

On the Training of Comprehensive Quality for Top-Notch Innovative Talents

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Abstract

Cultivation of innovative talents is an important mission of the world first-class university. Comprehensive quality is an important training target of top-notch innovative talents. In recent years, universities and Industry University Chinese hard exploration in training innovative talents. The cultivation of comprehensive quality innovative talents must pay attention to cultivating students’ sense of historical mission and social responsibility, innovation spirit and practice ability, the implementation of the ideals and beliefs of innovation and entrepreneurship training program, planning, guidance and service support plan, humanistic cultivation plan.

Key words: Top-notch innovative talents; Comprehensive quality; Training system

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INTRODUCTION

The quality and level of talent cultivation are an important content and important basis for measuring the level of modern universities. The comprehensive quality is

the knowledge, ability and quality of the coordinated development of the performance and the performance of the overall function of the characteristics. In the process of cultivating top innovative talents, grasp the comprehensive quality training with personnel training basic law of systematic, Chinese colleges and universities innovative talents basically at the undergraduate level, students actually become innovative talents is not possible, the undergraduate stage the main task is for the future lay the foundation for innovative talents, that is to cultivate high comprehensive quality; conform to the state and society to innovative talents strategic positioning, innovative talents is a leader in quality, can not become a single leader, must have higher comprehensive quality; with the construction of high level research university educational goals, determine the high level research university school tradition, educational ability and educational level it is shouldering the important mission of cultivating outstanding innovative talents.

1. THE COMPREHENSIVE QUALITY OF THE CONNOTATION OF INNOVATIVE TALENTS AND STRUCTURE

1.1 The Connotation of Quality Innovative Talents

1.1.1 The Quality Structure of Innovative Talents

Structure determines the function, the function decides the effect. For a long time, the education, psychology, talent science and other disciplines to explore the factors of human growth, to influence factors for structural classification, some scholars from the study of the structure of the functional classification of the classification, there are experts and scholars from the functional performance of structural classification. Therefore, the classification of different types of

differences, but also mutual between the same, the same. At present, the typical and commonly used classification is the ideological and political quality, intelligence quality, physical quality and psychological quality. The ideological and political education mainly includes morality, ideals and beliefs, civilization accomplishment, awareness of the law and other aspects, the intelligent quality includes professional knowledge, professional skills, professional quality obtained through professional training, the function of the physical quality includes all the organs of the body, psychological quality including personality psychology and psychological process etc.. The comprehensive quality structure of top-notch innovative talents also includes ideological and political quality, intellectual quality, physical quality and psychological quality in four aspects, which are more prominent on two levels and innovative features.

1.1.2 The Comprehensive Quality of Innovative Talents

Top-notch innovative talents with comprehensive quality in the end should be what kind of? Scholars have been discussing a lot, but did not form a relatively uniform standards. At present, the academic circles are the main character of outstanding innovative talents are analyzed and summarized. Academician Zhou Qifeng believes that innovative talents with noble morality, broad and thorough knowledge, innovation ability, with a clear target selection, long-term accumulation of advantages and outstanding innovation performance “the National Planning Office of philosophy and social sciences. The National Social Science Fund” research university construction and innovative talents training “achievements bulletin. The “national long-term education reform and development plan (2010-2020)” clearly pointed out that the focus on the cultivation of “belief perseverance, good moral character, knowledge, skills and talents of top-notch innovative talents.” Hu Jintao put the top-notch innovative talents are summarized as “the creator of new knowledge, new technology, new invention subject creator” (Hu, 2011). Both features or roles, the initial formation of top-notch innovative talents should have quality. However, there is no precise definition of formation. The author believes that the comprehensive quality of innovative talents mainly is the sum of the ability and quality of non professional knowledge and life practice, system training and atmosphere formed based on.

1.2 The Comprehensive Quality Structure of Top-Notch Innovative Talents

1.2.1 Ability of Comprehensive Quality

Ability is a skill to accomplish a task. This skill is acquired through learning or training. Gardiner Howard, a psychologist at Harvard University in the United States, believes that human intelligence should be a measure of his ability to solve problems. His intelligence is divided

into language, mathematical logic, space, body movement, music, interpersonal, introspection, natural exploration and existing capacity. Some experts will be divided into memory, image, abstract, faith, innovation, From the type of structure capability, we can see that the ability of comprehensive quality of innovative talents is the need to solve the problem of high total completion of major tasks or skills.

1.2.2 Quality of Comprehensive Quality

Quality and quality of only one word, but the meaning has distinctive differences. Quality is an important part of quality structure. Quality usually refers to the training of personnel standards or standards. Literacy is the habitual behavior, mental state and the value idea that people are accustomed to in their daily activities. The comprehensive quality of innovative talents in literacy is top-notch innovative talents should have the values, habits, behavior and personality.

2. PRACTICE AND EXPLORATION OF THE CULTIVATION OF COMPREHENSIVE QUALITY OF INNOVATIVE TALENTS

2.1 C9 University Training Top-Notch Innovative Talents Comprehensive Quality

The test plan of training talented students in basic sciences from the University of Science and Technology of China elite class (also known as the “Mount Everest project”), domestic high level universities are in the exploration and practice of innovative talents training deeply. The author selected 9 domestic (“2+7”) university innovative talents training were analyzed and compared (see Table 1).

In fact, from the training program design to the implementation of the implementation of the concept, the overall comparison of macro, and more emphasis on the training of scientific and innovative talents, more attention to scientific research and innovation ability training and training. On innovative talents training target has no more specific description and requirements, not made more specific requirements on the cultivation of comprehensive qualities.

2.2 The Culture Industry of Top-Notch Innovative Personnel Comprehensive Quality

In recent years, China higher education training mode reform of exploration and practice, the innovative talents blossom everywhere raging like a storm. In order to develop a more comprehensive review of top-notch innovative talents in Chinese colleges and universities comprehensive quality. The author from 5 aspects of science and engineering, agriculture, forestry, medicine, grammar, normal class and so on 5 aspects to choose typical colleges and universities to carry on the comparative analysis (see Table 2).

Table 1
Cultivation Philosophy to Enhance the Comprehensive Quality of Top-Notch Innovative Students in China C9 Universities

Name of college	Principle of cultivation talents	The comprehensive quality structure and requirements
Yuanpei College of Peking University.	To lay the foundation to become internationally competitive leaders	1. Cultivate the general knowledge foundation 2. Possess the strong sense of innovation 3. Self-study well and flexible manipulative ability 4. Be adaptable
Tsinghua School Personnel Training Program	Cultivate top talents with world class Performance or the leading talents in relevant science and technology	1. Academic aspirations, interests, creativity, imagination and ability of critical thinking widen 2. Scientific vision, enhance the ability of critical thinking, improve the ability of development and innovation, strengthen the responsibility and sense of mission
The School of Gifted Young of University of Science and Technology of China	Cultivate the high-level talents in the field of science and engineering in the next 15-20 years	Learning ability Logical Thinking Ability
Diwan College of Shanghai Jiaotong University	Cultivate the future masters who are keen on scientific research, possess solid Mathematical foundation and consciousness of innovation, critical thinking and Skepticism, and what's more have strong social responsibility.	Critical thinking ability Knowledge integration capacity Communication and cooperation capacity Promote multi-cultural understanding globalize horizon
Fudan College of Fudan University	Build solid foundation for undergraduates' development, that is to say, to cultivate a sane undergraduate in the first step to build the foundation for a second education.	Comprehensively developed high quality and creative talents
Chu Kochen Honors College of Zhejiang University	Cultivate innovatory talents with high quality and the future leaders with international view and permanent competitiveness	He who has solid foundation, rich knowledge, strong ability, high quality, and vigorous, and moreover possesses the international view and permanent competitiveness in the professional and related fields
Kuang Yaming college of Nanjing University	Cultivate the talents who determine to contribute to the basic research discipline and education.	He who has good scientific literacy , humanities accomplishment, solid professional foundation, high creativity, adaptive capacity and development potential.
Qian Xuesen experimental classes of Xi'an Jiaotong University	Cultivate the outstanding and creative talents who can lead the different industries forward	He who has the preliminary ability of system integration, thinking ability, practical ability and innovation ability. In addition, they need the self-study ability of sustainable development.

Table 2
The Cultivation Cases in Professional Universities

Name of college	Category	Cultivation philosophy	The comprehensive quality structure and requirements
Hua Luogeng laboratory of Beijing University of Aeronautics and Astronautics	Polytechnic	Cultivate the top-notch innovative talents qualified with solid math foundation and the potentiality of solving key problem in the relevant area of math and high technology	He who has solid math foundation and the potentiality of solving key problem
Innovation experimental college of Northwest Agriculture and Forestry University	Agriculture and forestry	Cultivate the social desperate need and research-oriented innovative talents who advocate science, pursue innovation, and are full of social responsibility.	Adapt to technological development , grasp technological frontier, possess the solid fundamental theory, professional knowledge, scientific literacy and study ability.
Shanghai University of Chinese Medicine	Medicine category		He who has scientific-study literacy and ability, self-study ability, cooperative spirit and scientism of group
The international mathematical economic and mathematical finance class of Wuhan University	Literature and law	Cultivate the theory and application talents of high level of economics oriented to the world and the future	The talents have solid foundation in economics, mathematics, finance, management and so on with high level foreign language and skilled in computer application, and what's more, They can work independently for research education and management in the economic and financial field.
Beijing Normal University Normal	Normal	Build up solid foundation to become the leaders and distinguished learner in the relevant subjects	He who is ambitious, has keen interest, solid professional foundation, outstanding ability, possess intelligence and virtue. In addition, be brave in exploring and innovating

3. THE SYSTEM AND THE WAY OF DEVELOPING THE COMPREHENSIVE QUALITY OF INNOVATIVE TALENTS

3.1 The Cultivation of Comprehensive Quality Innovative Talents Target Establishment

Goal is to cultivate top-notch innovative personnel training compass. The “national long-term education reform and development plan (2010-2020)” clearly pointed out that innovative talents should have the characteristics of “belief perseverance, good moral character, full of knowledge and excellent skills”. Comrade Hu Jintao pointed out that innovative talents should have the characteristics of independent thinking, free exploration and innovation. The party’s eighteen big report points out, to cultivate students’ social responsibility, innovative spirit, practical ability. Comrade Xi Jinping pointed out that the youth should strengthen their ideals and beliefs, acquired excellent skills and innovation to create, determined to work hard, temper noble character. At the same time, Xi Jinping pointed out that the youth to study in the practice of socialist core values, to work hard, seek true knowledge; to virtue, to strengthen morality, focusing on ethical practice; to discern good and good decision to choose; to be honest and sincere, solid dry matter, a sense of life. Specific to the comprehensive quality of innovative talents, to cultivate the ideals and beliefs, the practical ability of students, noble personality, strong sense of social responsibility. “The overall plan for promoting the construction of the world’s leading universities and first class disciplines” is clearly put forward. “Efforts to develop innovative, practical and compound talents with historical mission and social responsibility, full of innovative spirit and practical ability.” Comprehensively improve the students’ comprehensive quality, international perspective, scientific spirit and entrepreneurial consciousness, and creative ability.” From the point of view of national overall requirements and reality, innovative talents training must attach great importance to quality, focus on the cultivation of students’ sense of historical mission and social responsibility, innovation spirit and practice ability.

3.2 System of Comprehensive Quality Training of Top-Notch Innovative Talents

3.2.1 Ideals and Beliefs to Lead the Program

The idea and belief are the prerequisite for the completion of major historical tasks. Only the firm ideals and beliefs, in order to stimulate a strong sense of historical mission and social responsibility. To strengthen the ideological and moral education, pay attention to the use of China’s outstanding traditional culture carrier, and actively carry out social ethics, professional ethics, family virtues and personal qualities of education, so that students develop

a noble character. To strengthen the legal education of the law and discipline, pay attention to warning of the typical cases, to carry out the method, and the use of law education, to increase students’ thinking and the rule of law concept. To strengthen the national history education, focusing on the use of historical sites and social practice, and actively carry out patriotic education, let the students in the deep history and living in the understanding of the situation, the formation of a consensus, enhance the mission. It is necessary to strengthen the political belief education, pay attention to the use of the revolution’s rich cultural heritage as the carrier, to carry out political belief education, let the students take a stand, to maintain concentration, consciousness and self-confidence.

3.2.2 Innovation and Entrepreneurship Training Program

Innovation and entrepreneurship education in Colleges and universities is the service of national innovation driven development strategy, promote the urgent requirement to upgrade the quality and efficiency of economic, is an important breakthrough to improve personnel training quality and educational level. Relying on the discipline of science and technology innovation to carry out innovation and entrepreneurship education, combined with the economic and social and industrial development, pay attention to cultivate students’ innovative spirit, entrepreneurial consciousness and innovation ability. The construction of innovation and entrepreneurship education curriculum system, the development and construction of modular, thematic, case oriented, practical, networking, personalized elective courses. Build innovation and entrepreneurship education practice platform, the formation of scientific research platform, entrepreneurial practice platform, Business Incubation Platform and other integrated platform system. The construction of innovation and entrepreneurship education of teachers, improve teachers’ service innovation and entrepreneurship education and awareness, support and guide the teachers to business and government for attachment to exercise, encourage and support teachers to carry out the business model, providing business guidance and services. The establishment of innovation and entrepreneurship project plans and special funds.

3.2.3 Guide Service Support Plan

The necessary condition and guarantee for the comprehensive quality cultivation. Improving the guidance, service and support plan is an important condition for the cultivation of comprehensive quality. To establish the growth guidance mechanism for innovative talents allocation growth mentor, guiding students to develop life development goals and action plans. To establish a health service mechanism, training service system to provide the necessary psychological counseling, sports and fitness for top-notch innovative talents. To

establish a poor student aid program, the establishment of a student fund, the establishment of helping institutions, efforts to provide help for the development of students in the material and spiritual.

3.2.4 Nourish the Human Cultivation Plan

Deep humanistic accomplishment is the embodiment and an important carrier of comprehensive quality of outstanding innovative talents. The Chinese excellent traditional culture has carried on the outstanding cultural character and the humanities spirit. To carry out the knowledge education of Chinese culture, pay attention to the profound knowledge of Chinese culture and the Chinese culture education, and guide students' noble cultural taste and cultural choice. To carry out calligraphy, art, music and other cultural and artistic education, pay attention to the running of the cultural and artistic carrier, and guide students to feel the Chinese traditional culture and art of the art of aesthetic and cultural spirit. To carry out the philosophy education, with the philosophy of thinking and philosophy logic, to guide students to establish a rational thinking ability and thinking habits. To carry out the classic reading education, focus on the use of classical works and classical writers to influence

the students, guide students to feel the charm of classical charm, to develop the quality of the classic taste.

CONCLUSION

Cultivation of innovative talents is an important mission of the world first-class university. Comprehensive quality is an important training target of top-notch innovative talents. In recent years, universities and Industry University Chinese hard exploration in training innovative talents. The cultivation of comprehensive quality innovative talents must pay attention to cultivating students' sense of historical mission and social responsibility, innovation spirit and practice ability, the implementation of the ideals and beliefs of innovation and entrepreneurship training program, planning, guidance and service support plan, humanistic cultivation plan.

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