

Discussion and Practice of Application Oriented Personnel Training System in University

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Abstract

This paper from the understanding of the application type talents and analysis of the main problems in the cultivation of applied talents in universities. Respectively from the personnel training mode, curriculum system structure, teachers' quality, practice training, practical teaching evaluation of these five aspects of the problem analysis of reason, put forward the construction of theoretical teaching system, practice teaching system construction, three aspects of the construction of comprehensive quality system. Constructing the teaching system of application oriented talents cultivation in ordinary undergraduate, the connotation of practical application oriented talents, ability structure and training methods and so on, the basic strategies of promoting the effective cultivation of applied undergraduate talents are put forward.

Key words: Applied talents; Applied undergraduate education; Personnel training

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INTRODUCTION

At present, China is in a period of rapid development, all kinds of personnel, especially applied only extremely scarce. *Long-term Education Reform and Development*

Plan (2010-2020) and Shandong Province, Long-Term Education Reform and Development Plan (2010-2020) are put forward, to cultivate students service country, serve the society, people's sense of social responsibility, promote the coordinated development of students' knowledge, ability and quality, create a highly social sense of responsibility and innovation spirit and practice ability of talents with high quality (You & Pan, 2012). Normal Universities must closely follow the development trend of higher education, an accurate grasp of their own development orientation, good choice for their own development path, deepen the reform of the school system and talent training mechanism reform model, and strive to cultivate high-quality applied talents and high-quality application of technical skills talents. One to locate a specific school applied undergraduate colleges, two to be clear about the applied talents' training objectives and specifications, three to deepen the applied talents' training mode reform, four to promote the professional development and professional comprehensive reform. Shandong will follow supporting the superior and stronger, focused, characteristics of the development of ideas, regular undergraduate institutions in the province to build a number of pilot for industry attributes the strong development of obvious advantages, with a demonstration effect of applied backbone of professional personnel training, adaptation of applied talents new requirements knowledge, ability and quality and coordinated development, and actively carry out theoretical and practical teaching reform, innovative talents. Pilot Project Professional to use about three years time, optimizing personnel training programs, reform of the curriculum, study and formulate adapt to the application requirements Talents curriculum standards, improve the education system, and experimental practice.

1. FULLY RECOGNIZE THE SIGNIFICANCE OF CULTIVATING APPLIED TALENTS

1.1 Accurately Grasp the Connotation of the Ordinary Undergraduate Course Colleges and Universities to Cultivate Applied Talents

Talent types according to the different needs of social development can be divided into academic talents and applied talents. Academic talents are to study the objective law, discovery of scientific principle or new knowledge of the talent, applied talents is to engage in the use of scientific principle or new knowledge for the community to seek immediate interests of the people. Applied talents are divided into engineering talent, technical personnel and skilled personnel in accordance with the theoretical level, the nature of technical ability and job functions and so on. The entire process from production activities in modern society, engineering talent is in research and development, planning, design, decision-making and other aspects. Technical personnel is in production, construction, service and other practical aspects of the technical positions and management positions, skilled personnel is in actual operating line segment, in particular the social production practices (Liang, Jiang, & Tan, 2012). Common applications oriented university should be based on common, face on the ordinary, service for the ordinary, cultivate applied talents for the general economic and social development. First of all, to follow the undergraduate training of its own laws, while highlighting applications, strengthening practice, we can not follow the traditional model of ordinary undergraduate education because of the Undergraduate-level personnel, and, do a research undergraduate; the same time, we can not weaken teaching basic theory because of outstanding applications. Our regular undergraduate institutions cultivate applied talents mainly technical personnel and engineering talents.

1.2 Cultivate Applied Talents Is an Urgent Need to Adapt to the National Education Reform and the Construction of Regional Economic Society

In recent decades, universities play a significant role in economic and social development, such as the world important science and technology parks, mostly relying on the university to set up and develop, including the famous America's "Silicon Valley", the Japanese "Tsukuba" Taiwan's "Hsinchu" and Beijing's "Zhongguancun" and so on (Zhu 2010). The Science Park has made important contributions through the development of high-tech enterprises way for national economic development, and they rely on universities become an important source of power for economic development. At the same time, but also to expand the space of their own survival and development. Regional economic and social development of the skills most needed type, application type, and compound talents scarce. Regional economic and social development is in short supply

of the most needed skills type, application type and compound talents. And the deep reasons for the structural contradictions exist in our country's higher education system, which is a response to the changes of economic society and the progress of science and technology. The phenomenon of "homogeneity" is serious, many colleges and universities mainly focus on the pursuit of "big and complete", the same, the professional training mode and the actual demand, there are some schools blind pursuit of the number of doctoral degree, the number of papers published, the number of countries. Some schools have very distinctive industry background upgraded or renamed, abandoned the traditional strengths of the original application, skills in nature. Behind these problems is the lack of scientific orientation of these schools, the type of personnel training, hierarchical features are not clear, the tendency of closed is serious, and lack of mechanisms for enterprise and industry needs and development needs of the region closer together.

1.3 Cultivate Applied Talents Is the Inevitable Choice for the Scientific Orientation and Characteristic Development of the School

From the school itself, adjust and optimize the structure of the discipline, must adhere to the orientation of social needs, highlighting the characteristics of school. Discipline major is the basic element of the University, and the level of discipline is the focus of the University's core competitiveness. In the new set of disciplines, to adhere to incremental optimization, that is, to aim at the development of strategic emerging industries, aim at upgrading the traditional industries, aim at the social construction and public service areas of new talent demand, the initiative to adjust and optimize the discipline of professional (Song 2010). For the existing disciplines, to adhere to the stock adjustment. Colleges and universities set up discipline is not more, not in the whole, and in particular, in the strong. Discipline construction is not only "man without I have," it's more important is the people I have "optimum" or others "new". In fact, none of the world first-class university can cover all professional disciplines, and in the United States department of education professional disciplines catalog statistics, the Massachusetts institute of technology, Princeton university, Stanford university discipline coverage of 54.2%, 62.5% and 70.8% respectively. And many of our colleges and universities tend to pursue the so-called "comprehensive", "the whole family style" development, which is worthy of reflection. Colleges and universities should focus on the orientation and market demand, develop discipline specialty construction and adjustment plan, construct the discipline specialized system and personnel training structure, focus on key points and advantages, compress "plain", build "peak", focus on building a better advantage, build and strengthen the cluster advantage ". In the final analysis, is to the

characteristics of development, to build the core strength of the characteristics.

2. THE CORRECT UNDERSTANDING AND COMPREHENSIVE GRASP THE “THICK FOUNDATION, WIDE CALIBER” TRAINING MODE AND TRAINING PHILOSOPHY

Traditional training of personnel training model of knowledge is narrow, lacking of the humanities, strong adaptability and creativity, its quality is difficult to meet the requirements “to promote the comprehensive development of man,” the university personnel training objectives. The Ministry of Education early in the 20th century on undergraduate education colleges training model proposed the principled guidance “thick foundation, wide caliber, heavy practice”. Many scholars and universities not only to the traditional training model of talent were studied and reform, but also on how to correctly understand and grasp the “thick foundation, wide caliber” This new training model a useful exploration. Many experts believe that the “thick foundation, wide caliber” training mode of proposed change in ideas, personnel training model and teaching content, reform of teaching methods of work of personnel training of colleges and universities have had a profound impact, to “promote the comprehensive development,” has played a positive role in pushing forward. But many experts believe that too much emphasis on “thick foundation, wide caliber” there are many drawbacks. As Tang Huiling, Liu Zhijun that “thick foundation, wide caliber” difficult co-existence, in a certain teaching hours, thick foundation, it is necessary to narrow caliber; wide caliber, base necessarily thin. Two are contradictory.

Although the education authorities on the “thick foundation, wide caliber” personnel training mode is very seriously, it is also stressed that the university has taken some measures and reached a consensus, but today, the effect is not very ideal, or is very not ideal. Therefore, we need to re-examine the “thick foundation, wide caliber” of personnel training mode and personnel training, the correct understanding of the “thick foundation, wide caliber” scientific connotation, fully understand the spirit of the “thick foundation, wide caliber.” Conscientiously grasp the inherent law between talent training mode and the social and economic development. First of all, “thick foundation, wide caliber” is relative. From the more general sense, the “thick foundation, wide caliber” is identified as the teaching guiding ideology and the training goal of higher education, is understandable, it emphasized that the cultivation of students’ comprehensive quality and ability to adapt, notably developing a “comprehensive” talents. But for different types of colleges and universities,

the requirements of “thick foundation, wide caliber” are different. Ability compared with the applied talents, compared to undergraduate course and specialized subject, compared with the higher vocational colleges applied undergraduate colleges, more than the former required diameter is relatively wide, base is relatively thick. Second, the “thick foundation, wide caliber” cannot understand to cultivate all rounded. If the “thick foundation, wide caliber” understanding to cultivate all-rounder or quasi generalist with various ability, it must be wrong. Request to cultivate students to be omnipotent generalist or quasi all-rounder can only be unrealistic fantasy. No matter how advanced higher education cannot cultivate all-rounder or quasi generalist, colleges and universities of professional division will lose its significance. Third, the “thick foundation” should focus on the basic skills and basic methods. Shall be out of “thick foundation” expand the myth of public basic courses and professional basic course of the class. “Foundation” of “thick foundation” refers to the basic knowledge, basic theory, basic skills, basic methods. The “thick foundation” should focus on the practice teaching; strengthen the basic skills and basic methods.

3. THE DESIGN METHOD OF APPLIED TALENTS TRAINING PLAN IN ORDINARY UNDERGRADUATE COLLEGES AND UNIVERSITIES

Training plan is the blueprint of talent training, is the teaching content and teaching form of guidance documents, is the target of personnel training and training specifications for the specific, practical form, is to achieve professional training objectives and specifications of the central link. Whether the cultivation scheme is reasonable or not is directly related to the cultivation quality of the talents (Zhou, 2011). Therefore, the new ordinary undergraduate colleges and universities in the development of application oriented personnel training program should follow the following design ideas. (a) Adhering to the “general nature, applied and engineering,” the personnel training orientation. As for applied talents of the new ordinary colleges and universities, to adhere to the “general nature, applied engineering” of talent fostering, highlighting the applied talents training school characteristics and personnel training features. General nature, is to insist on culture talents who are needed for the development of common economic and social, service and support to the contribution of development; application type, is to insist to do applied education, focusing on applied talents; engineering is focus on students of engineering thought and engineering capabilities. (b) Establishing the design idea of “solid foundation, suitable diameter, heavy application, strong

element energy". When the new general undergraduate colleges and universities in the development of application oriented talent training program, we should focus on the training objectives of applied talents, in accordance with the "solid foundation, suitable diameter, heavy application, strong element energy" design concept to carefully design application oriented personnel training program, and continuously strengthen the teaching content and curriculum system construction and reform." Ordinary, application oriented, engineering" is the upper level design of "solid foundation, suitable diameter, heavy application and strong element". "The real foundation, the application, the heavy application, the strong element" is the embodiment of the "ordinary, application, engineering" and the design of application oriented Talents training scheme. The so-called "solid foundation" of the "real", refers to the real, practical, that is the basis for the development of the foundation should truly become the foundation, which is said, the basic theory of knowledge should be based on the principle of "necessary and sufficient". At the same time, the "solid foundation" as well as a layer of meaning, is through practice, the use of theory, to strengthen the basic skills and basic methods of training, in particular, self-learning ability, found the problem method and problem-solving skills. The so-called "suitable diameter", is the appropriate to broaden the professional caliber, set up in different directions in the professional curriculum modules, training needs of the community, and enhance the adaptability of students. Caliber should be appropriate, should not be too large; at the same time, the size of the set to be suitable for the general economic development and social development characteristics, to meet the general economic construction and social development services. The so-called "heavy application", mainly including two aspects, one is to attach importance to the application and transfer of knowledge. Make use of the knowledge, theory with the actual; on the other hand in learning methods to guide the students more hands-on. The so-called "strong element energy", "strong" is to strengthen the quality and ability of the training. This need to change the original subject teaching mode, in some professional advocacy to the project as the core of the teaching, to "use" to "guide" to "use" to promote "learning", so as to really get the knowledge and ability to improve contact; at the same time, to develop the students' ability to adapt, professional ability, follow-up development, so that students have to adapt to the requirements of modern social development. (c) Constructing a relatively complete and systematic theoretical teaching structure system. According to the idea of "solid foundation, suitable diameter", the curriculum structure system of "platform + module" is set up with the training target. Building floor unified platform for the public basic courses, and according to the categories or similar level of discipline building unified discipline basic course platform; Its background of

industry set up specialized courses module (including the limited professional core courses, professional direction to choose optional courses and professional course three child module); In order to improve the students' comprehensive quality as the objective, set the interdisciplinary public elective course module. Follow the principle of overall optimization, application, communization of platform and module in the selection of curriculum content, restructuring and updating; Adhere to the "common used, enough basic courses and specialized courses and practical" principle, increase the elective course, the reform of physical education, introduction to professional courses, to ensure that the basic specifications applied talents training and diversification, individuation development needs, strengthen students' adaptability to society, to promote the teaching quality and professional characteristics formed at the same time, also set aside enough hours of practical education. Harvard University President Rubenstein think, from the student enrollment, major efforts in the direction of the university is to enable them to become involved in discovering, explanation and the creation of new knowledge or form new ideas (Tang, Yu, & Zhang, 2013). Applied undergraduate education curriculum design should revolve around the basic skills, basic method to organize the basic knowledge and basic theory. In the teaching plan, the curriculum is designed according to the method system; In the course, use knowledge to display method, pay special attention to the need of basic skills, basic method of systemic, and the basic knowledge, basic theory of systemic to master the basic skills, basic method for students to complete. (d) Constructing the practice teaching structure system of the multi type "three level three combination". In accordance with the "application" of ideas, on the social requirements of practical ability of application talents, increase the number of hours of practice teaching, integrated practice teaching content, to determine the basis of experimental technology, the corresponding series of professional experiment (practice) technology and module experiment (practice) series of technical content, construction of practical teaching system of "three level three combination", which includes the curricular practice teaching of base layer, improvement layer and comprehensive layer, emphasize experimental teaching and scientific research and production practice, the combination of extracurricular activities in science and technology, reduce the proportion of the verification experiment, comprehensive design experiment, the content of proportion, improving graduation design (Thesis) real problems really to do, to stimulate students interest in learning, cultivate students' innovative spirit and practical ability, encourage students personality development (Sun & He, 2010). (e) Building the expansion of quality educational architecture combined with professional features. According to the idea of "strong quality", we will gradually improve the

quality of education system into the talent training program, and continuously improve the students' ability of knowledge and ability of scientific research. At the same time, the combination of university students' participation in scientific research, improve students' scientific research ability and innovation consciousness, and all levels of various disciplines, professional certification education, all kinds of special training, to improve students' professional ability and technology development, and to promote students to participate in all kinds of Science and technology, cultural activities and encourage teachers to effectively guide, improve students' social communication ability, spirit of unity and cooperation (Peng, 2011).

4. THE DESIGN REQUIREMENT OF APPLIED TALENTS TRAINING PLAN IN ORDINARY UNDERGRADUATE COLLEGES AND UNIVERSITIES

Ordinary undergraduate course colleges and universities, when making the talent training scheme should be about our school educational philosophy and educational orientation, follow the "solid foundation, suitable diameter, heavy application, strong element energy" design concept, according to the following "ten" to design to develop new ordinary undergraduate course colleges and universities of applied talent training plan, strengthening the construction and reform of teaching contents and curriculum system. First, focus on the overall design of systematic. The overall design, that is to build an education system that professional course dovetail with the basic course, theory linked to practice, the first class and second class combination more complete and systematized. Forming discipline foundation platform, platform of application ability and basic quality platform three courses, each course platform includes theory course and practice course. From the first school year to fourth, the discipline basic platform and the basic quality of the platform for the course of the year to reduce, the application of the platform of ability to increase year by year. Public basic education curriculum module department unified, professional education courses are based on module categories consistent, increase the elective course of opening the proportion (Li & Zhong, 2011). The second is to ensure the scientific nature of the arrangement. There is a link between the curriculum (module), basic course, professional basic course and specialized course, the theory course and practical course should be organic connected, the contents are mutually completed, the progress of each other. The third is to pay attention to the feasibility of the implementation of the operation. Training program is the organization of education teaching plan, not be an armchair strategist must

accord with the reality of the school, can do it, will work, operational and feasible. The fourth is to pay attention to the social nature of program evaluation. Hire a wealth of professional knowledge and teaching management experience of social experts, engineering and technical personnel (or economic engineer, accountant, etc.), industry senior management personnel and the relevant experts and scholars in the department, set up a number of professional committees. The professional committee is responsible for the validation of the relevant professional setting and development, professional training objectives and specifications, curriculum, laboratory and practice base construction, practice teaching design and evaluation, and in accordance with the application type talent requirements and industry and market needs, to provide advice and suggestions for the college, to absorb the views of the employing units to modify the training program, so that the application oriented personnel training more close to social needs. The fifth, highlight the applicability of the training objectives. Combined with the general economic and social development needs of talent, outstanding professional training objectives applied. For example, the "initial grasp of biotechnology and its industrialization of scientific principles, be familiar with the process of the production of biological products, and other products can be engaged in the design, production and management of application-oriented expertise in biotechnology and engineering" as a biological engineering training objectives. Sixth, highlight the practicality of teaching content. To apply the talents of quality requirements and general industrial development of the personality demand for talent as the basis, adhere to the principle of practicality to select course content, and properly handle the basic knowledge and expertise, for all students with individualized relationship. On the one hand, should be based on the overall quality of students required to set basic course; on the other hand, according to the general industrial development of the talents of the actual needs of a targeted set the orientation class, the "solid foundation, suitable diameter" and "general applicable" to combine build talent features. Seven is to emphasize practical teaching process. According applied talents training target, increase the weight of the practice of teaching, focus on training the ability to analyze and solve practical problems. In the hours, to improve the proportion of hours of practice teaching, experiment and practice hours to solve the problem of low specific gravity. In teaching methods, from the knowledge inculcation to enlightening guidance shall be given a heavier theory to explain to theory, from the simulation technology learning to practice, through a lot of practice, pay attention to cultivate the ability to analyze and solve practical problems, to enable students to master posts required technical skills. In practice, the concept of "great practice" should be set up to improve students' practical

ability and innovation ability, and make arrangements for internal and external experiments, practice, design and activities, both inside and outside class to practice throughout the whole process of talent training, causes the student to the knowledge and ability of curing for quality, into ability. Eighth is the embodiment of the quality of students. Human society has entered the era of knowledge economy, in order to adapt to the new century scientific and technological progress and social development to the application type talent, talent training program design should highlight the training of students professional technical ability, also requires students to meet the requirements of modern society, the construction of students' quality training system, to cultivate students' ability to adapt, professional ability and subsequent development, so as to have the basic human qualities. Ninth is to emphasize the students' participation. Promote the modern learning style, from the knowledge of the steering guidance to guide, from the technical point of the shift to participate in experience, so that students learn to learn, learn to cooperate. Tenth is to promote the thinking of innovation. Combining teaching, actively carry out all kinds of disciplines and professional competitions, to cultivate students' innovative consciousness and spirit, to cultivate students' innovative thinking and innovation ability, improve students' ability to analyze problems and solve problems.

5. THE CONSTRUCTION OF PRACTICAL TEACHING SYSTEM

Practical teaching includes the experimental course, curriculum design, academic papers, professional skills training, graduation thesis (Design), practice training, social practice, etc. The practical teaching system should be based on the main line of the students' professional core competence, according to the requirement of the students' ability of the graduates. Need to construct the system of the course, the comprehensive practice skill training, to the outside of the open experiment, the whole process of learning the whole course of the professional quality training and the training system. To strengthen the practice teaching of experiment, practice, training and graduation thesis (Design). Further standardize the practice teaching management, according to the actual situation to take the method of combining the scattered and centralized method to arrange, formulate clear practical teaching requirements and ability evaluation criteria. In practice, the professional foundation experiment is integrated into the major experiment, and the way of opening laboratory is put into practice. The independent innovation experiment is carried out in order to attract and organize students to carry out independent research and exploration. To strengthen the cooperative education of industry, engineering and other applications, and to establish the practical training base,

establish the new mode of application oriented talents. To encourage the creation of the course and characteristics of the enterprise industry, to encourage enterprises in the "double division" talent to teach practical professional courses, to encourage enterprises and industry experts or managers to take the form of a case study in the form of professional elective courses (Wang & Liu, 2011).

6. THE CONSTRUCTION OF COMPREHENSIVE QUALITY SYSTEM

Applied talents should have good comprehensive quality. Therefore, in theory teaching system, practice teaching system, but also should build a comprehensive quality system. The connotation of comprehensive quality not only includes the development of professional skills and technical innovation of students, but also includes the expansion of the social comprehensive ability, the cultivation of spiritual temperament, and the overall improvement of the quality of mind and body (Li, 2014). The comprehensive quality of the students should be standardized as a means to develop students' comprehensive development. We should pay more attention to the role of humanistic education in shaping students' healthy personality, and pay more attention to the development of scientific spirit. Therefore, it is an important aspect to guarantee the application oriented personnel training program to integrate the comprehensive quality system into the personnel training plan, and to construct the education system of the project management, the credit system authentication and the standardized operation is to ensure that an important aspect to cultivate applied talents.

The comprehensive quality training can be carried out in a variety of ways, and it can be used to design and implement the scientific research project of the teachers; Can take part in the mathematical modeling contest and other disciplines, through all kinds of professional certificate examination, all kinds of special training, improve students' professional skills and technology development, so that students in the practice of scientific and technological activities to improve the quality and skills, and students can participate in various scientific and technological activities, social practice, improve students' social communication ability, solidarity and cooperation spirit and hard work spirit (Li, Xu, & Gu, 2014).

The overall quality of the training is for students to "be a man, it will work, learning and life" these four cultures, pay attention to cultivate students' interest in learning, to help students identify their own development goals, pay attention to the cultivation of employment ability and innovation ability of students, to help students establish good moral sense, responsibility, physical and mental qualities and willpower, to achieve the purpose of quality education.

CONCLUSION

Change the emphasis on theoretical teaching, neglect of practical activities, the first theoretical teaching and then practice the activities of knowledge and practice, such as the separation of mutual separation and mutual separation, and can not be integrated into the situation of the body. According to the results of scientific research and people's understanding of the curriculum system, the theoretical teaching and practical activities are integrated, which makes the teaching of dominant knowledge and tacit knowledge to grasp the organic combination, and promote each other, make the ability of the training and improve the quality of the enhancement and the promotion of human personality, complement each other. To make the students in the four years learning process, through the static "point" on the space of "three-dimensional structure", in the dynamic "line" on the "double helix structure" to do the continuation of time.

The popularization of higher education means that there should be a variety of higher education systems and a variety of personnel training standards. Every school should be according to their own tradition, characteristics, advantages and the local economic and social development of the demand, "scientific positioning, and the security of its" characteristic, do a level, in their respective disciplines and talents training field, the pursuit of excellence, the pursuit of first-class. The development strategy of the university is the scientific orientation, strengthening the characteristic.

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