

Connecting the Philosophical Value of the Natural Science Thinking Mode with the Improvement of Higher Vocational Talents' Abilities

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Keywords: the philosophical value of the natural science thinking mode; higher vocational education; modern apprenticeship.

Abstract: Under the guidance of national policy on talent training and the requirement of the connotative development of higher vocational education, the process of improving the abilities of higher vocational talents should be combined with the philosophical value of natural science thinking mode. Through the designing and implementation of classroom teaching, the practice of school-enterprise joint cultivation, and the jointly formulated talent training program, students can acquire knowledge and grasp working skills through classroom learning and practice adapted to local conditions. Through acquiring natural science knowledge, higher vocational talents can enhance their philosophical awareness, and learn to use the depth of philosophical tools to realize their own values in the working process, so as to enhance their sense of job satisfaction and cultivate their craftsman spirit. In this way, the connotation demand of modern apprenticeship system can be met for the training of higher vocational talents.

1. Introduction

On May 4, 2014, General Secretary Jin-ping Xi attended the Teachers and Students Symposium of Peking University. In the speech he put forward, “facing various social phenomena, we should set up correct world outlook, as well as correct outlook on life and values, so as to make correct judgments and choices“. It requires us to take up philosophical tools to deal with matters we experienced and learned scientifically and dialectically. Since the Eighteenth National Congress of the CPC, General Secretary Jin-ping Xi has repeatedly proposed that leading cadres should learn philosophy in order to improve their strategic thinking ability, comprehensive decision-making ability and the overall control ability. In 2018, the General Secretary Jin-ping Xi visited Liaoning Province to further promote the revitalization of the northeast China. On the symposium, the General Secretary made an important speech. He proposed the “six key tasks“ in the project of northeast revitalization and put forward countermeasures of emancipating the mind and promoting high-quality development in the new era. Attaching importance to philosophical thinking and making good use of philosophical methods are the distinct features of General Secretary Jin-ping Xi’s thought of governing the country and managing politics. Under the guidance of this policy, how can higher vocational colleges use philosophy to emancipate their mind, combine this idea with the construction of modern higher vocational education system, and combine the vocational education with various forms of educational resources from the philosophical level, or take philosophical value as a combination channel, are research themes of this paper.

The basic characteristics of the modern higher vocational education system are “connection“, “linkage“, “interchange“ and “integration“, which are reflected by the inherent characteristics of the connotative development of higher vocational colleges. At present, the supply of higher vocational education exceeds the demand. Higher vocational institutions mainly adopt the extension development mode, but this mode cannot meet the long-term development requirements of higher vocational education in China. Therefore, higher vocational colleges must change their development ideas, take philosophy as a favorable reform tool, take the connotation construction as the breakthrough point, and embark on the road of connotative sustainable development. Connotative development focuses on the internal factors of schools, and takes them as the driving force and resources of development. It emphasizes the development of education quality, which is

also the essence of education development. Its core attribute is quality. This inherent characteristic of connotative development is highly consistent with the idea of “emancipating the mind to promote high-quality development”.

In natural science research, we use natural science thinking mode to explore the rules and laws of nature, and summarize the rules through exploration and research. Philosophical thinking value is embodied in the whole process. In natural science research, the role and value of philosophical thinking are to guide, to generalize and to foresight scientific research. The innovation and entrepreneurship abilities of higher vocational talents are the core ability and basic quality which are always valued in the process of personnel training under the modern apprenticeship system. The basic connotation of innovation and entrepreneurship are embodied in the following three aspects. The first is the knowledge aspect. To systematically acquire relevant theoretical knowledge is an important prerequisite of innovation. The second is the method aspect, which requires students form the way of thinking which can fully demonstrate people’s subjective initiative and thinking ability. The third is the attitude aspect, which means individuals should have the subjective will to use relevant knowledge and values. Introducing some concepts of natural science, such as rational thinking, inductive thinking, deductive thinking, dialectical thinking, systematic thinking and innovative thinking into the field of talent cultivation in higher vocational colleges can produce far-reaching significance. The introduction of natural science thinking mode and concept can produce an irresistible “trend of thought” in the field of humanities and social sciences, thus reflecting the philosophical value of the process of natural science thought connecting with the improvement of the innovation and entrepreneurship ability of higher vocational talents.

2. Research Contents

This study combines the philosophical nature of natural science thinking mode with the specific qualities of higher vocational talents, and combines the personnel training specifications required by enterprises with the talent training process of vocational colleges, in order to improve the innovative and entrepreneurial ability of higher vocational students. Specific research is divided into following parts.

First is enterprise research. On the basis of finishing the job survey and obtaining information about job requirements, enterprise research should first define the practice, space scope and internal activities of the position, and then systematically analyses the position. The school needs to closely follow enterprises’ employment needs, and helps interns to understand the nature, tasks and working procedures of the position. Working data, internal and external environment and conditions of the post, as well as the connection and restriction between the post and other relevant positions should be compared, analyzed and described. Analyzing the employment situation of students graduate from Dalian Vocational and Technical College, it can be found the quality focused by enterprises, as well as the job contents and the scopes of work have changed slightly compared with previous years. Companies pay more attention to moral standards, psychological qualities, knowledge levels and working experiences of candidates. Analyzing the research results of above posts, the school can organize contract training classes, and train students according to the requirements and specifications of enterprises, thus forming and developing good employment effect. Enterprises have a high degree of recognition for the students of this major in our school; in Pfizer Dalian Pharmaceutical Factory, talents graduated from our school are in short supply.

Second, there is still a big difference between improving the quality of personnel training in higher vocational colleges and realizing employment as well as post competence. In view of this situation, schools need to improve vocational students’ ability of innovation and entrepreneurship in the process of enterprise upgrading and developing products. For example, employees need to put forward suggestions for the improvement of existing working methods and processes, support others to put forward reasonable reform plans, be willing to pay more attention to emerging things, use divergent thinking mode to consider new problems, deal with emergencies in an appropriate way, and deal with emerging problems in feasible methods. A number of characteristics in scientific thinking mode should be established; students need to be good at introducing new things, new

methods and new ideas into the working process, and encouraging others to innovate and take risks. Through the way of thinking formed in the process of natural science experiment, as well as the searching of literature, employees can predict the upcoming innovation and reform activities, and put forward a proper plan to deal with them. In addition, the requirement of occupational philosophy literacy has become a focus draws increasingly attention from enterprises. Although the actual employment standards of higher vocational talents have not yet clearly defined the measurement indicators of relevant literacy, it is necessary to pay attention to the training of philosophy literacy in higher vocational education.

Third, an investigation on students' natural science thinking ability was carried out in higher vocational colleges. Students from the pharmaceutical biology major of Dalian Vocational and Technical College were taken as an example. Graduates from three consecutive years were selected as the research sample. This major had two parallel classes for each year and 30 students in each class. The total number was 180. According to the statistics of questionnaire results, the sample group of students showed a relatively low systematic scientific thinking level. The reasons for this result are various. The author finds that 98% of students have to attend other classes after school. Before they enter higher vocational colleges, they do not have opportunities to think independently and form their own thinking system. In college, they are not active in responding or answering to teachers' open questions, or providing clear arguments and valid reasons. For some questions requiring data and clearly quantitative results, or the argument process requiring specific data as evidence, students generally have low consciousness of presenting data. If there is no time, space and method of absorbing in the process of learning, it is impossible to train and cultivate the way of thinking of natural sciences. Students cannot comprehend the rationale and sublimate to philosophical level on that basis. Consequently, the quality of talents cannot meet the connotation requirement of modern apprenticeship: cultivating high-skilled talents with the craftsmen spirit. Therefore, only by analyzing the key factors which cause the lack of ability, correcting the concepts as early as possible and standardizing the process of talent cultivation can the quality of talent cultivation be improved.

Fourth, the essence of natural science thinking should be condensed and sublimated to the height of philosophical understanding. Combined with the acceptance characteristics of students in higher vocational colleges, classroom teaching, practical activities and comprehensive quality training mode should be carried out to cultivate the innovative and entrepreneurial abilities of higher vocational students, train their analytical and critical thinking modes, as well as their comprehensive and creative thinking methods. Taking school-enterprise cooperation as the background, this paper explored the innovative teaching and learning modes in the process of cultivating and improving the comprehensive abilities of higher vocational students to meet the needs of enterprises.

Students were encouraged to use their scientific thinking ability in the process of discussion; through this process, the philosophical insights could be formed. The principle was that in exercises, speakers were expected to bring more valuable information to listeners. Suggestions were put forward based on discussion criteria. After at least 10 rounds of group discussion in 6 classes, the quality of discussion was significantly improved. Students could distinguish the basic points and problems mentioned in the article, point out the author's main hypotheses, propositions, supporting arguments and proofs. They could even provide additional citation to support the argument and clarify detailed questions; they were able to share their thinking process of neutral induction, offer new ideas and explain different opinions or a certain point of view objectively. They could summarize the views of several members as well as other materials read by group members. Through classroom teaching experiments, it is found that after purposeful guidance and motivation, students can be changed greatly. At first they only concerned specific knowledge they acquired in the natural science course. Gradually, knowledge became a tool they used in order to exchange opinions in discussion, which led to in-depth thinking of learning methods. Students made fundamental changes in their consciousness. In the past, they paid no attention to some platform courses or elective courses. They considered that those were unimportant and did not need to spend

too much time. The author practically explained philosophical teaching viewpoints that run through liberal arts and sciences. Many students formed profound insights and changed their learning attitudes towards a positive direction. Many students became determinant in upgrading to university students. The experiment produced obvious effects.

The philosophical value of natural science thinking had an obvious influence on students during the training period. The specific job positions and corresponding work contents of the training position made students have a clearer definition on the work content. As for the project content, most students thought that this method of learning by doing was more effective. They had an urgent desire to understand the technology and skills closely related to production, and actively learnt through a variety of channels. In the past, they only cared about specific knowledge in the classroom; now the desire extended to various fields that may be related to work. At this time, the focus was no longer the division of liberal arts or science and engineering. For example, the learning of specialized English words spread to the life and customs of British and American people, and even the natural geographical characteristics as well as historical and cultural aspects of foreign-funded enterprises. The reason is that, during the internship period, interns have wages. The growth of economic income promotes their desire for more progress in life. Naturally, the methods used to acquire professional knowledge are transferred to the acquisition of human knowledge. When this process becomes spontaneous, this way of thinking brings them more efficient and accurate thinking results. As a result, we can believe that the philosophical value of natural science thinking has achieved good results in the process of vocational personnel training.

3. Conclusion

The philosophical value of natural science thinking plays an important role in optimizing the thinking mode of higher vocational talents. The guidance of systematic and scientific thinking mode can help higher vocational talents to improve their efficiencies in work and continuing education in the future, and promote the rapid growth of higher vocational talents after graduation.

Emphasizing the philosophical value of natural science thinking is an inevitable trend in the process of training higher vocational talents, which conforms to the development of the times as well as the improving requirements and specifications for higher vocational talents. In the long-term front-line teaching experience, teachers have to constantly adapt to internal and external needs and explore the function of philosophical elements in the process of talent cultivation. They can combine subject teaching with talent cultivation, constantly enhance the level of talent cultivation, constantly explore new ways to improve talent cultivation level, and practice the connotation of the modern apprenticeship in higher vocational colleges.

In the process of personnel training in higher vocational colleges, we always want to make qualitative or quantitative comparison of results when good training results are achieved. Although human ability cannot be quantified, the improvement of one aspect of talent cultivation can be measured scientifically by designing reasonable scales. Therefore, after determining that the philosophical value of the natural science thinking mode has a positive effect, the improvement should be quantitatively analyzed and discussed in depth.

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