

Research on the practice of English teaching in chemical engineering under the background of new liberal arts

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Abstract: Based on the characteristics of subject integration under the background of new liberal arts, this paper attempts to combine students' majors in general English classes and teach students' professional knowledge in English. Taking cosmetics English in the chemical industry as an example, this paper tries to use the thematic mode of CBI model as a research method, combined with the teaching modules in "Cosmetics Professional English", from the history of cosmetics, market research, management and regulations, safety, environmental protection. In order to enrich teachers' teaching content, connect students' professional English knowledge, cultivate excellent professional English talents, and improve teachers' professional abilities.

1. Brief Introduction to the Background of the New Liberal Arts

In 2019, the State Council issued the "National Vocational Education Reform Implementation Plan", which stated at the beginning of the notice that "vocational education and general education are two different types of education and have equal importance."^[1] Vocational education takes the development of technology and skills required by industries, job groups or positions as a logical system, highlighting technical and applied types, while general education takes knowledge development as a logical system, highlighting academic and discipline-oriented. For higher vocational education to develop innovatively, it is necessary to break through the traditional curriculum thinking mode. The new liberal arts, compared with the traditional liberal arts, reorganizes the arts and sciences, that is, integrates new technologies into courses such as philosophy, literature, language, etc., to provide students with comprehensive interdisciplinary learning. The construction of "new liberal arts" is a new way to break through the traditional thinking mode in the development of vocational education. The innovation and development of higher education imperative, and the construction of "new liberal arts" must be comprehensively promoted.

2. The Necessity of English Teaching for Chemical Engineering Majors

The research on English teaching for chemical engineering majors is based on the research on the training mode of specialized English talents in higher vocational colleges under the background of the new liberal arts. Based on the traditional language-driven to content-driven teaching purpose,

teachers carry out foreign language teaching on the basis of subject content, take CBI model cosmetic English as the breakthrough point, and propose a variety of coping strategies to promote the sound development of higher vocational English teaching activities.

Professional English teaching can help further reform of higher vocational English, improve teachers' professional English ability and the quality of higher vocational English education and teaching, enrich college English teaching experience with comprehensive research from multiple perspectives, fulfill the practice gaps in related academic fields, and explore the training path for specialized English talents, which is newly required by society to make up for the lack of research in the teaching practice of English in higher vocational colleges.

3. Design and Reflection on Cosmetic English Teaching Under Cbi Mode

3.1 Introduction to CBI Teaching Mode

3.1.1 Origin

The CBI teaching concept originated from the "immersion" teaching experiment conducted in Canada by Lambert and Tueker (1972). This experiment was to write subjects such as French history, geography and culture in French, rather than pure French vocabulary, grammar or discourse, i.e. the teaching of general French.^[2] This experiment successfully used CBI (Content-based Instruction), that is, "content-based teaching", and became an effective demonstration of the introduction of foreign language teaching into CBI teaching. Its important theoretical source is Krashen's (1985) meaningful output hypothesis, which advocates that subject knowledge is taught in English, and learners can master English language and subject knowledge at the same time.^[3] So language and professional integration are the core of CBI.

3.1.2 Definition

Mohan (1985) defined CBI as "the teaching of language teaching based on a subject or a subject content, combining language learning with subject knowledge learning, improving students' subject knowledge and cognitive ability, and promoting their improvement of language level."^[4] Professor Wang Shixian introduced "content-based teaching" into China, and published the paper "CBI - the direction of professional English reading teaching", which introduced the concept of CBI and three original models in detail - Theme-Based Language Instruction, Sheltered Subject Matter Instruction, and Adjunct Instruction.^[5] This paper mainly adopts the theme mode to introduce the English teaching of cosmetics in higher vocational colleges.

3.2 Teaching Design

3.2.1 Overall Design

According to the textbooks "English for Chemical Industry" and "English for Cosmetics", the teachers choose the topics to display, including the overall introduction of the history of cosmetics, market research, management and regulations, safety, and environmental protection. The actual teaching classes of teachers include three classes of cosmetic management class 2101, cosmetic technology class 2101 and cosmetic technology class 2102 in the School of Chemical Engineering. Each group in the same class analyzes and reports materials given by the teacher. Students from different classes who analyze the same materials will be organized by the teacher. They gather together, discuss and share their ideas and thoughts, forming a learning community, and learning from each other.

3.2.2 Teaching Practice

First, an overall introduction to the history of cosmetics. Teachers and students first understand the history and origin of cosmetics. Students learn about the development of cosmetics from the historical timeline based on the historical introduction materials of cosmetics. At the same time, teachers supplement the difficulties and problems encountered in the development of cosmetics, so as to facilitate students to understand the development process of cosmetics vertically, comprehensively and dialectically.

Second, market research. Teachers and students have a broad understanding of the development of the cosmetics market at home and abroad. Students choose them for comparative research, or a company of a brand they are interested in to conduct in-depth exploration. Under the circumstance of understanding its development background, they can explore the reasons why it has become a high-end cosmetics, such as corporate culture, product appearance packaging, advertising promotion and sales, corporate talent training, etc. At the same time, thinking about how to improve the international competitiveness of Chinese brands, students can analyze the advantages and disadvantages, competitiveness and challenges of domestic brands through the SWAT analysis method, so as to enhance the development of domestic cosmetic brands, increase the influence of China's cosmetics industry, improve students' sense of identity with the development of national enterprises, and enhance their cultural self-confidence.

Third, management and rules and regulations. Teachers and students understand the legal knowledge related to the profession, and use the rule of law thinking to protect themselves and others. Students can also learn about domestic and foreign cosmetics regulatory agencies, such as FDA and China's cosmetics laws and regulations (State Drug Administration\SDA Regulation). They can refer to the Drug Administration Law of the People's Republic of China, to clarify the classification of cosmetics produced and sold by enterprises. Is a cosmetic product, medicine or even a drug? On basis of analysis students can plan their own careers, establish a correct career outlook, and have both ability and political integrity, which is also in line with the requirements of China's socialist core values.

Fourth, security. Cosmetics is a double-edged sword. While bringing beauty and charm, it also brings harm to the human body, mainly the skin and eyes. Although the students understand the potential harm of cosmetics, how to avoid or reduce the harm is the question that learners should think about further. This is a key issue that workers engaged in cosmetic research need to consider, and it is also a life-long consideration for the development of the cosmetics industry.

Fifth, environmental protection. The safety of the chemical industry is the focus of the whole society, and it is also the focus of China's ecological environment construction. Teachers and students are realizing the environmental pollution caused by the production of chemical products, but how to solve it is the problem that everyone needs to think about further. Such as reducing exhaust emissions, recycling waste, recycling chemical waste, etc. Problems need to be solved at the source to reduce the discharge of waste gas and materials .

In addition to the above themes, other topics, such as the study of cosmetic ingredients, involve many professional terms, which are difficult to carry out. However, when students are introducing specific products such as whitening products, moisturizing products or lipsticks, they can also introduce some key professional vocabulary in relation with the topics they share, which is to strengthen and consolidate the study of this major. In addition, the actual operation of makeup skills, as well as the taboos and precautions of makeup, are arranged according to the specific course situation.

3.3 Teaching evaluation and reflection

3.3.1 Teaching Evaluation

The method of students evaluation is no longer based on a single formative evaluation method. Through the study and supplementation of students' professional English, teachers incorporate the learning results of student groups into the usual assessment content, and finally form an assessment method that combines process assessment and formative assessment, so as to evaluate students' performance more comprehensively.

3.3.2 Teaching reflection

First, innovation. This practice attempts to effectively integrate professional English into the general English classroom, enriching the traditional classroom content, not only with the professions, but also with the reality, and with the theory, effectively confirming the necessity and direction of the new liberal arts, providing a new valid case for the new liberal arts practice .

Second, deficiencies and improvements. In terms of topic selection, the choice of occupation can be added to learning materials to help students establish a correct employment outlook, which is also the teaching content of vocational education. Through the inquiry and study of materials, students can clarify their future employment direction, enhance the purpose of learning, and have clear and accurate goals .

Third, in the evaluation of students' performance, teachers can use the presentation of professional English materials in groups as the content of the half-term exam. There is no need to present it at the first ten minutes of each class and it can also save time from the long term. The disadvantage is that students cannot learn from each other and improve themselves. No matter which display method is used, it can be included in the final evaluation as a process evaluation. The method is flexible and the results are objective and comprehensive.

Fourth, in the communication between teaching content and enterprises, teachers should first conduct enterprise and market research, communicate with schools that offer the same major, select teaching materials according to the survey results, combine theory with practice, and promote the timeliness of teaching. According to the requirements of enterprises, the training of professional English talents can be more targeted.

Fifth, about the professional development of teachers and the professional knowledge learning of general teachers, how to ensure that general teachers can accurately evaluate the professional knowledge content displayed by students in cross-professional situations. General teachers need to communicate more with professional teachers, and they also need to learn to improve professional knowledge.

4. Conclusion

Under the background of the new liberal arts, the combination of general English and majors is the trend of college English teaching reform, from traditional form teaching to functional teaching, skills teaching to content teaching, single subject to multi-disciplinary conversion, so as to improve the richness of teaching content and students' thinking competencies and the professional development of teachers. The teaching mode of chemical English in the CBI model plays an important role in promoting the exploration of the school-enterprise cooperation model, talent training program, and talent platform construction for the cultivation of English for special purposes in higher vocational colleges.

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3: Chongqing Chemical Industry Vocational College Project “Research on the collaborative education path of curriculum ideological and political and ideological and political courses under the background of "double height" construction”(HZY2021-SKZD02).

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