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Exploring the Teaching of Curriculum Politics in Biomass Conversion Principles and Technology Based on the New Engineering Background

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Abstract: Curriculum ideological and political education is a new concept and model of curriculum teaching of various majors to adapt to the development of the new era and the new international and domestic situation. Under the background of "new engineering", integrating the curriculum thought and politics into each link of the teaching of biomass energy conversion principle and technology, and exploring the best "fusion point" is a direction worthy of in-depth research in teaching. In the teaching practice of biomass energy transformation principle and technology course, teachers should fully reflect the unique humanistic temperament of biomass energy transformation principle and technology course, and explore the ideological and political education content of socialist core values, which can not only promote students to improve their professional ability, but also improve their thoughts and behaviors. This paper mainly puts forward the integration point of biomass energy transformation principle and technology and ideological and political education, as well as the strategy of curriculum teaching improvement under the background of new engineering.

Keywords: New Energy Science and Engineering; New Engineering; Curriculum Thought and Politics; Principle and Technology of Biomass Energy Conversion; Teaching Improvement.

1. Introduction

In order to adapt to the new industrial revolution and the process of global integration, new ideas for cultivating talents in modern engineering education have been put forward, and new engineering disciplines have emerged in response. New Engineering is a cross-discipline to cultivate the talent elements of new quality productivity. Since the proposal of the new engineering discipline in 2016, from the consensus of Fudan University to the action of Tianjin University, and from the action of Tianjin University to the guide of Beijing, the construction of the new engineering discipline has been step by step, and it is gradually getting better and better. The Ministry of Education organized the declaration of the research and practice project of the new engineering discipline in 2017, and encouraged the universities to carry out in-depth exploration and practice. Academician Zhong Denghua defines the essence of the new engineering discipline from three levels of new concepts, new approaches and new requirements as follows: to cultivate future diversified and innovative engineering talents of excellence with the leadership of promote morality and nurture people, the construction concept of responding to changes and shaping the future, and the main approaches of inheritance and innovation, intersection and fusion, and coordination and sharing [1]. Academician Zhong Denghua refined the characteristics of new engineering as: strategic, innovative, systematic and open.

In the context of the new era, various trends of thought keep pouring in, and some college students have problems such as wrong values, lack of political beliefs, and serious ideological urgency, which puts forward higher and newer requirements for the goal of cultivating moral integrity in the new engineering disciplines. General Secretary Xi Jinping emphasized at the National Conference on Ideological and Political Work in Colleges and Universities that in strengthening the work of ideological and political education in colleges and universities, we should give full play to the important position of classroom teaching in educating people, and make efforts to carry out ideological and political education throughout the whole process of education and teaching in schools. With the curriculum as the carrier, to establish moral education as the fundamental, fully explore the moral education elements contained in professional knowledge, in this context, how to unify professional knowledge education and ideological and political education organically, is the current education in colleges and universities urgently need to solve the problem [2]. This requires every teacher of professional courses in colleges and universities to correct their political standpoint and improve their knowledge and understanding of “curriculum ideology and politics”. In the process of teaching professional knowledge, teachers dig deep into the moral education elements contained in the curriculum system, optimize the teaching content, improve teaching methods, enrich the teaching means, penetrate the ideological education of students, and realize the all-round, all-process and all-coverage of ideological and political education in colleges and universities [3, 4]. At present, how to grasp the status of education, realize the organic integration of professional education and ideological and political education, and promote the teaching of knowledge and value leadership in parallel, still need to be actively explored.

In order to adapt to the demand for comprehensive quality talents in the new economic development, the specialty of “new energy science and engineering” is constructed based on the strategic plan of national energy development. New energy science and engineering is subordinate to the energy and power class specialties, from the development of new energy science and engineering, from the “thermal energy and power engineering” specialties after several disciplines subdivided and integrated, forming the current “new energy

science and engineering" specialties [5]. The new energy science and engineering specialty is characterized by obvious cross-disciplinary integration [6-8], which puts forward a new challenge for the setting of our curriculum system.2024 Tianjin agricultural university's new energy science and engineering specialty was selected as a key construction specialty of new engineering in Tianjin, biomass energy conversion principles and technology is a new energy science and engineering specialty course [9]. Because of its strong specialization, teachers in the past teaching often only emphasize the learning of knowledge and basic theory, "stress teaching rather than learning" phenomenon is obvious.

Currently, the development of ideological and political education in colleges and universities is still relatively weak, and the predicament of "siloing" of ideological and political education of college students in colleges and universities has not yet been fundamentally reversed [10]. Under the concept of "curriculum political thinking", teachers should find the combination of new energy science and engineering expertise and curriculum political education, and play the nurturing function of biomass energy conversion principles and technology courses.

2. Integration Points of Biomass Conversion Principles and Technology Course and Politics Education

2.1. National Self-Confidence, Patriotic Sentiment Education

The introductory class of the biomass energy conversion principles and technology course is the first ring of the Political Education. In the introductory course, we trace the history of the development of biomass energy, introduce students to the wisdom and great inventions of our ancestors, and stimulate students' national pride and interest in learning by learning from history. Integrate anti-epidemic into curriculum education [11], take today's current events as an example, after a sudden new coronary pneumonia swept across the world, scientists from various countries have begun to research and develop effective drugs and vaccines. Chinese medicine, as a unique health resource in China, played an active role in the prevention and control of this epidemic, especially in the absence of specific drugs and vaccines, Chinese medicine experts identified and treated patients according to their conditions, and flexibly utilized them through the combination of formulas, forming a number of effective formulas of traditional Chinese medicines, which became a major feature and highlight of the prevention and control of the epidemic. A variety of vaccines have been developed in a timely manner and inoculated free of charge for the general public. Comparing the state of epidemic prevention and control at home and abroad, the Party and the State have always put the lives of the people in the first place, and improved students' institutional self-confidence and national pride, thus sublimating their patriotic sentiments.

2.2. Craftsmanship Education

Biomass conversion principles and technology course teaching, speaking of biomass energy, the second chapter of biomass physicochemical properties of cellulose, the introduction of Wuhan University Zhang Lina academician's deeds, Zhang Lina academician and her guidance of several sessions of doctoral students to study non-polluting cellulose low-temperature solubilization method, they are working day and night, fighting hard for 12 years, before making a major breakthrough. At present, how to grasp the status of education, realize the organic integration of professional education and ideological and political education, and promote the teaching of knowledge and value leadership in parallel, still need to be actively explored.

International experts in the field of cellulose believe that "the invention is an excellent achievement, which will bring a major breakthrough to the chemical fiber industry". Domestic experts in the field of chemical fiber industry said that this achievement "will save the life of chemical fiber industry after successful industrialization". In 2013, Prof. Zhang Lina was awarded the Anselm Payne Prize, which is the highest award in the field of international cellulose and renewable energy materials, and is the first Chinese to win the prize in half a century. Will be introduced to biodiesel in China's highest science and technology award Min Enze academician's deeds, 31-year-old Mr. Min Enze in the help of friends, take Hong Kong, after all the twists and turns, finally returned to China, into the Ministry of Petroleum Industry, Beijing Petroleum Refining Research Institute to work, he went through the hardships, breaking the blockade of other countries outside of China, the successful research and development of the platinum reforming catalysts, phosphoric acid diatomaceous earth stacking catalysts, and spherical silica-alumina cracking catalyst. He successfully developed the production technology of platinum reforming catalyst, phosphoric acid diatomaceous earth stacking catalyst, microsphere silica-aluminum cracking catalyst and microsphere silica-aluminum cracking catalyst, and planned and guided the development of a complete set of green technology for the production of caprolactam, a monomer of chemical fiber, and a new technology of biodiesel production, which solved the urgent needs of national defense and refining, and he built the catalyst factories and workshops of Lanzhou, Changling, Fushun, and Jinzhou.

2.3. Adherence to the Education of New Development Concept

The speech of General Secretary Xi Jinping distinctly put forward the development concepts of innovation, coordination, green, openness and sharing. When taught in the course of biomass conversion principles and technology, most biomass has the following characteristics: It is synthesized by living organisms in their life process, generally contains only four elements: carbon, hydrogen, oxygen and nitrogen, and it is easy to be degraded in the environment, with low environmental pressure. These characteristics coincide with the sustainable scientific concept of development and the content of the new development concept, which can strengthen students' identification with the new development concept.

2.4. Science and Technology Innovation Education

The report of the 18th CPC National Congress emphasizes the implementation of the innovation-driven development strategy, and stresses that scientific and technological innovation is the strategic support for improving social productivity and comprehensive national power, and must be placed at the core of the overall situation of national development. Innovation and entrepreneurship education will

be carried out throughout the whole process of talent cultivation activities to cultivate high-quality specialists with an international perspective and a sense of innovation, spirit of innovation, ability to innovate and practical ability. When explaining other frontier technologies of biomass in Chapter 11, biomass used in battery production is taken as an example. Ordinary lead-acid batteries suffer from short lifespan and low depth of discharge. Kaiyu Energy Storage, in cooperation with Jilin University's Electrochemical Energy Storage Technology Industrialization Engineering Laboratory, has developed a new type of lead storage battery - a high-performance, energy-storing lead-carbon battery based on biomass (rice husk)-based carbon materials, with a cycling performance of up to 2,800 cycles and a battery life of more than 10 years. This new low-temperature dissolution technology is an original scientific research results, not only a breakthrough in the traditional method of dissolution by heating, and low-temperature dissolution process without volatiles, short production cycle, easy recovery of waste liquids, urea can be recycled, can promote the chemical "green" process. International experts in the field of cellulose believe that "the invention is an excellent achievement, which will bring a major breakthrough to the chemical fiber industry".

3. Improvement Strategies for Teaching Biomass Energy Conversion Principles and Technologies under the Background of New Engineering Sciences

3.1. Enhance the Political Quality of Professional Teachers

To cultivate people with moral integrity is the cultivation goal of the new engineering discipline, and course politics is the key way to realize the cultivation of people with moral integrity. The carrier of "curriculum politics" is the curriculum, and the main body of implementation is the teachers, so the teachers are the key to "curriculum politics". To promote the work of "Curriculum politics", it is necessary to enhance the teachers' moral education awareness and ability, so that teachers understand and realize that through the drive of "Curriculum politics", they can solve the outstanding problems of teaching effectiveness that have long been plaguing the professional teachers; to encourage teachers to reflect on the shortcomings of current classroom teaching. Encourage teachers to reflect on the deficiencies of current classroom teaching, try to improve teaching methods and expand teaching boundaries by integrating elements of Politics; promote professional teachers to actively participate in "Curriculum Politics" and education reform projects, reconstruct course contents and improve teaching methods by integrating professional knowledge, so as to enhance the practical application ability of "Curriculum Politics".

3.2. Mode of Theoretical Learning in Class + Extracurricular University Student's Innovative Projects

In the rapidly changing modern society, people's thinking should also keep up with the trend of the times, so it is necessary to strengthen the implementation of learning by applying in the process of the implementation of Political Education in colleges and universities. With the mode of theoretical learning in class + extracurricular university student's innovative project, the breadth and depth of teaching content can be expanded, and the cross integration of multiple disciplines can be realized. Exploring the mode of theoretical learning + extracurricular university student's innovative Project in the course of Biomass Energy Conversion Principles and Technology can not only diversify the atmosphere of classroom teaching, make the theoretical teaching and practical teaching give equal weight to each other, and practically strengthen the cultivation of students' innovative entrepreneurial spirit and practical ability, but also make the students better adapted to the needs of the modern society. The introduction of this model breaks through the traditional monotonous classroom atmosphere dominated by theoretical teaching, both in the digital, information-based teaching environment, through the multimedia means of rigorous theoretical knowledge learning, but also practice-oriented discussion-type and on-site apprenticeships and practical teaching, diversified means of teaching brought about by the active teaching atmosphere of the course, which greatly increases the attractiveness of the course and improves student The motivation of students has been improved at the same time.

3.3. Assessment Mechanism

The course assessment needs to reflect the comprehensive quality of students, and the assessment standard is divided into professional standard and political standard, corresponding to the teaching objectives. The professional standard focuses on the mastery of knowledge and skills, and the Political standard takes socialist core values as the core and focuses on the cultivation of professionalism and professional ethics. The assessment form is divided into process assessment and result assessment, the process assessment includes homework, class discussion, accompanying test and laboratory report, and the result assessment is based on the final theoretical examination. The assessment of each item contains two evaluation criteria, and in the examination, additional subjective questions on ideology and politics, such as combining the four energy revolutions and an international cooperation, talk about the feelings of new energy, thus strengthening the students' sense of social responsibility and promoting the effective achievement of the teaching objectives.

4. Conclusion

To sum up, based on the background of "curriculum politics", in the teaching of biomass energy conversion principles and technology, tap the humanistic ideas of the course itself, infiltrate national self-confidence, patriotism, professionalism, love of agriculture, love of school thinking and scientific innovation into the teaching, and lead the students to improve their professionalism and constantly improve their knowledge of the subject, and promote the effective achievement of the teaching objectives through effective classroom cases. Through effective classroom cases, students are led to improve their vocational quality, improve their knowledge of their own disciplines, and gradually develop the ability to make value judgments and value choices. Promoting the construction of curriculum ideology and politics is the inevitable requirement for the cultivation of people in colleges and universities. Colleges and universities must, through curriculum construction, take correct value leadership and common ideals and beliefs shaping as the

classroom characteristics of socialist universities, and truly realize the systematic and collaborative education of all courses.

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