

Research on the Path of Vocational Students' Innovation and Entrepreneurship Ability under the Background of Carbon Neutral and Carbon Peak

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Abstract: The goal of "carbon peak and carbon neutral" ("double carbon" for short) is a major strategic decision proposed by China. For this reason, the Ministry of Education proposed that universities should provide scientific and technological support and talent guarantee for "double carbon", cultivate innovative talents in the field of carbon peak and carbon neutral, and explore the path of talent training. China faces many challenges in achieving the carbon peak. In the complex system composed of society, energy, economy, environment and science and technology, innovative and entrepreneurial talents are the first resource to promote and achieve this goal. In this paper, we put forward higher vocational students' entrepreneurial ability training path and provide talent support for the realization of the goal of double carbon in our country under the background of carbon peak and carbon neutral in the following aspects including the reinforcing support from government, the improvement of students' innovative entrepreneurial ability, the further integration of industry-university-research cooperation in double carbon field, the establishment of ecological innovation environment, the promotion of linkage of the vocational education and entrepreneurship innovation, and the evaluation system of innovative entrepreneurship education which contains carbon peak and carbon neutral parameters, etc.

1. Introduction

On September 22nd, 2020, President solemnly announced at the general debate of the 75th Session of the United Nations General Assembly that "China will increase its nationally determined contribution, adopt more effective policies and measures to strive to peak its carbon dioxide emissions by 2030, and strive to achieve carbon neutrality by 2060." Based on this, the Ministry of Education has provided scientific and technological support and talent guarantee for the realization of carbon attainment and peak carbon neutrality, and issued the Action Plan for Carbon Neutralization and Technological Innovation of Higher Education (hereinafter referred to as the Plan). The plan proposes to constantly adjust the structure of carbon neutral related majors and disciplines, improve the quality of talent training, optimize the talent training system, and take the lead in building world-class carbon neutral related universities and majors[1]

"Carbon peak carbon neutral" put forward new requirements for personnel training, in view of the

new energy, environment, economic management and other related disciplines to actively use interdisciplinary cross development of innovative and interdisciplinary talents, unity social various aspects strength to cultivate high-level carbon and innovative talents, to achieve the goal of double carbon lay a solid talent foundation, promote talent training quality improvement, make use of talents to give full play to the important role of scientific and technological innovation[2]. In this context, low-carbon economy will become an important direction of future economic development. As an important training channel for high-quality technical talents in China, the educational goal of higher vocational colleges will be adjusted accordingly. While cultivating students' professional ability, we should pay attention to the cultivation of students' innovation and entrepreneurship ability. For higher vocational colleges, innovation and entrepreneurship education should keep up with the pace of The Times, focusing on the importance of carbon emission reduction, constant development of green innovative technologies and the creation of development model of low-carbon economic to promote the industrialization of scientific and technological achievements, and to help to achieve the goal of carbon peak and carbon neutrality. Therefore, how to cultivate students' innovation and entrepreneurship ability under the background of carbon peak and carbon neutrality will become an important direction for the future development of higher vocational colleges.

2. Situation and Problems of Innovation and Entrepreneurship in Higher Vocational Colleges

Higher vocational education is an important way to cultivate "high-skilled, application-oriented and compound" talents, and innovation and entrepreneurship education is an effective method to cultivate students' creative thinking and practical ability. In the context of carbon emission reduction, the innovation and entrepreneurship of higher vocational colleges face the following situations and problems.

2.1. The Demand for Green and Innovative Technologies is Increasing

Traditional industries have serious carbon emission problems, which require the development and application of green innovative technologies to carry out sustainable development business. Green technology innovation determines the future development. With the continuous development of society and the continuous progress of science and technology, all the resources that human beings need to survive are limited and cannot be used indefinitely. Green technology innovation is bound to become the source of driving force to promote development[3]. As the application scenario of green technology innovation continues to appear, the scene of future development will become more and more clear, which also determines the appearance of the future.

2.2. In the Context of Innovation and Entrepreneurship, Enterprises' Demand for the "Craftsman Spirit" Has Increased

The "craftsman spirit" is not only an inexhaustible driving force for the Chinese working people to continuously create history, but also an inevitable requirement for the workers of socialism with Chinese characteristics for the new era. It is the spiritual core of conforming to the new round of industrial transformation in China. The Times call for the "craftsman spirit". It is not only a concept of labor, production and personal development, but also an invisible productivity that promotes Chinese enterprises from large to strong[4]. A good spirit is also related to the foundation of enterprise development. For enterprises, they should not just shout slogans, but truly integrate knowledge and practice, so that the "craftsman spirit" takes root in enterprises, and become the heartfelt consensus of all enterprise employees, and become a powerful driving force to promote the high-quality development of enterprises. Innovation and entrepreneurship must be promoted with the "craftsman

spirit", so as to promote the prosperity and development of enterprises and industries.

2.3. Employment Pressure Increases

The employment pressure of higher vocational college students is very great. With the gradual disappearance of demographic dividend, it is more and more difficult for students to find jobs. Higher vocational students need to have innovative spirit and entrepreneurial ability to meet the needs of economic transformation and upgrading. Innovation capacity building and personnel training are important supporting measures in the action plan. We should understand that carbon peak is not only energy and technology issues, and universities should not only do carbon peak for their own energy conservation and emission reduction, but also take innovation and entrepreneurship education and reform as the starting point, train qualified talents as their own responsibility, and shoulder the strategic mission of participating in global climate governance[5].

2.4. Lack of Innovative and Entrepreneurial Talents

Under the background of the rapid development of innovation and entrepreneurship, the ownership rate of innovative and entrepreneurial talents at the undergraduate and graduate levels is relatively high, while higher vocational colleges are lack of innovative and entrepreneurial talents. Higher vocational colleges should actively encourage students to participate in innovation and entrepreneurship activities, and motivate students to participate in innovation and entrepreneurship projects and practices. Students can form their own innovation groups to carry out innovative practice activities in the two-carbon field.

Under the background of double-carbon education, the content and paradigm reform of innovation and entrepreneurship education have ushered in important opportunities. A series of documents issued by the central government undoubtedly point out the direction, that is, to form a university-enterprise-society-government innovation and entrepreneurship community, and to strengthen the training of innovative and entrepreneurial talents through the construction of a number of future technology colleges, modern industry colleges, model energy colleges, and carbon peak innovation platform for the integration of production and education [6].

3. The Path of Higher Vocational Colleges in Cultivating Students' Innovation and Entrepreneurship Ability

3.1. Strengthen Government Support to Improve Students' Ability for Innovation and Entrepreneurship

According to the national development strategy and the demand for talents in the field of carbon neutral, the government needs to establish a corresponding policy system, take into account the high integration of social and technological paths, strengthen support, form a virtuous cycle of incentive mechanism, and use universities to promote the convergence of enterprises, research institutes and talents toward the carbon neutral field.

The government and education departments should set up an expert team for the training of innovative talents in the field of carbon neutral, guide universities in various places to build carbon neutral related majors, and provide ideas, organize and provide policies and guarantees for colleges and universities to formulate talent training programs. The government and local universities will build a carbon neutral science and technology innovation platform to provide outstanding science and technology talents and management talents for industries and research institutes, and to form a carbon neutral strategic science and technology force. Universities have carried out extensive multi-party

cooperation with the government, enterprises and the international community to accelerate the cultivation of professionals in low-carbon industries [7].

3.2. Promote the Deep Integration of Industry, University and Research Institutes in the Dual-Carbon Sector

Higher vocational colleges should establish deep cooperation relations with enterprises, governments and scientific research institutions, promote the construction of innovation and entrepreneurship projects such as innovation and entrepreneurship centers, incubators and technological innovation platforms, build regional industrial chains, deeply integrate industrial resources, carry out forward-looking research, and accelerate the transformation and promotion of research results.

Higher vocational education, as a type of education with the functions of personnel training, technology research and development, cultural inheritance and scientific research, provides talent support for the development of regional industries and intellectual support for the high-quality development of regional industries. Higher vocational colleges should focus on deepening the transformation of old and new drivers, the transformation of green and low-carbon development, and the deep integration of industrial digitalization, actively seize the dual-carbon track, and actively explore the integration of "science and innovation + industry", so as to help achieve a win-win situation for government, school, enterprises and enterprises[8].

3.3. Establish Innovation and Entrepreneurship Environment to Serve Double-carbon Field

Higher vocational colleges need to promote industrial upgrading and transformation by building a good entrepreneurial environment, and help enterprises and students to succeed in the practice of innovation and entrepreneurship. At the same time, the entrepreneurial service columns with traceable results of courses, training and competitions will be established to promote the rational utilization of entrepreneurial resources with an inclusive, open and sharing attitude.

Cultural communication can be performed by two different channels to innovative entrepreneurial practice, the first is carbon neutral brand construction on the basis of the original brand construction and carbon neutral elements, such as brand social responsibility, low carbon production concept, energy conservation and emissions reduction measures, etc., the second is the media, such as short video, graphic propaganda, live streaming to realize the combination of traditional and new industries.

In the Internet field, carbon asset, carbon emission and energy consumption management systems can be developed for the needs of emission control enterprises, to provide clear, integrated and digitized service software for enterprises to understand their own carbon emission data and grasp the changes of the amount of performance and the changes of carbon assets in real time.

In the field of urban planning, designing or consulting, urban carbon peak and carbon neutral related planning services, carbon inclusion, carbon footprint collection can be added, mainly providing overall package planning and implementation for government agencies, and the level of entrepreneurship is relatively large.

3.4. Promote the Ecological Linkage of Vocational Education

Innovation and entrepreneurship education should be promoted from the perspective of industrial linkage and policy linkage, and actively in-depth cooperation with multiple forces including the government, industry associations and social enterprises to jointly create a beneficial vocational education ecology.

Innovative development strategy is the inevitable choice to improve the core competitiveness.

From the past learning to the present innovation, the change of driving force is the most challenging and core part of the whole social system, especially the construction of high-quality education system. In the era of innovation, the demand for talents is stronger, especially for talents with innovative consciousness and innovative ability[9].

In the face of new drive and new function, vocational education reform should reflect the development requirements of the innovation driven new industrial chain, the industry development, industrial innovation demand through the reconstruction of the education chain and talent chain, promote talent training mode and path change, realize the integration of industrial chain, innovation chain, talent chain, education chain, to promote digital innovation, build open knowledge source, practice, and realize multi-platform interaction.

3.5. Promote Mass Entrepreneurship and Innovation

Mass entrepreneurship and innovation movement is an important way to accelerate innovation and entrepreneurship. It can produce more talents with innovative ability, entrepreneurial quality and entrepreneurial intention, and further drive the rapid development of society and economy. Higher vocational colleges should actively participate in the movement of mass entrepreneurship and innovation, take the initiative to undertake social responsibilities, promote the development of regional economy, and form a consensus to clarify the task of carbon peak reaching work. The market mechanism should play a key role in the process of carbon peak, allowing all market entities and governments at all levels to adjust their energy strategies according to the carbon emission market signals, so as to achieve the goals of energy conservation, carbon reduction and low carbon.

3.6. Build an Evaluation System for Innovation and Entrepreneurship Education Including Carbon Peak and Carbon Neutrality Parameters [10]

The goal of carbon peak is to rigidly restrict the consumption of non-renewable energy in the way of quantitative indicators. Once the global carbon emission trading market is formed, the supervision and measurement of such indicators is extremely strict. Therefore, in the training of innovative and entrepreneurial talents, we should abandon the fuzzy evaluation system, build the basic data standard of innovation and entrepreneurship education as soon as possible, and study the formation of a scientific, efficient and accurate evaluation system for the innovation and entrepreneurship through artificial intelligence, big data and other means. Based on this system, the successful application experience is promoted, so as to accelerate the training of innovative and entrepreneurial highly skilled talents.

4. Conclusions

It is an important task for vocational colleges to cultivate the ability of innovation and entrepreneurship in the two-carbon field. Through the implementation of the above path, students' innovation and entrepreneurship ability can be improved, and social talents with innovation and entrepreneurship consciousness and ability can be created. Strengthening innovation and entrepreneurship education in higher vocational colleges will provide strong support and guarantee for China to further promote the development of low-carbon economy and to achieve the goal of carbon peak and carbon neutrality.

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