On the Technical Education Thought of the Communist Party of China From Multiple Dimensions*

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The cultivation of technical talents is inseparable from the guidance of technical education ideas. This article discusses and analyzes the Chinese Communist Party’s technical education thought from three dimensions: macro level, meso level, and micro level, and systematically discusses the main content of the Chinese Communist Party’s technical education thoughts. It mainly starts from the macro-level technical talents’ thoughts, the meso-level technical school development guiding ideology, and the micro-level technical teaching thoughts. After the 18th National Congress of the Communist Party of China, the domestic economy has entered a new normal. Under this new situation, the Chinese Communist Party’s technical education ideology needs to incorporate the ideological elements of “humanistic literacy” and “artisan spirit” and focus on the law of technical theory and practice basics of technical knowledge flow in the teaching process.

Keywords: multiple dimensions, the Chinese Communist Party, technical education content

Introduction

The theoretical achievements combine the specific reality with the characteristics of the times. We will construct the main content of the Chinese Communist Party’s technical education thinking from the macro level, the meso level, and the micro level, and separately discuss the macro level of the Chinese Communist Party’s technical talent thinking, the meso level of the Chinese Communist Party technical school development thinking, and the micro level of China Communist Party’s technical teaching ideology.

Macro Level: The Chinese Communist Party’s Technical Talent Thought

Technical education is an effective form of education for cultivating and improving the technological knowledge and technical ability of technical personnel (Cao, 2008). In the context of the new normal of China’s economy, we need to re-think the relationship between technical education and technical talents at a macro level.

The Evolution of the Technical Talents Thoughts

With the changes in historical conditions and the specific problems faced by our country, the Chinese Communist Party leaders' ideological views on technical talents are constantly evolving.

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In September 1930, in order to develop the culture and education in the Soviet area and cultivate the talents needed to meet the victory of the Revolutionary War, Mao Zedong proposed the training objective of talents: the principle of balanced development of intelligence and labor, and the policy of unifying education and labor. In 1957, Mao Zedong mentioned in “about the Correct Handling of Contradictions among the People” that “our education policy should enable educated persons to develop in moral education, intellectual education, and physical education, and become a socialist conscious and cultural worker” (Editorial Committee for Selected Readings of Mao Zedong’s Works, 1986, pp. 780-781).

At the opening ceremony of the National Science Conference in 1978, Deng (1994, p. 88) emphasized that laborers should play an important role in socialist modern production. Laborers need to continuously improve their scientific and cultural level, production experience, and labor skills. Modern production requires skilled workers and technicians who possess scientific and technical knowledge to use production tools (Zhou, 1991, p. 1). In order to create hundreds of millions of high-quality laborers, tens of millions of specialized talents and a large number of top-notch innovative talents, in 2016, the Central Government’s “Opinions on Deepening the Reform of the Talent Development System and Mechanism”, proposed “breaking restrictions on household registration, region, identity, education, personnel relations, etc., to promote the rational flow and effective allocation of talent resources”. Xi Jinping made important instructions on this, emphasizing the need to “let talent innovation and creativity fully burst out, so that talents from all quarters have their place and develop their strengths”.

Emphasizing the Ideological Elements of “Humanistic Literacy” and “Artisan Spirit”

Whether in professional technical education or in the technical practice of skilled workers, the external environment for the transformation of technical knowledge is involved, and one of the main influencing factors of the external environment includes the “humanistic literacy” foundation of technical talents.

In modern technology activities, if the technical talents are only rich in knowledge and strong hands-on ability in a certain professional field, but have little knowledge of cultural knowledge outside the major, there will be a lack of overall recognition of technological development. It is known that the lack of ability to coordinate the relationship between technological development and various social factors is not conducive to enhancing the creative ability of core technologies, and it is difficult to achieve true autonomous manufacturing. And if the technical talents rarely understand the social life and the humanities and social sciences, they are very likely to lack corresponding sensitivity to the possible social impact of their technical activities, and then it is difficult to assume corresponding social responsibilities.

Technical education should pay attention to the unity of “skill acquisition” and “humanistic literacy”, not only as a professional skill acquisition technical education, but also based on humanistic spiritual experience and technical ethics moral training to locate the value connotation of technical education (Shen, 2010).

Technical education can not only meet the society’s demand for technical professionals in a professional manner, but also promote the unity of the value of the cultivated individual and the realization of comprehensive development.

On the other hand, the “artisan spirit” is integrated into labor, and the main body of labor is “human”. Humanist technical philosopher Lewis Mumford believes that “man is an excellent animal that is good at thinking, self-control and self-design” (Mitcham, 1999, p. 20). Sennett (2005, p. 4) pointed out that “people” in the “craftsmanship activity” has a basic and lasting human impulse just to get things done, people who focus on
practice may not be pregnant motivated by instrumental rationality. However, the self-discipline and input of the “artisan” in the “artisan spirit” are often constrained by various social and economic conditions, such as failure to provide the most advantageous tools or the factory does not attach importance to the pursuit of quality (Sennett, 2015, p. 12). From Hegel’s exposition of “spiritual workers” in “Spiritual Phenomenology”, it can be inferred that craftsmen want to bring ideological spiritual effects to the society, only when they themselves become “spiritual workers” and are sound can their own values and technical qualities be realized.

The artisan spirit is that a practice subject strives for excellence in the quality of artificial objects. It continuously improves methods and tools to improve society. In the modern high-precision machine industry, workers with the “artisan spirit” are becoming more and more important.

The Meso Level: The Chinese Communist Party’s Technical School Development Thoughts

Analyzing the guiding ideology of the Chinese Communist Party’s technical school development from a meso level, have established a basic direction of guidance for the training objectives, development policy tasks, school mode and school management practices of various schools at all levels of technical education.

The Evolution of the Training Objectives in Technical Schools

Technical education schools cannot complete the training of technical talents through the traditional form of general education (Yang, Meng, & Yan, 2002). After the founding of New China, Mao Zedong’s article on “Properly Handling the Contradictions among the People” proposed that cultivating the laborers in our technical education schools in an all-round way with “morality, wisdom, and physicality”, “literate” and “socialist Consciousness” (Editorial Committee for Selected Readings of Mao Zedong’s Works, 1986, pp. 780-781). In 1978, Deng Xiaoping directly pointed out that the school’s educational policy is to cultivate talents for socialist construction (Excerpts from Selected Works of Deng Xiaoping (Volume 2), 1994, p. 102). Since the 18th National Congress of the Communist Party of China, Xi Jinping has given instructions on accelerating the development of vocational education to establish the new talent training goals.

It can be seen from the training goals of the above technical education schools that party leaders have built different guiding ideologies on the training goals of technical education schools with the changes in practical issues. At present, if China wants to march from a big manufacturing country to a strong manufacturing country, it is closely related to the technical level and technical quality of workers in modern production. The higher the technical level of skilled workers, the wider the technical foundation and the better the technical quality, the stronger the competitiveness of the products. However, in order to adapt to the actual needs of technical talents, the training goals of technical education cannot simply cultivate senior technical talents. Instead, the training targets should be set according to a reasonable hierarchical structure of technical talents.

Technical School Development Thought of “Innovating All Levels and Types of Vocational Education Models”

The organization mode of technical education schools has always existed in various forms, to meet the different needs of different groups of society in the form of acquired skills, such as the technical night school in the early days of the founding of the People’s Republic of China, the technical school with half-time work, half-time study, high-tech industry schools, various quick technical training courses, and amateur technical tutoring, etc.
After the 18th National Congress of the Communist Party of China, the party had proposed to accelerate the development of vocational and technical education and build a modern vocational education system with Chinese characteristics. Xi Jinping pointed out that “we must firmly grasp the direction of running schools for service development and employment promotion, deepen system reform, and innovate various types of vocational education models.” The party and the country ideologically must pay close attention to and accelerate development of vocational education, which has become the working principle of the development of vocational education in our country in the new period.

**The Micro Level: The Communist Party of China’s Technology Teaching Ideas**

To discuss technology teaching ideas from a micro level, and try to analyze the law of technology teaching are beneficial to understand the technology teaching ideas of the Communist Party of China from a new perspective.

**Guiding Ideology of Professional Setting of “Wide Technical Foundation and Comprehensive Multi-Faceted Development”**

The so-called focus on broad technical foundation in professional settings is based on the fact that after the development of production and technology, the occupational division of labor has become more and more detailed, and certain occupations have formed a professional domain, which makes the difference between the required technical knowledge and skills more and more difficult. Technical education through the teaching of related subjects of general education, labor and other forms of educational activities, could teach students the basic knowledge of science, technology and technological production management. Students accept this new type of technical education, it is easier to understand the basic principles and systems of modern production, and lay a broad and good foundation for future vocational education. Students in vocational and technical schools have a good comprehensive technical education, and they will have greater adaptability to future labor changes, career changes and job flows. On the basis of comprehensive technical education, it is necessary to impart specialized vocational knowledge and skills to achieve a high level of knowledge quality, and to cultivate workers with greater adaptability to modern production.

At present, the wide technical foundation and comprehensive multi-faceted development direction is determined by the professional settings and curriculum structure of various technical schools. However it has many problems to be further reformed. Therefore, it is necessary to clarify two issues. On the one hand, it is necessary to further clearly define the tasks and training objectives of various vocational and technical schools, so that when the professional setting and curriculum structure are restricted by it, it can still maintain its own service direction and development focus. On the other hand, it is necessary to consider the current state of economic development in my country, learning the useful experiences from other countries, to determine the professional settings and curriculum structure in line with the actual situation.

**Emphasis on the Combination of Theory and Practice in Technology Teaching**

At present, technical workers mainly use modern production tools to master production technological knowledge, production experience, and labor operation skills. The more technological knowledge of laborers, the higher the specialized skills of labor, the broader the technical scope and the richer the production experience, and the higher productivity. Therefore, the school emphasizes the production practice teaching and strengthens skills training. At the same time, it must pay attention to the teaching of cultural technology theory.
In a sense, students with a good general education and cultural foundation will be easier to grasp and master when they learn the skills and technologies, and the content of the learning will increase accordingly. These will enable the educated to become technologically innovative when they become workers in production positions. With more, labor productivity will also increase easily. Therefore, with the continuous integration of information technology into traditional industries, machines and equipment are becoming more and more sophisticated, and it is necessary to increase investment in education for skilled workers and improve the cultural and technical level of skilled workers.

We require that students who have received technical education must have certain theoretical knowledge and proficient practical skills to solve the general practical problems in the production site. Classroom theory teaching is important, and practical teaching is also one of the basic teaching forms and is responsible for training students to be able to have perceptual knowledge when studying professional theories, deepening students’ book knowledge and improving observation, understanding, analysis, and solving practical solutions ability. Problem-solving skills and the ability to promote students to apply knowledge. The first is that professional theoretical knowledge is closely related to production activities. Students’ understanding of various phenomena in production and the formation of correct concepts are the basic links to master professional theory. Secondly, because the capacity of teaching materials is always limited, only a few representative basic principles and typical examples can be selected. Book knowledge is abstracted and generalized, although it can profoundly reflect the essence of things, but refined text is difficult to fully understand after all, the production problems reflected in books are static, and the interference of non-essential phenomena is ruled out. Finally, it emphasizes “application” as an important part of the learning process, and is a sign to test the correctness standards of relevant knowledge and measure the degree or level of knowledge mastery.

On the Basic Law of Technical Knowledge Flow in the Process of Technological Theory and Practice Teaching

Layton claimed in a speech by the chairman of the Association for the History of Technology in 1974 that “technological knowledge is about how to make or manufacture things” (Layton, 1987). In 1978, McGinn in “What is Technology” further pointed out that “technology is based on the use and creation of knowledge systems, which can be reasonably referred to as technical knowledge”. Mitcham in the 1994 edition of Thinking Through Technology, proposed a comprehensive technical concept including four aspects of object, knowledge, process and will. Among them, the technology as knowledge includes skills, rules and technical theory. Wu (2005) also proposed that technology emerges from empirical elements, physical elements, and knowledge elements.

Dixon believes that “the sharing and exchange of technological knowledge is the sharing of technological knowledge with others, so that the entire organization understands this technical knowledge” (Song, 2011). In 1963, Zhou Enlai pointed out that “Only by combining mental work can spiritual products be transformed into material varieties. In turn, material products can be improved through our observation, thinking, and research, and constitute new designs, and then create new material products” (Excerpts from Zhou Enlai’s Selected Works of Education, 1984, pp. 208-222). Many experts and scholars at home and abroad have proposed various classifications and sub-categories for technological knowledge from the perspectives of design, methodology, and history. Technological knowledge has obvious categorizability, and the classified technological knowledge
can flow more efficiently under the effect of purpose, which improves the efficiency in the process of technological practice. Moreover, after the classification and sub-classification of technological knowledge, professional and core technological knowledge is more likely to flow in the same kind of technology than the more diverse and secondary technological knowledge (Battke, Schmidt, Stollenwerk, & Hoffmann, 2016).

The influencing factors of technological knowledge flow in theory and practice teaching and the rules of its function are the contents of the guiding ideology of technical teaching. Technological knowledge exists in the theoretical teaching and practical teaching of technical education, and the flow of technological knowledge in the teaching process is affected by three basic internal factors: dynamics, categorizability, and purpose.

Firstly, the dynamic nature of technological knowledge. As technology continues to develop and technical artifacts continue to be refined and complicated, the main body of technology needs to use a certain practice mode to complete the operation of the machine, which requires training and acquisition of the necessary relevant knowledge and skills. These technical practice activities reflect the dynamic dissemination and acquisition of technical knowledge.

Secondly, the categorizability of technological knowledge. Different types of technological knowledge are different from each other (de Vries, 2003). Technical knowledge as an independent field of knowledge, technical philosophers or engineers have made various understandings and classifications of the nature of technological knowledge from different angles. Vincenti, Ropohl, and De Vries all classified technological knowledge. The technological knowledge after classification is more conducive to the technical subject to enhance the application and formation of technical knowledge in the process of technical practice, and echoes the material process in the dynamics of technical knowledge.

Finally, the purpose of technological knowledge. Human purpose, will, or goal is a necessary element of technology. For human-based technological knowledge, the flow of technological knowledge that depends on human technical practice activities must also have human purpose and intention, and the main purpose is to seek use in order to achieve a specific function. People’s technical behaviors such as designing, manufacturing, using tools and other various artificial objects are all with purpose. Technical practice is integrated with people’s “purpose”, and technological knowledge includes cognition and intentionality.

From a micro perspective, the teaching process of technical education is a “technological knowledge flow” process, which can be controlled in a purposeful and planned manner.

Conclusion

The technical education thoughts of the Communist Party of China is constructed from three levels: the macro-level Chinese Communist Party’s technical talent thinking, the meso-level Chinese Communist Party’s technical school development thinking, and the micro-level Chinese Communist Party’s technical teaching thought. “The Chinese Communist Party’s Thoughts on Technical Talents” are mainly developed from the two aspects of “the evolution of the Chinese Communist Party leaders’ view on technical talents” and “the contemporary technical talents’ views” need to be integrated into the “humanistic literacy” and “artisan spirit” ideological theory.

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