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Research on the Improvement of Innovative "Outstanding Engineer" Talent Cultivating

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Abstract: "Mass Entrepreneurship and Innovation" is an important document to cultivate the innovation spirit and consciousness of the whole people. It is a key step to cultivate the innovation consciousness of the whole people, realize the transformation from "Made in China" to "Created in China", and help the great rejuvenation of the Chinese nation. From the perspective of "Mass Entrepreneurship and Innovation", this paper discusses the education and cultivating plan for outstanding engineers in economics and management majors (hereinafter referred to as "outstanding engineers"), studies the ways of cultivating "outstanding engineers" in economics and management majors, and takes * * school as an example to propose a talent cultivating model that can be used for reference by other colleges and majors.

Keywords Mass Entrepreneurship and Innovation, Outstanding Engineer, Talent cultivation, Educational Practice

INTRODUCTION

"Mass Entrepreneurship and Innovation" is the top ten economic buzzwords of 2018, which aims to fully stimulate the innovation and creativity of hundreds of millions of people, eliminate the resistance of various policies and environments, make "Mass Entrepreneurship and Innovation" a new trend of the times, and provide strong new momentum for achieving national prosperity, people's enrichment, and economic and social development. After several years of development, the concept of "Mass Entrepreneurship and Innovation" has been deeply rooted in the hearts of the people, and was elected as the top ten economic buzzwords of 2018.

In 2022, the number of college graduates in China is expected to reach 10.76 million, exceeding 10 million for the first time, an increase of 1.67 million[2] over 9.09 million in 2021. At the same time, the employment situation of college graduates has become more serious due to weak global economic growth which was led by the combined impact of adverse factors such as COVID-19, some countries' anti-globalization, and abuse of economic and technical means. According to the Employment Report of College Graduates in 2021 released by Zhaopin Recruitment, the employment rate of graduates in 2021 is only 34%[3]. At the same time, there is also a big gap in China's senior technicians compared with western developed countries. Japan's senior technicians account for 40% of industrial workers, while Germany's account for 50%. The data shows that by the end of 2021, the total number of skilled talent in China has exceeded 200 million, and the number of highly skilled talent has exceeded 60 million[4]. However, in terms of the proportion of highly skilled talents, there is still a gap between China and developed countries. All these circumstances have forced our college educators to constantly think: "Mass Entrepreneurship and Innovation" has opened up a bright path for college students' employment, and at the same time, it has also provided space for the cultivating and practice of "outstanding engineers".

RESEARCH STATUS AT HOME AND ABROAD

Lv Dandan (2022) believed that the cultivating of "outstanding engineers" should optimize the talent-cultivating objectives from the aspects of comprehensive quality, awareness of independent learning and lifelong learning, and social responsibility. Starting from improving the quality of students, the cultivating quality of outstanding engineers should be comprehensively improved by improving the curriculum system, strengthening the construction of teachers, deepening school-enterprise cooperation, optimizing school running conditions, and building an organizational security system, to lay a foundation for the development of engineering education system in "double first-class" colleges and universities. Ye Jinxin, Han Yu, Zhang Jianglong, and Liu Kesheng (2022) put forward the core position of school-enterprise collaboration mechanism construction in the cultivating process of "outstanding engineers", analyzed the current situation of school-enterprise collaboration cultivating of outstanding engineers at home and abroad, and built the "STEP school-enterprise collaboration education system" based on the

innovative exploration of the school-enterprise collaboration education mechanism of the Future Aerospace College of Beijing University of Aeronautics and Astronautics and Astronautics. This has targeted to solve the existing problems in the school-enterprise collaboration mechanism, such as imperfect structure, the mismatch between supply and demand, and non-collaboration between production and education. It has put forward the concept of technological innovation and engineering education symbiosis of industry-university research multi-party collaboration, promoted the internal development of education and training of outstanding engineers in the new era, and improved the level of "outstanding engineers" training. Li Xuan (2022) believed that with the transformation of the social structure, the phenomenon of college students' employment difficulties would become normal. Therefore, the state proposed a new idea based on "Mass Entrepreneurship and Innovation" to promote the transformation and reform of education in colleges and universities. The research believes that all colleges and universities should fully understand the educational requirements and the significance of implementing educational reform in the context of Mass Entrepreneurship and Innovation and practice the relevant reform path that caters to the Mass Entrepreneurship and Innovation education model, so as to provide a strong guarantee for the development of college student's education and future employment in China.

Yz A, Hz B (2022) research believes that it is very important to evaluate the quality of college students' innovation and entrepreneurship education. On the basis of analyzing the current research situation of innovation and entrepreneurship education quality evaluation, this research has constructed a quality evaluation index system of college students' innovation and entrepreneurship education, including 21 sub-indicators such as courses and activities, conditions, quality, ability, skills, spirit, awareness, channels, and the effectiveness of innovation and entrepreneurship education. It has established an evaluation model based on euthenics, conducted empirical research with 8 universities in Ningbo as examples, and put forward corresponding suggestions. Teresa Tiago; Sandra Faria; João Pedro Couto; Fl ά vio Tiago (2015) believes that entrepreneurship has become one of the important content in the business field for a long time in the past. This study links entrepreneurship and innovation and the ability to create new products, services, and projects. Taking samples from four countries as examples, it establishes a model and determines the favorable factors. The survey results show that entrepreneurship education is widespread and is a major contributor to entrepreneurial intentions. In addition, there is no difference in age and gender orientation, but the combination of the state and education will affect entrepreneurial orientation.

THE TALENT-CULTIVATING APPROACH OF "OUTSTANDING ENGINEERS" UNDER THE "MASS ENTREPRENEURSHIP AND INNOVATION" MODE

The talent cultivating program of "Outstanding Engineers" based on the integration of "Mass Entrepreneurship and Innovation"

The cultivating program is the core document of professional talent education, which determines the quality of undergraduate cultivating. In the process of formulating the cultivating program, it should fully reflect the basic, innovative and forward-looking characteristics, implement by category, select by direction, and fully consider the characteristics of each major. To formulate the training plan, we should fully communicate with front-line teachers, technical (management) staff, leaders in charge, and newly graduated students, and listen to their opinions in the practice process, such as their understanding of the professional knowledge they have learned, and the degree of conformity between the requirements of the enterprise and the relevant majors, courses, and practice of the university. Make the class hours, credits, and course attributes of the plan conform to the basic requirements of the Ministry of Education for major settings, as well as the requirements of enterprises, greatly improve the quality of graduates, improve the satisfaction of employers, and thus form a benign interaction between schools, enterprises, and students.

The teaching mode of students first, teachers second, a combination of students and teachers, and interaction of students and teachers

The classroom teaching of "Outstanding Engineer" is entirely student-centered, with teachers playing a supporting role. For example, the course "Big Data and Intelligent Finance" has 32 class hours in total, 20 class hours for teaching links, and 12 class hours for practice links (computer). The 20 class hours of the teaching link consist of 2 class hours of opening and summary (1 class hour each), 12 class hours of special research (6 special research, 2 class hours each) corresponding to the practice link and the remaining 6 class hours for the acceptance of the results. In the acceptance results, the traditional closed-book examination is no longer arranged. Instead, the acceptance team is jointly organized by teachers, cooperative enterprises, and other students to let students report to the "defense team" in the form of reports. The defense team will score the

students according to their mastery of professional knowledge and skills, the mastery of relevant courses, language expression, analysis and judgment ability, strain ability, emotion control ability, self-study ability, and hard-working spirit, and finally give the students corresponding scores according to the weight of each index. The purpose of this is for students to realize the connection between school and enterprise in the final examination stage, and feel the scope and way of work of the enterprise in advance.

Team cultivating system of "Outstanding Engineers" based on the requirements of "Mass Entrepreneurship and Innovation"

The demand of the country, enterprises, and institutions for a large number of interdisciplinary talents determines that the cultivating of "outstanding engineers" needs the cooperation of a complete team of teachers. The construction of these teams covers school teachers and personnel of enterprises and public institutions. The majors include basic disciplines, management disciplines, professional skills disciplines, etc. The purpose is to cultivate a composite student team by cultivating a team of teachers, so that students have a strong spirit of team cooperation, rather than fighting alone in the past. Therefore, the combination of relevant majors and the creation of a cross-disciplinary "span and depth" team training system have greatly improved the communication between majors and the collaboration with professional teachers, and also promoted the development of these majors.

Strengthen the education mode of the "Mass Entrepreneurship and Innovation" concept, and integrate innovation and entrepreneurship into all aspects of students' learning

In the process of cultivating students' innovation and entrepreneurship, our teaching team always adheres to the cultivation of students' innovation and entrepreneurship awareness and ability. For example, credit items have been added to the assessment of students. In the case of the course Information System Design and Analysis, we allow students to use relevant awards as the closing assignments of the course, without having to participate in the defense. For another example, in the construction of the course system, we have added bonus items for innovative, cutting-edge and innovative topics, that is, as long as the content is innovative and different, we will reflect it in the acceptance.

SUMMARY

The cultivation of economic and management professionals under the integration of "Mass Entrepreneurship and Innovation" has a certain frontier, especially some courses of economic and management majors, which fully integrate the concept and system of innovation and entrepreneurship and the cultivation of outstanding engineers in the design teaching system and assessment system, which is of great significance for the cultivation of engineering-oriented management talents. At the same time, in the assessment and acceptance, the proposed all-round assessment, on the one hand, has improved students' abilities in all aspects, on the other hand, has established a good communication channel for students between school and employment. The effectiveness of this innovative "Outstanding Engineer" talent cultivating mode shortens the cycle of talent cultivating from university to the front line of scientific research and industry. It is of great significance to cultivate more high-level talents that are short in our country.

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