Construction of Foreign Language Curriculum System in Engineering majors in the Age of Artificial Intelligence

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Abstract. China has a wide range of engineering students sources and high quality. but because of the low level of internationalization of education, it is unable to meet the needs of international talents in economic globalization. Artificial intelligence has stepped into the education industry, bringing opportunities for foreign language teaching to cultivate engineering talents with an international perspective. In the era of artificial intelligence, the construction of foreign language curriculum system in engineering majors should set higher-level curriculum teaching objectives, develop innovative teaching system and improve the teaching assessment of high-challenge courses guided by OBE education concept in order to improve the quality of personnel training.

Keywords: Artificial Intelligence; University Foreign Language for Engineering Major; Curriculum System

1. Introduction
At present, more than 1,000 universities in China have set up engineering majors. More than 3.7 million undergraduates in engineering education are well-educated and large-scale. However, the low degree of internationalization of education can’t meet the needs of economic globalization and China's industrial development for talents. According to a survey by McKinsey, a famous strategic company, there are currently less than 60,000 young engineers in China who are suitable to work in foreign enterprises. The proportion of engineering graduates who can work in multinational companies is very low, which is not commensurate with the status and development of our country in the global industry. In order to alleviate this problem, the Ministry of Education promulgated the "Education and Training Plan for Excellent Engineers", which is planned to take 10 years to train a large number of internationalized talents with international vision, proficiency in international rules, adaptability to the requirements of national economic and social opening-up, participation in international affairs and international competition. International talents should first have an international perspective and world awareness, understand the cultural differences between countries, master more than one foreign language, and use
some tools or ways to communicate and serve across the country. Besides, they should also have certain expertise and ability in a certain professional field and be familiar with international trade rules. "Mastering more than one foreign language" is the first condition to realize the internationalization of talents. On September 17, 2018, the Ministry of Education convened a conference on strengthening the reform of public foreign language teaching in Colleges and universities. It clearly put forward that public foreign language should be incorporated into the national strategy, requiring that public foreign language teaching should devote itself to cultivating "internationalized and compound talents" who know both professional and professional foreign languages. Therefore, how to construct a practical foreign language curriculum system for engineering majors, and how to cultivate "internationalized and compound talents" who know both professional and professional foreign languages, and fill the vacancy of Engineering talents, are the important problems that need to be solved urgently in college foreign language teaching.

2. Artificial Intelligence and College Foreign Language Teaching

Artificial Intelligence and Artificial Intelligence in College Foreign Language Teaching (AI) was proposed by a group of young scientists at Dartmouth College in 1956, but there is no comprehensive and accurate definition so far. It is generally accepted in the industry that artificial intelligence is a science that mainly studies, simulates, extends and extends human intelligence theory and related methods and application technologies. It simulates human intelligence through computer, and finally enables it to think, learn and recognize like human beings, and to effectively deal with problems that could be handled by human resources in the past [1]. Artificial intelligence, as a new interdisciplinary subject, covers a wide range of university disciplines and technical fields, such as computer vision, natural language understanding and communication, cognition and reasoning, robotics, game and ethics, machine learning, statistics, brain neurology and so on [2].

Artificial intelligence is closely related to education. Three core application technologies of artificial intelligence, namely computer vision technology, intelligent voice technology and natural language processing, have been widely developed and applied in online education, intelligent classroom, and empowerment for intelligent teaching and learning [3]. At present, from speech recognition-based English speech assessment to image recognition-based intelligent emotional analysis, AI has achieved more than ten product types in the field of education. Foreign well-known companies such as Google, Alpha, Facebook and so on, which are in the forefront of technology, have developed various competitive AI education software and entered the education industry. Domestic Tencent, STU, Baidu and so on have also developed various learning software and teaching software, and have a large number of users. Education under the guidance of artificial intelligence will move towards wisdom education and wisdom learning.

3. Thoughts on the Construction of Curriculum System

The era of artificial intelligence will usher in the platforms of schools, the networking of traditional classrooms, the networking of network classrooms and the modernization of courses. Artificial intelligence technology will extract knowledge for students from the clouds and huge resource banks at any time, and push it to students through structuralization. After students' in-depth learning, it will be further refined and processed, and then structured again. As Schwab, J. [4] said in The Practical: A Language for Curriculum, the field of curriculum has come to an end, and according to the existing methods and principles, it can not continue to operate, nor can it promote the development of education. Therefore, the current linear, unified and closed modern curriculum system of college foreign languages is bound to be impacted, replaced by the post-modern curriculum model advocated by the non-linear, constructive and open William E. Dole[5]. The specific construction ideas are as follows: taking OBE education concept as the guidance, setting high-level curriculum teaching objectives, developing innovative teaching system and improving the teaching assessment of high-challenge courses.

3.1. OBE as the Concept of Curriculum Education

OBE is results-oriented education, which Spady and others put forward in 1981, has become the main idea of Hu's educational reform in the United States, Britain, Canada and other countries. In June 2013,
China was accepted as a signatory of the "Washington Agreement" and guided the reform of Engineering Education in China with the concept of results-oriented education (OBE). This not only laid the foundation for engineering students to go to the world, but also meant that Chinese higher education would really go to the world. In the educational concept of OBE, educators need to first have a clear idea of students' learning outcomes, that is, what students can do after completing their studies, and through the design of appropriate educational structure to promote students to achieve educational goals. The output of learners is the driving force of this model, which is different from the traditional content-driven education model. This concept is very important in the training of Engineering application-oriented talents.

3.2. **Set Higher-order Teaching Objectives**

In the era of artificial intelligence, the higher-order nature of college foreign language teaching objectives is mainly embodied in the following aspects: in the knowledge dimension, from factual knowledge, conceptual knowledge and procedural knowledge to introspective cognitive knowledge; in the cognitive process dimension, from memory, understanding, application to higher-order analysis, even evaluation and creation. Therefore, the purpose of college foreign language teaching is to cultivate the ability of using English to absorb and exchange professional information; to cultivate the ability of disciplinary speculation and innovation in solving professional problems in English; and to develop their autonomous learning ability and improve their intelligence so as to enable them to study, research and work in their respective fields in the future. Use English effectively to meet the needs of national, social, school and personal development.

3.3. **Develop Innovative Teaching System**

The foreign language curriculum system of Engineering Universities in the era of artificial intelligence for the development of innovative teaching system can be divided into "the main system of general knowledge and skills training and professional quality" and "the Project Assistant system", thus forming five corresponding curriculum modules, namely "the basic module of general knowledge and skills" and "the development module of foreign language professional quality". "Advanced Skills Promotion Module", "English Practical Works Project Module" and "English Skills Competition Project Module".

3.3.1. **General Education and Skills Training and Professional Quality Subject System**

General Education and Skills Training and Professional Qualities are the basic modules of General Education and Skills: This module is the core of the college foreign language curriculum system. It aims to consolidate students' knowledge of English vocabulary, grammar, discourse, pragmatics, English and American culture, and to improve their listening, speaking, reading, writing and translation skills. This module is a compulsory course in the first academic year, regardless of Arts and sciences. It mainly offers reading, writing and translation courses[1-2] and audiovisual, listening and speaking courses [1-2]. Among them, the university foreign language reading, writing and translation course mainly adopts the combination of micro-course and face-to-face teaching; the university foreign language audio-visual [1-2] mainly adopts the combination of online and offline, teachers' supervision, inspection and guidance.

Foreign Language Professional Quality Development Module: This module mainly aims at foreign language academic, professional quality and personalized English learning needs of students of various disciplines and specialties. It aims to highlight the characteristics of the school industry and foreign language needs in personnel training of secondary departments, and to serve the training of professionals and the construction of high-level universities of science and engineering. Set up. This module is a compulsory course for the second school year. The menus of petrochemical, science and technology and humanities management courses are designed respectively.

Advanced Skills Promotion Module: This module mainly aims at the depth and breadth of foreign language skills training, aiming at improving the level of foreign language application ability training and expanding the scope of foreign language acquisition. This module mainly provides English speech skills, English debate skills, BEC skills, IELTS skills, as well as second foreign language Japanese, Korean and Russian. Among them: English speaking skills, second foreign language Japanese and
Russian are taught by Chinese and foreign teachers; this module mainly adopts the teaching mode of combining micro-class with face-to-face teaching.

3.3.2. Project Assistance System

The project assistant system includes the project module of students' English practical works and the project module of English skills competition.

   English Practical Works Project Module: The project module covers three types of English investigation projects, English book review projects and English dubbing projects which are closely related to the contents of the above-mentioned "General Education, Skills Training and Vocational Quality Subject System".

   English Skills Competition Project Module: This project module includes five competitions: dubbing, recitation, broadcasting, debate and professional Abstract translation. Students select one of them to participate in, and attend two corresponding lecture training. The dubbing, recitation and broadcasting competitions are mainly held in the second academic year, while the debating and professional abstract translation competitions are mainly held in the third academic year.

3.4. Improve the Teaching Assessment of Highly Challenged Courses

The evaluation of curriculum learning is an important link in teaching. In the past, in the field of college foreign languages, the formal assessment of curriculum teaching, which emphasizes results rather than processes, is not feasible in the age of functional intelligence. Scientific and comprehensive course teaching assessment needs to make full use of the big data in the era of artificial intelligence. Artificial intelligence has made fundamental changes in traditional evaluation through instant recording of big data analysis. All students' learning records will be collects and collects synthetically by AI, and will be referenced, optimized and aggregated to distribute, so as to raise the overall level and thoroughly upgrade the meaning of "teaching learning and growing up" [6]. Data escort collects the whole process of learning data, intelligent tutors and intelligent assessment to provide multi-dimensional real-time diagnosis and evaluation, which is the practical significance and practical value of curriculum learning assessment.

4. Conclusions

In the era of artificial intelligence, the foreign language curriculum system of engineering universities should follow the OBE educational concept, and improve the quality of talents by setting high-level teaching objectives and developing innovative teaching system.

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