachers of specialized English also grasp the opportunities to constantly enhance their level and make domestic and international communications, thus greatly improving the whole quality of teachers^[4]. However, there are still some problems needing improvement in our daily teaching work as well as the pressures and challenges from all aspects, but we will walk to maturation in continuous explorations and improvements.

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