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Thinking on the Development of Vocational Core Competence in Higher Vocational Education - Taking Material Engineering Technology as an Example

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Abstract: "Vocational education is employment education", the cultivation of the core competence of vocational education through the whole process of higher vocational education is conducive to improving the adaptability of vocational education and jobs, so as to meet the needs of "directed training". At the same time, students are also used as media to promote the common development of schools, students and enterprises. In the process of vocational education, the division of knowledge, ability and quality is relatively clear. Only when knowledge is correctly understood and absorbed can knowledge form qualities, and only when knowledge and qualities are applied can abilities be formed. Quality and ability interact with each other and improve each other, forming a progressive circular upward trend. The formation of this trend must go through three stages: learning, practice (work) and innovation. Therefore, the core competence of higher vocational students includes learning ability, practice (work) ability and innovation ability.

Keywords: Vocational Education, Core Competence, School-Enterprise Cooperation, Innovation Ability

1. Introduction

From the perspective of talent training objectives, material engineering technology major cultivates highly skilled talents with comprehensive production process knowledge and management knowledge of material engineering technology and strong practical ability, who are oriented to the first line needs of production, construction, management and service. [1-3] Refractory industry at present, the whole foundation is relatively weak, refractory resource utilization level is low, the quality of the refractory grade is not high, excess production capacity, the ordinary products some high quality high technology content of key products can production, but the quality is not stable, service life and refractory consumption compared with foreign advanced level, there is a considerable gap. The fundamental reason is the lack of high-level talents. To better meet the iron and steel, machinery, chemical industry, power and other industries to the needs of the refractory material, must be to the professional production and technical management personnel's quality and ability are put forward new requirement, not only can be competent the job requirements of the current position, and should have the ability of learning new technology, to adapt to the new job, it is particularly important in today's high-tech. [4, 5].

First, the significance of the development of professional core competence.

In terms of professional construction, the purpose of education and teaching can be further clarified through the development of vocational students' core abilities, and the guiding ideology of "vocational education is employment education" can be implemented, and the cultivation of core abilities can run through the whole process of higher vocational education. [6] Thus, the adaptability of specialty and position can be improved to meet the demand of "order education".

For professional teachers, the cultivation of higher vocational students' core abilities can stimulate the improvement of the quality of higher vocational teachers. Higher vocational teachers are the bridge for students to contact the positions of enterprises. They should not only have

the basic quality of teachers, but also the symbol of enterprise spirit to some extent.

For students, the mastery of core competence can help them adapt to the job requirements as soon as possible and regain new vocational skills and knowledge in the professional environment. [7] It can help students adjust themselves and develop themselves under working conditions, and judge the mastery of knowledge and skills through working practice and on-site evaluation. [4] At the same time, it is a sustainable development ability, through lifelong education and practical experience accumulation, can make the core ability to reach a high level, to adapt to the requirements of higher vocational and post.

For enterprises, the establishment and implementation of the core competency standard system can help enterprises effectively evaluate whether employees meet the needs of the post (rather than only knowledge and skills), and provide a basis for employee recruitment and promotion. Because of the universality of core competence, enterprises can reduce the risk of talent shortage caused by industrial adjustment or technological upgrading, and improve the adaptability of enterprises in the market economy.

Taken together, the core competence of the vocational students' development, can make the school, students and the common development of the enterprise, take the student as the medium, the close link between school and enterprise, and promote the development of schools and enterprises, and through the integration of the enterprise, make the student entered and adapt to the society, thus promoting the development of the society eventually [5].

Second, the research definition of occupational core competence.

In the process of higher vocational education, to the division of knowledge, ability and quality is relative, the students only to correctly understanding and absorption of knowledge, to form the quality, and to understand and absorb the knowledge is only through using, to form the capacity, quality and ability of interaction, make both each other, forming a progressive type circular upward trend. The formation of this trend must go through three stages of learning, practice (work) and innovation, combined with the actual investigation and analysis of material engineering and technology major, the learning ability, practice (work) ability and innovation ability are determined as the core ability of higher vocational students.

2. Learning Ability

2.1. Ability to Listen to Lectures

Class listening ability means that students listen to the teacher's explanation of knowledge and observe the teacher's demonstration of skills in a certain environment, so as to understand and master, and then form their own knowledge and skills [6]. The specific performance of lecture listening ability for each student may be different, which is related to the individual learning method of students. For example: pre-class preview or not, notes are slightly different, review after class, etc. The process of listening to the class is a comprehensive process of acceptance and absorption, listening to the explanation of knowledge, analyzing the method of acquiring knowledge, and savor the personality charm of the teacher. Listening to lectures is the main way and means for students to acquire knowledge and skills in school. Therefore, the ability to listen to lectures determines the degree of students 'mastery of knowledge and skills to a large extent. To strengthen the effectiveness of teaching links, not only to improve the teaching level of teachers, but also to strengthen the ability of students to listen to lectures.

2.2. Self-Study Ability

In the field of material engineering technology, the work object faced by enterprise employees is not the simple and mechanical operation on the assembly line, but the comprehensive behavior to realize the product function finally. [8-10] In the process of higher vocational education, it can not be achieved through a certain discipline or a certain skill, especially for higher vocational students who have just entered the professional environment, they will often encounter some new problems, which requires employees to have a certain ability of self-study. Including new knowledge, new skills and experience learning and understanding.

2.3. Practical (Working) Ability

In the teaching process, practical teaching is the basic link of skill formation. However, in practical activities, the real completion of a task is not dependent on a single skill to achieve. This kind of practice requires similar or exactly the same as the actual work task, it needs to analyze and judge on the basis of theoretical knowledge, and then use some specific methods or means to complete [11-13]. This paper analyzes and explains the specific steps of the practical activity of "Inspection and selection of appearance and Size of refractory Finished products" in material engineering and technology major:

1) Look at drawings and measure objects (application of basic professional courses).
2) Inspection of appearance quality (skill application).
   a) The inspection that melt hole and judge?
   b) Defect examination and determination?
   c) Inspection and determination of cracks?
3) Analyze the causes of waste products (the combination of theory and experience, at this time the experience mainly comes from the learning process).
4) Determine the correction plan (decision).
5) Fill in the record checklist (comprehensive application of skills).

The completion of the task, good expression of (work) is the practice ability, the ability is through theory and skills of the integrated use of, and be capable of forming self analysis and judgment, the final performance for the completion of the task, are dominant, but the ability of forming process, is a kind of internalization, a kind of precipitation, is implicit, also is the

core of practice ability.

3. Innovation Ability

In the face of the rapid development of domestic high temperature industrial technology of refractory industry and international trade opportunities and challenges, our country's refractories industry must be guided by the market at home and abroad, on the varieties, quality and quantity to meet the needs of the development of high temperature industrial, aim at the world refractory frontier science and technology, accelerate improve the technological innovation ability of industry [14, 15]. Strive to build refractory production technology and variety series with our country characteristics. Therefore, the material engineering specialty must attach great importance to the cultivation of innovation ability and integrate the innovation idea into the whole process of higher vocational education.

4. Conclusion

"Employment-oriented" vocational education curriculum system, its professional setting is oriented by social needs, training objectives are based on vocational ability, curriculum design is centered on vocational activities, and curriculum compilation is based on basic breadth. The implementation of "employment-oriented" vocational education curriculum is based on the dual cooperation between enterprise practice and school teaching, with students as the main body of teaching activities and vocational standards as the basis of examination and assessment. Its course plan must be clear talent specification, employment direction and so on.

The learning ability, practice (work) ability, innovation ability as the core ability of higher vocational students, is in the teaching and research section after a lot of on-site investigation, on the basis of analysis and summary, and the human resources department of relevant enterprises jointly discuss, finally determined. The training goal of higher vocational education is to cultivate senior "realizable talents" for the society, in order to improve students' ability to adapt to the post, accelerate the embodiment of the value of talents, excavate the development potential of enterprises, and further develop the mode of running higher vocational education. In the process of higher vocational education, it is necessary to strengthen the cultivation of the core ability of higher vocational students, and to define the core ability of higher vocational students is the basic link to achieve this goal.

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2) Education Reform Project --No. F10G321002 Application status and countermeasures of smart classroom in vocational colleges.

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