

Thoughts and Practice of Colleges and Universities Industry Background Advancing the Cultivation of Talents for Innovation and Entrepreneurship

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ABSTRACT

Wuhan University of Technology is recognized as one of the first demonstration universities to deepen innovation and entrepreneurship education reform in China. The school regards innovation and entrepreneurship education as an important feature and core connotation of 21st-century excellence education, deepens the reform of university personnel training models, and explores innovation and entrepreneurship education. The “double innovation and mutual integration” training path for innovative entrepreneurship with effective integration, professional education, and innovative entrepreneurship education, establishing a maker space—innovation and entrepreneurship park—business incubator—enterprise development accelerator “four-level link” innovation and entrepreneurship practice platform, comprehensive Construct Wuhan University of Technology's innovation and entrepreneurship education system.

INTRODUCTION

Wuhan University of Technology is a university with significant industry characteristics. It is the largest school in the universities directly affiliated with the Ministry of Education to train talents for the three major industries of building materials, construction, transportation, and automobiles. During the long history of school running, the school has cultivated for the three major industries. After a batch of outstanding talents, it has become an important base for the cultivation of high-level talents and scientific and technological innovation in China's "three industries". At present, among the three major industries and large-scale technical and managerial personnel, our school graduates account for 63%, transportation industry graduates account for 51%, and automotive industry graduates account for 58%.

Wuhan University of Technology fully implements the concept of education excellence, summarizes the school's experience in innovation and entrepreneurship education, raises awareness, unifies thinking, clarifies the direction of development, works together to deepen education and teaching reform, vigorously promotes innovation and entrepreneurship education, and explores the cultivation of innovative

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and entrepreneurial talents with science and technology characteristics the way. Insist on deepening innovation and entrepreneurship education as a breakthrough to promote comprehensive reform of school education, enrich the curriculum, innovative teaching methods, strengthen teachers, improve assistance, promote the close combination of teaching, research, and practice, break through weak links in talent training, and strengthen students' innovative spirit. Entrepreneurship awareness and ability to innovate. Adhere to coordinated advancement and improve the school innovation and entrepreneurship education system and mechanism as the supporting point for deepening the innovation and entrepreneurship education reform. All departments and colleges coordinate and coordinate together to gather innovation and entrepreneurship education elements and resources to form a good ecological environment for school innovation and entrepreneurship education.

EXPLORING THE PATH OF INNOVATION AND ENTREPRENEURSHIP EDUCATION

Cultivation of Innovative and Entrepreneurial Talents is Included in the "13th Five-Year Plan" Development Strategic Plan

According to the new requirements for talent training in the country's economic and social development and the new situation in the reform and development of higher education, combined with the actual situation of the school, the Excellent Education Support Plan was taken as the core construction content of the school's "Thirteenth Five-Year Plan" development plan (2020 Excellent Action Plan). Innovative entrepreneurship education guiding ideology and work objectives, and the cultivation of innovative entrepreneurship talents into the school's strategic development plan, in the coming period, we will focus on training three types of talents: participating and leading the cutting-edge innovative talents in the frontiers of science and technology, supporting and leading the transformation of the three major industries The upgraded industry leads talents, and serves as an innovative and entrepreneurial talent that leads the regional economic and social development. During the "Thirteenth Five-Year Plan" period and beyond, the school will take world-class disciplines as the lead and promote major scientific and technological innovations. Through all-round disciplinary interdisciplinary and in-depth integration, it will promote innovation and entrepreneurship education into the entire process of talent training for all students. Improve the quality of school personnel training, enhance students' core competitiveness and social satisfaction.

Highlighting Demand-Oriented and Focusing on Building a Support System for Innovation and Entrepreneurship Education

The overall idea and concept of the school's comprehensive implementation of innovation and entrepreneurship education is to highlight the era of excellence education and strive to build three supporting systems of school innovation and entrepreneurship

education: First, to break through traditional education concepts and models, and to promote and realize the integration of knowledge, ability, and occupation. To create a "technical maker", and through the implementation of innovation and entrepreneurship education, our students have jumped from knowledge learners to innovators, entrepreneurs, and creators, leading the frontiers of science and technology, leading the three major industries, leading the regional economy, and creating an excellent life; It is to break through the traditional university concepts and models, promote the integration of individuals, schools, and society, create a "smart valley of science and engineering," and create a brand-new university in accordance with the requirements of innovation and entrepreneurship education, and make our university leap from the place of traditional knowledge inheritance to Maker's home, source of wisdom, cradle of creation, continuously radiate new ideas, new technologies, new products, new industries, and new economies to the society; the third is to break through traditional innovation concepts and models, and promote and realize innovation, entrepreneurship, Creative integration, creating "technical creation", through innovation and entrepreneurship education Kinds of ideas, achievements, patents, products and businesses.

Streamline the Policy Mechanism and Build a Guarantee System for Innovation and Entrepreneurship Education

Based on industry characteristics and discipline advantages, Wuhan University of Technology integrates industry resources, scientific research resources, and government resources, expands international education resources, and forms a diverse and collaborative education mechanism for schools, enterprises, science and education, government schools, and international organizations. It arranges nearly 20,000 students each year. Carry out innovation and practice activities in industry enterprises. Various research bases (engineering centers) at all levels of the school are open to students, and teachers are encouraged to industrialize scientific and technological achievements to lead students to innovation and entrepreneurship. The school set up two academic institutions, the Leading Group for Innovation and Entrepreneurship Education, the School Innovation and Entrepreneurship Teaching Subcommittee and the Entrepreneurship Education Degree Evaluation Subcommittee, to jointly promote the development of innovation and entrepreneurship education; the establishment of a solid entrepreneurship college to specifically promote school entrepreneurship education and guidance Students start their own businesses and cultivate a group of entrepreneurial enterprises; formulate an education system for innovation and entrepreneurship, and explore the establishment of a management and evaluation system oriented to innovation and entrepreneurship.

Deepen the Reform of Education and Teaching, and Expand the Talent Training Model of "Double Innovation and Mutual Integration"

Revise the training plan for each major to reflect the ability of innovation and entrepreneurship in the talent training goals and the graduation requirements of students and require each major to set at least one compulsory course for innovation and

entrepreneurship education combined with the major in the curriculum system, and one practical training link for innovation and entrepreneurship. Each student chooses at least one innovation and entrepreneurship course in the general elective course. Establish an innovation and entrepreneurship practice training platform that connects professional practice training, innovation and entrepreneurship training, and entrepreneurship practice, improve professional practice teaching conditions, enrich professional practice teaching content, and cultivate students' ability to practice and innovate. Through carrying out a series of activities such as the "National University Student Innovation and Entrepreneurship Training Plan" and China's "Internet +" University Student Innovation and Entrepreneurship Competition, it supports students' interest-driven innovation and entrepreneurship practice training. Establish a comprehensive university subject innovation and entrepreneurship training base (maker space), college student innovation and entrepreneurship center, and college student innovation and entrepreneurship park, and build a support service platform for students to carry out innovation training, entrepreneurship training, and entrepreneurship practice on the innovation base.

Integrate High-Quality Resources and Build a "Four-Level Link" Innovation and Entrepreneurship Practice Platform

Based on the four stages of enterprise development: "seed stage, start-up stage, growth stage, and mature stage", Wuhan University of Technology has established four innovation and entrepreneurship practice platforms: "maker space, innovation and entrepreneurship park, business incubator, and enterprise development accelerator". Provide differentiated guidance and services at different levels and build a complete business incubation chain of "Fostering Makers, Nursery Encouragement, Business Incubation, and Accelerated Promotion" and "Four-Level Link".

EFFECTIVENESS OF INNOVATION AND ENTREPRENEURSHIP EDUCATION PRACTICE

Successfully Build a "Double Innovation and Mutual Integration, Four-Level Link" Innovation and Entrepreneurship Education System

Innovation is the foundation of entrepreneurship. Innovation provides talents, technologies, products and services for entrepreneurship. Entrepreneurship is the carrier and manifestation of innovation. The two promote each other and are inseparable. The school implements an effective link between innovation education and entrepreneurship education, and professional education and entrepreneurship education are closely combined with the "double innovation and mutual integration" innovation and entrepreneurship talent training path. Gather high-quality resources to meet the needs of students at different stages of innovation and entrepreneurship, build a maker space with distinctive industry characteristics-entrepreneurial park-business incubator-business development accelerator "four-level link" innovation and entrepreneurship practice

platform, comprehensive construction of Wuhan University of Technology innovation and entrepreneurship education system.

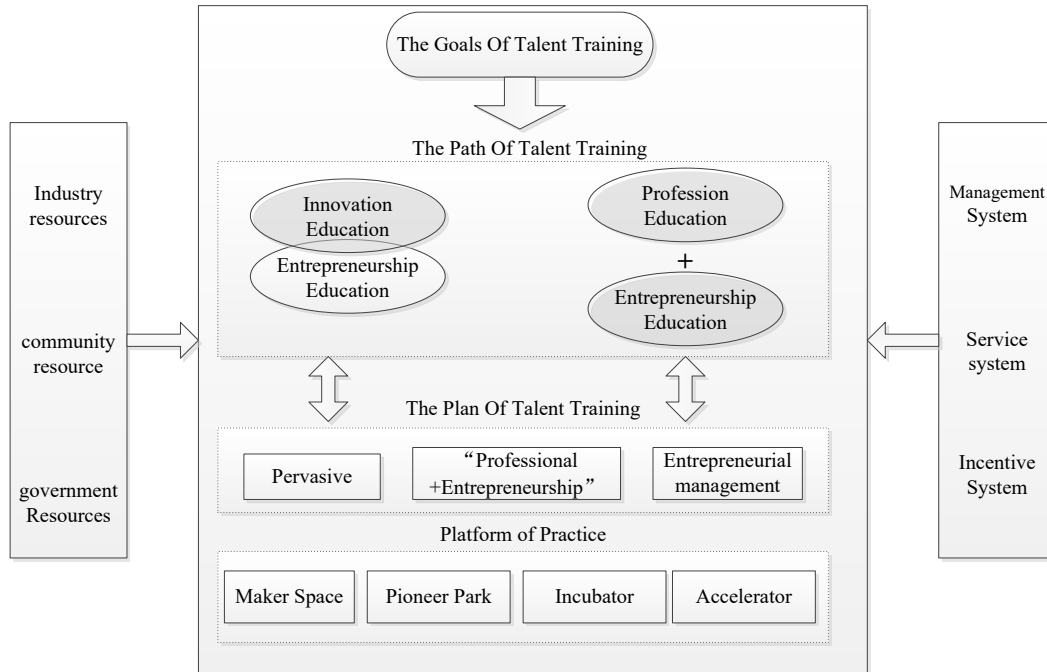


Figure 1. "Double Innovation and Mutual Integration, Fourth Level Link" Innovation and Entrepreneurship Education System.

Students' Ability to Innovate and Entrepreneurship Continues to Improve and is Widely Recognized

In the past three years, students have won more than 1,500 provincial and ministerial awards in important competitions such as the National College Student Mechanical Design Competition, Challenge Cup (Creating Youth), Social Practices for Energy Conservation and Emission Reduction, and Science and Technology Competitions. The school won the first place in the Challenge Cup of Hubei Province for 7 consecutive years. The school received 1,334 awards for various types of innovation and entrepreneurship, including 58 international awards, 791 national awards, and 485 provincial awards; 599 national university students' innovation and entrepreneurship training programs were established with funding of 8.72 million yuan.

At present, there are 112 enterprises in the undergraduate entrepreneurship park, 161 companies have been out of the park, 120 million yuan has been raised, and more than 3,500 jobs have been provided. There is 1 listed company on the NEEQ and 12 high-tech companies.

A group of advanced models such as Zhao Yunlong, Peng Fan, and Yang Xiaofeng have been cultivated. Through a sample survey, the proportion of entrepreneurs who

have graduated in the past 10 years has reached 5.38% and has trained nearly 7,000 entrepreneurs represented by Douyu Livestream CEO Zhang Wenming. In 2018, our students Su Chaochao, Shen Yongsu and Tu Hao won the top ten entrepreneurship awards of Wuhan University Students.

Play a Demonstration and Leading Role in Promoting Innovation and Entrepreneurship Education Nationwide

More than 180 universities, including Peking University, Renmin University, Zhejiang University, Nankai University, and Taipei University, as well as government employment and entrepreneurship service agencies from various places, came to the university to conduct research and exchanges. Among them, Beijing University Graduate Employment Guidance Center, Henan Province College Student Employment Service Center, Hubei Province University Graduate Employment Guidance Center, University of Electronic Science and Technology, Wuhan University, Central China Normal University and other units all believe that Wuhan University of Technology is in the process of deepening entrepreneurship Education work, especially in the areas of entrepreneurial talent training concepts and training methods, has played a leading role in demonstration.

Wuhan University of Technology summarized the experience and rules of entrepreneurship education, researched and developed the entrepreneurial base construction and entrepreneurship training course system, and successively held "incubator construction operation and management", "college creation space (enterprise base) construction operation and management", "university entrepreneurship" Coach-type teacher training courses "and other topics of 10 colleges and universities entrepreneurship education teacher training, a total of 107 participating colleges and universities, the number of more than 400 people.

The School has been Repeatedly Invited to Promote the Practice of Innovation and Entrepreneurship Education

Wuhan University of Technology has been invited to give lectures or teacher training on innovation and entrepreneurship by the National School of Education Administration, Hubei Provincial Party School, Chongqing Employment Guidance Center, Northeast Normal University, Wuhan University, etc.; He was invited to introduce the successful experience of innovation and entrepreneurship education of Wuhan University of Technology in the "Employment and Entrepreneurship Forum" hosted by the National Employment Guidance Center and the "International Forum on Innovation and Entrepreneurship Education" organized by Renmin University of China.

School Innovation and Entrepreneurship Education has been Well Received by Authoritative Departments and all Sectors of Society

Wuhan University of Technology Entrepreneurship Base was recognized by the Ministry of Human Resources and Social Security as a "National Pioneering Incubation

Demonstration Base” in 2014, and recognized by the Ministry of Education as a “National University Practice and Education Innovation and Entrepreneurship Base” in 2015, and was recognized by the Ministry of Science and Technology as “National Science and Technology “Business Incubator”, in 2017, Wuhan University of Technology was identified as “the first batch of national demonstration universities for deepening innovation and entrepreneurship education reform” by the Ministry of Education, and “National Crowd Space”.

The training of innovative and entrepreneurial talents in schools has been highly recognized by all sectors of society. The State Council General Office, the Ministry of Education, the Ministry of Human Resources and Social Affairs, and the Communist Youth League Central Committee and other special investigation teams have visited the school to investigate; the People's Daily, Guangming Daily, Science and Technology Daily, China Education Daily, Xinhua News Agency and other authoritative media have repeatedly reported the school's entrepreneurship education.

SUMMARY

Current problems include insufficient teachers' reserves for innovation and entrepreneurial knowledge, insufficient curriculum resources, and lack of corresponding high-quality curriculum resources. The effectiveness of innovation projects is obvious. There are too few entrepreneurial projects and teams. Teachers' scientific research results and students' innovation training results are not well-converted. In the later period, the emphasis was on improving the entrepreneurship education curriculum system, improving the undergraduate enrollment plan and training plan for the direction of entrepreneurship management, and improving the second-degree training plan for the direction of entrepreneurship management. Strengthen the construction of practical platforms such as the virtual simulation experimental teaching center for innovation and entrepreneurship and management decision-making and formulate enrollment and training programs for masters in entrepreneurship management, as well as mentor selection criteria.

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