

Exploration of Improving the Vocational Qualities of Students in Science and Engineering Universities Through Foreign Language Courses in the New Era

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ABSTRACT

Foreign language courses hold a significant place within the curriculum framework of science and engineering universities in China. However, traditional foreign language teaching only regards foreign language courses as courses to enhance students' foreign language abilities and cross-cultural communication abilities. The role of foreign language courses has not been fully explored and discovered in enhancing the vocational qualities of college students. Starting from the new requirements of the new era for the vocational qualities of students in science and engineering universities and the situation of foreign language teaching in improving students' vocational qualities, the essay explores foreign language teaching strategies to enhance vocational qualities from four aspects: scientific spirit, professional ethics, vocational knowledge and career planning.

Keywords: Vocational qualities, Students in science and engineering universities, Foreign language teaching strategies.

1. INTRODUCTION

Traditional foreign language teaching focuses on imparting language knowledge and introducing foreign cultures, with the aim of enhancing students' cross-cultural communication skills. In the new era, talent competition is becoming increasingly fierce, and traditional foreign language teaching can no longer meet the targets of talent cultivation. It is necessary to make certain changes in teaching concepts, teaching content, teaching methods, and so on. Combining foreign language teaching with the improvement of students' vocational qualities is a beneficial exploration and practice.

2. THE REQUIREMENTS FOR VOCATIONAL QUALITIES OF STUDENTS IN SCIENCE AND ENGINEERING UNIVERSITIES IN THE NEW ERA

The Chinese Ministry of Education issued "Opinions on Comprehensively Deepening Curriculum Reform and Implementing the

Fundamental Task of Moral Education" in 2014. This document answers the question of "what kind of people to cultivate and how to cultivate them", reflecting the importance and urgency of implementing the fundamental task of cultivating morality and talents. It also proposes that students should have a core literacy system for development, and clarifies that students should have some essential qualities and key abilities, such as personal cultivation, social care, patriotism, cooperation and participation, and innovative practice. [1] Many of these essential qualities and key abilities are related to vocational qualities. The connotation of vocational qualities is relatively broad, usually including the comprehensive qualities exhibited by individuals in their career, such as professional ethics, professional skills, professional behavior, professional awareness, and so on. In the current new era, the cultivation of vocational qualities among college students is not only related to the improvement of personal competitiveness, but also to the progress of the country.

Along with the swift advancement of the economy and societal progress, the demand for

high-quality technical and skilled talents is increasing, and the importance of cultivating vocational qualities among students in science and engineering universities is becoming increasingly prominent. The spirit of science is the foundation of professional ethics, and professional ethics are the guarantee of the spirit of science. They infiltrate and support each other. The two together constitute the code of conduct that technology talents should follow. In the new era of rapid updating and integration of knowledge, scientific and technological talents need to have a scientific spirit in order to maintain the foresight of knowledge, keep up with the pace of technological progress, and continuously optimize their knowledge structure. In the new era of rapid technological development, technological talents need to have a scientific spirit in order to achieve technological progress and breakthroughs. For example, they need the independent thinking and innovation ability, helping them discover problems, analyze problems and propose solutions in their work. Simultaneously, they must also consider the influence of scientific and technological advancements on society. This requires talents trained by science and engineering universities to establish correct professional views and values, abide by professional ethics, and be responsible to society, humanity and environment. For example, they should have the awareness of environmental protection, data security etc. The spirit of science and professional ethics are prerequisites for students' vocational qualities. Vocational knowledge is the foundation of students' vocational qualities. This implies that students in science and engineering must acquire thorough professional knowledge and robust technical abilities, which are the foundation for them to enter the industry and achieve their success. As far as foreign languages are concerned, students' professional foreign languages are an important part of it. Practical ability is a crucial vocational quality for science and engineering students. The learning of theoretical knowledge needs to be tested and consolidated through practice. Through practical operation, science and engineering students can not only consolidate their theoretical knowledge, but also improve their hands-on ability and problem-solving ability, cultivate innovative thinking and teamwork spirit. International perspective and communication skills are also essential qualities for students in science and engineering universities in the new era. Within the backdrop of globalization, international cooperation and communication are becoming increasingly frequent. Science and

engineering students need to have good foreign language ability, which could help them understand the work methods and thinking patterns of people in different cultural backgrounds, so that they can better showcase themselves on the international stage and expand the boundaries of their career development. In essence, the modern era has set forth fresh mandates for the professional attributes of students in science and engineering universities. Foreign language teaching in universities should keep pace with the times, constantly reform teaching content and methods, continuously enhance students' vocational qualities in order to establish a robust groundwork for students' personal development, as well as for the country's technological progress and industrial upgrading.

3. THE CURRENT SITUATION OF FOREIGN LANGUAGE TEACHING IN SCIENCE AND ENGINEERING UNIVERSITIES FOR IMPROVING STUDENTS' VOCATIONAL QUALITIES

In the current education system of science and engineering universities, foreign language courses occupy an important position in non-professional courses. These foreign language courses are usually considered to improve the foreign language proficiency of college students, broaden their horizons, cultivate cross-cultural communication skills, and enhance their competitiveness in employment. In fact, in the context of globalization, learning foreign language courses could really enhance language proficiency, and help students comprehend the cultures, histories, and social conditions of nations across the globe. This will inevitably help broaden their international perspective, improve their cross-cultural communication skills, and enhance their employment competitiveness to science and engineering students. Improving the vocational qualities of students in these fields have always been a teaching basis for foreign language teaching in science and engineering universities. However, the excessive emphasis on improving these abilities has led to some problems. For example, in class, many teachers still mainly focus on basic language knowledge and introducing foreign cultures. Foreign language courses in universities invest too much time in teaching basic language knowledge, resulting in students often spending a lot of time on basic knowledge such as grammar and vocabulary, while relatively lacking in the cultivation of

professional English and practical language proficiency. Moreover, though foreign language teachers have generally begun to attach importance to the function of curricula of integrated ideology and politics in recent years, and their explanations of Chinese culture have increased, they mainly focus on imparting traditional Chinese culture and lack an introduction to the situations of contemporary China. Yang Jincai pointed out that foreign language education itself has distinct characteristics and needs to directly face foreign ideologies and mainstream Western discourse.[2] In foreign language courses, helping students understand their country's traditional culture and contemporary national conditions can enable them to objectively identify language ideology and cultural values. "It should be noticed that national consciousness cultivation is not aiming to lead students to narrow nationalism but to broaden their international vision and develop a sense of world community with a shared future for mankind." [3] In addition, many teachers have insufficient understanding of the function of foreign language courses in cultivating students' scientific spirit, and insufficient cultivation of their thinking and innovative spirit. When Sun Youzhong elaborated on the theory of humanistic foreign language education, he pointed out that language teaching should be centered on critical thinking.[4] The significance of fostering students' critical thinking and pioneering drive in foreign language instruction is clear. The traditional foreign language teaching in science and engineering universities limits the breadth and depth of students in integrating foreign languages into their own learning, work, and life, which is not conducive to the improvement of their vocational qualities. Foreign language teaching needs to make more contributions in improving students' vocational qualities.

4. FOREIGN LANGUAGE TEACHING STRATEGIES FOR ENHANCING VOCATIONAL QUALITIES

Improving vocational qualities in foreign language teaching requires not only updating the teaching philosophy of teachers, but also enhancing their teaching abilities. The improvement of both is the foundation for implementing foreign language teaching strategies to enhance vocational qualities. The language beliefs of teachers play a mediating role in their teaching decisions. [5] An improved comprehension of the functionality and part played by foreign language classes courses in enhancing

vocational qualities will help foreign language teachers improve their teaching and enhance student learning outcomes. In the traditional teaching of foreign language courses in science and engineering universities, excessive emphasis is placed on the acquisition of linguistic knowledge and the development of language skills, which could not effectively improve the learning effectiveness of students. Beardsmore & Kohls argued that if students could naturally appreciate the direct correlation of their efforts to acquire and use a second or even third language while learning, they could overcome the problem of insufficient learning motivation caused by making a lot of effort but gaining a little in learning languages. [6] Integrating the content of improving students' vocational qualities with language learning is an effective way to improve their learning motivation and enhance language learning effectiveness. In addition to teaching philosophy, the enhancement of pedagogical prowess in educators substantially influences the tangible advancement of students' vocational qualities. Teaching ability refers to the comprehensive ability of teachers to achieve effective teaching in various teaching contexts, including personality traits, knowledge, skills, attitudes, etc. [7] The improvement of students' vocational qualities in foreign language teaching is inevitably accompanied by the corresponding improvement of teachers' teaching abilities. On the basis of improving teaching philosophy and teaching ability, foreign language teachers can use the following four strategies to better enhance students' vocational qualities in foreign language teaching.

4.1 The Combination of Foreign Language Teaching and Scientific Spirit

Traditional foreign language teaching in science and engineering universities often focuses on the cultivation of language skills, while neglecting the cultivation of scientific spirit. However, with the increasing demand for innovative talents in society, foreign language teaching urgently needs to be effectively combined with scientific spirit to enhance students' critical and innovative thinking abilities, in order to cultivate high-quality talents that can adapt to social development. Firstly, critical thinking capability pertains to the power to appraise and assess information with skepticism. In foreign language teaching of science and engineering universities, teachers can introduce some scientific and technological articles, research

reports and so on in class, encouraging students to read and discuss. These materials not only provide a realistic language learning environment, but also stimulate students' curiosity towards scientific issues. Through in-depth analysis of these materials, students can learn how to raise questions, collect and evaluate information, and form reasonable judgments. At the same time, teachers could also design questions that explore themes from different perspectives based on the content of the textbook, allowing students to engage in discussions and debates. These teaching methods all help students cultivate their critical thinking ability while learning foreign languages. Secondly, innovative thinking ability refers to the ability to propose novel solutions when facing new problems. In foreign language courses of science and engineering universities, teachers can design some open-ended tasks, such as project research, case analysis, etc., requiring students to use foreign languages for teamwork and innovative practice. These tasks can simulate real scientific research or engineering projects, allowing students to communicate and collaborate in foreign languages while solving practical problems. Through this approach, students can not only improve their practical language skills, but also exercise their innovative thinking and teamwork abilities. The teaching content of foreign language courses in science and engineering universities should be effectively combined with the spirit of science to cultivate students' critical and innovative thinking abilities, and enhance their vocational qualities. By introducing scientific and technological materials, designing speculative questions, and designing open-ended tasks, foreign language courses can not only improve students' language skills, but also promote their scientific literacy and innovation abilities. The reform and innovation of teaching strategies will have a positive impact on the future development of students.

4.2 The Combination of Foreign Language Teaching and Vocational Ethics

The teaching content of foreign language courses in science and engineering universities should be effectively combined with the nurturing of students' vocational ethics, thereby optimizing the objective of better fostering virtue and aptitude. Factors such as team communication and collaboration, sense of responsibility, and professionalism are essential qualities in the workplace. By integrating the cultivation of

vocational ethics into foreign language teaching, a solid foundation can be laid for students' future careers. Firstly, team communication and collaboration are fundamental requirements in modern workplaces. In foreign language courses, teachers may use activities such as group discussions, role-playing, and project collaboration to teach students how to cooperate and communicate with others in real usage environments of language. These activities not only improve students' practical language application ability, but also cultivate their teamwork spirit and coordination ability. Through this approach, students can learn in practice how to effectively collaborate with others, work together to solve problems, and prepare for future career life. Secondly, a sense of responsibility is one of the important qualities in the workplace. In foreign language courses, teachers may make students feel the importance of responsibility by assigning tasks, setting goals, and so on. For example, students can be assigned to be responsible for a project or task and required to complete it within a specified period. In this way, students can learn to take responsibility for their actions and outcomes. This teaching strategies helps to cultivate students' sense of responsibility and self-discipline, laying the foundation for their future career. In addition, professionalism is also an indispensable quality in the workplace. In foreign language courses, teachers may introduce real-life work scenarios, simulate professional activities and so on to make students feel the charm and value of their profession. Through this approach, students can develop a sense of identification and belonging to their major, stimulating their interest and enthusiasm for learning. At the same time, teachers may also guide students to understand the development of contemporary China, cultivate their sense of social responsibility and dedication. For example, by introducing and narrating environmental protection concepts, students can have more environmental awareness and a sense of environmental responsibility in their future careers.

4.3 The Combination of Foreign Language Teaching and Vocational Knowledge

The teaching content of foreign language courses in science and engineering universities needs to be more integrated with students' vocational knowledge. As far as foreign language courses are concerned, this type of vocational knowledge includes both traditional daily foreign

languages and professional foreign languages. The combination of two aspects of teaching content could enhance students' cross-cultural communication abilities. Firstly, from the perspective of practical foreign language teaching, the teaching content should be closely integrated with the daily life and practical work needs of students. For example, students may use foreign languages for communication in simulated real-life scenarios through methods such as scenario simulation and role-playing. These scenarios could include job interviews, business negotiations, customer service, etc., all of which are situations that students may encounter in their future careers. By doing so, students could not only learn practical foreign language expressions, but also become familiar with professional scenarios in advance and improve their vocational qualities. Secondly, from the perspective of professional foreign language teaching, the teaching content should be closely related to the student's professional field. For students from different majors, teachers may design different teaching content according to their professional direction in order to meet their professional needs, while keeping the main content of language teaching unchanged. For example, for the students majoring in computer science, teaching content for computer foreign languages could be added; for the students majoring in engineering, it is possible to increase the teaching content of engineering foreign languages. In this way, while learning a foreign language, students can also learn knowledge and terminology related to their profession. The effective combination of foreign language teaching content and vocational knowledge in science and engineering universities is a beneficial way to improve students' vocational qualities. In addition to the instruction of foreign languages in daily life, the curriculum should also emphasize the effective integration with students' professional knowledge, which can not only improve their language application ability, but also help them adjust to the demands of career progression.

4.4 The Combination of Foreign Language Teaching and Career Planning

The teaching content of foreign language courses in science and engineering universities can be effectively integrated with students' career planning. They can plan their future career better, by helping students understand the national conditions of contemporary China and encouraging

them to combine their career development with China's development. At the same time, it enables students to introduce China's industry development and needs to foreign countries based on their own majors. This is also an important way to cultivate their international perspective and improve their professional competitiveness. Firstly, understanding the national conditions of contemporary China is crucial for students' career planning. In foreign language courses, teachers could introduce relevant news reports, policy documents, economic data, and other materials to help students understand the development of contemporary China. By delving into these materials, students can gain an enhanced comprehension of China's national conditions, gain more background information for their career planning, and guide them to think about how to combine their career development with China's national conditions. For example, these materials guide students to think about how to choose positions or entrepreneurial opportunities that are suitable for social and economic development, how to choose a research direction that combines personal expertise and interests with the needs of national development, etc. Secondly, being able to introduce China's development and needs to foreigners based on students' majors should also be one of the important goals of foreign language courses. In the context of globalization, communication between China and the world is becoming increasingly frequent, and there is an urgent need for professional talents who can introduce the development and needs of China's industry in foreign languages. Therefore, in foreign language courses, teachers may design cross-cultural communication tasks related to the industry in which students will work, allowing students to have the opportunity to learn to introduce the development and needs of relevant industry in China in foreign languages. In this way, students may not only improve their level of foreign languages, but also exercise their cross-cultural communication skills and the application of professional knowledge, cultivating their international perspective and improving their professional competitiveness.

5. CONCLUSION

The continuous development of China and the world has put forward high requirements for talent cultivation. Excellent vocational qualities may help students in science and engineering universities enhance their employment competitiveness, and contribute to the development of country. Foreign

language courses can organically combine scientific spirit, vocational ethics, vocational knowledge and career planning with the improvement of students' vocational qualities. With the continuous enhancement of teaching concepts and the improvement of teaching methods and content, foreign language teaching could nurture superior talents who align with the requisites of societal advancement.

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