

Research on Constructing Personalized Talent Training Mode of Advanced Manufacturing Specialty Group Based on Competency under the Background of Higher Vocational Enrollment Expansion

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Abstract. At present, the employment counterpart rate of graduates majoring in equipment manufacturing in many higher vocational colleges is not high, and there is a structural dislocation in the supply of relevant professionals. The main reason is that there are defects in the talent training mode, resulting in the mismatch between people and posts. Under the opportunity of Higher Vocational enrollment expansion, a personalized talent training mode is constructed based on the competency theory, and the main elements of post competency are integrated in all links of talent training, so as to realize the accurate connection between talent training and post demand. Take the opportunity of Higher Vocational enrollment expansion to cultivate a large number of reserve forces for advanced manufacturing industry.

Keywords: Higher vocational education enrollment expansion; Competence; Talent training mode.

1. Introduction

With the continuous breakthrough of new technologies such as digitization, informatization and intelligence and the wide integration with manufacturing technology, it provides a strong impetus for the transformation and upgrading of manufacturing industry to intelligent manufacturing industry. At the same time, there are also problems, of which the more prominent is the "talent shortage" of manufacturing industry. Taking the application-oriented posts of intelligent manufacturing as an example, it mainly includes five development directions: intelligent manufacturing equipment upgrading, green manufacturing intelligent upgrading, high-quality manufacturing intelligent upgrading, industrial software use and maintenance, industrial Internet and cloud platform, involving more than 20 relevant specific jobs. According to data analysis, the demand for talents in the field of intelligent manufacturing is predicted to be 7.5 million and the talent gap is predicted to be 3 million in 2020. By 2025, the demand for talents is predicted to be 9 million and the talent gap is predicted to be 4.5 million.

Higher vocational colleges undertake the important task of cultivating technical and skilled talents for the front line of regional industry. The above relevant posts are mainly connected with the major of equipment manufacturing in higher vocational colleges. The enrollment expansion policy of Higher Vocational Colleges promoted by the state in recent two years can effectively increase the number of students and help to solve the talent gap. However, only increasing the number of students cannot solve the problem. From the current employment statistics of many higher vocational colleges, the employment matching rate of graduates majoring in equipment manufacturing is not high, and about half of the graduates are not suitable for employment. It can be seen that there are defects in the talent training mode, resulting in the mismatch between people and posts. In order to solve this problem, this paper builds a personalized talent training model based on the competency theory to realize the precise connection between talent training and job needs.

2. Analysis of talent training of advanced manufacturing specialty group

Through the investigation of nearly 100 enterprises in Guangdong Province, it is confirmed that there is a certain degree of dislocation between the training of mechanical talents in many higher

vocational colleges and the requirements of industrial enterprises. The more prominent problems are as follows:

2.1 It is difficult for graduates to work independently

It is difficult for graduates to work independently for a long time after work. This shows that graduates are unfamiliar with enterprise operation process, job content, technical means and methods. Graduates are unable to connect their professional knowledge and skills with the real situation of the enterprise, and the psychology of relying on "master" is also serious. Enterprises often need to arrange senior employees to guide them for a period of time before they can work independently. This will significantly increase the human resource cost of enterprises.

2.2 Students' knowledge structure is old

The contents of professional courses are old and cannot meet the needs of current post work. In particular, the wide application of intelligent and digital technology is integrated in all links of the manufacturing industry. On the one hand, new jobs continue to appear. For example, with the construction and application of intelligent production workshop and digital production line, there are production line data acquisition and analysis posts; On the other hand, the work content of the traditional post has also undergone significant changes. Taking the mechanical design post as an example, the traditional design mainly carries out the feasibility design based on the engineering manual and experience. Nowadays, a large number of standardized, digital and modular parts design samples have been popularized, and the design work has mainly become the main technical means of component selection and system integration.

2.3 Lack of comprehensive professional quality

The cultivation of students' comprehensive professional quality in the process of professional learning is insufficient. At present, the comprehensive professional quality of higher vocational colleges mainly depends on the module teaching of general courses. However, the formation of many qualities is not in the classroom, but requires students to participate in a variety of social activities. For example, participating in sports competitions can cultivate students' team consciousness and fighting spirit, participating in volunteer activities can cultivate students' sense of social responsibility, and participating in their favorite community activities can cultivate self-confidence and optimistic psychological quality.

2.4 The source structure of the expanded enrollment is complex

The expansion of enrollment has brought more students, but also brought problems, that is, the source structure of students has become complex. They include laid-off workers, veterans, migrant workers and so on. Their learning objectives, knowledge structure and social experience are very different. Using the original single and standardized talent training mode will certainly not be able to achieve effective talent training.

3. Introduction to competency theory

Robert white first put forward the concept of competency. He believes that the competency of an employee can be measured by intellectual factors. McClelland believes that competence is not only determined by intelligence factors, but also includes knowledge, skills, personality traits and performance related abilities [1]. Chinese scholar Wang Chongming defined competence as the combination of knowledge, skills, abilities, values, personality, motivation and other characteristics [2]. Some scholars constructed iceberg model and onion model to describe competency. The former focuses on distinguishing explicit and implicit indicators, while the latter distinguishes core indicators and peripheral indicators. Later, some scholars carried out research on Vocational Education Based on this point of view [3,4].

4. Building a personalized talent training model based on Competency

The overall idea of Constructing Higher Vocational Talent Training Mode Based on competency is shown in Figure 1.

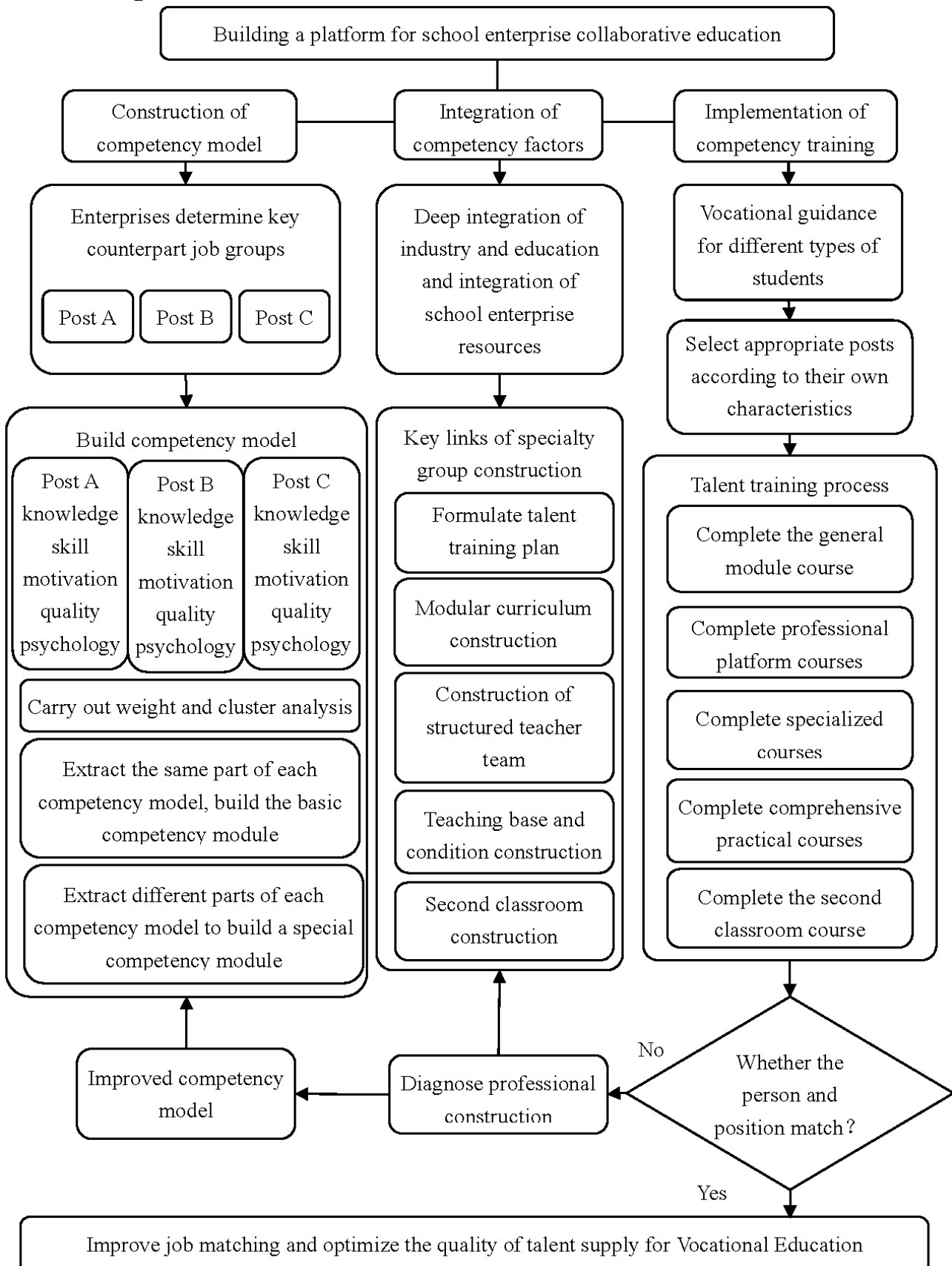


Fig.1 Personalized talent training mode based on Competency

4.1 Building a platform for school enterprise collaborative education

Vocational education, as a type of employment-oriented education, the integration of industry and education is the natural feature and path of running a school. High quality vocational education needs to establish extensive connections with regional industry enterprises, form a network in which information and resources can flow smoothly, and timely understand the information that has a vital impact on vocational education, such as the development of technology, the change of post talent demand, the change of industrial structure and so on.

In particular, vocational colleges should deeply cooperate with regional industry leaders or influential enterprises to build a collaborative education platform between schools and enterprises. These enterprises are the core nodes in the industrial cluster. From their perspective, they can relatively comprehensively examine the distribution of industrial post groups and talent needs.

4.2 Accurately connect job groups and build competency model

After analyzing and determining the industrial chain and post chain, we need to focus on some of the most relevant key posts as the post group connected by the professional group according to the characteristics of professional construction. The expert group is composed of senior human resources directors and technical directors of the enterprise. The competency model is constructed for these key posts respectively, and the five-dimensional competency model is more appropriate. This model can show both explicit and implicit factors of competency.

4.3 Implement the construction of professional groups according to the competency model

Firstly, a talent training scheme is constructed according to the competency model. Talent training objectives are set with reference to the factor items in the competency model. Considering that it is very difficult to fully cover all factor items in the actual talent training process, it should be able to cover at least 80% according to the experience of the enterprise's own human resource management experts and the weighted score of factor items from large too small. The talent training plan should not only pay attention to the education of professional knowledge and ability, but also pay more attention to the guidance and training of quality, motivation and psychology, which requires the design of more diversified and rich teaching activities.

The second is to build a modular curriculum system. The modular curriculum system is convenient to meet the training needs of different majors in the professional group. From the perspective of competence, there is no obvious difference in the requirements of professionals in the professional group, but there are some changes in the two dimensions of knowledge and skills. Therefore, the curriculum system can be constructed into several modules, such as general module, professional platform curriculum, professional module curriculum, comprehensive practice and so on.

The third is the construction of structured teacher team. A structured teacher team requires research teachers with high professional theoretical literacy, teaching teachers who deeply study and practice the teaching reform of vocational education, craftsman teachers with exquisite professional skills, career tutors with rich experience in career guidance and other roles.

The fourth is the construction of teaching base and conditions. Competency training needs to enable students to obtain a comprehensive professional experience in the real job situation. It is difficult to build a real job situation in the school, which requires higher vocational colleges to build teaching bases in enterprises. In the real work space, let students have work experience with real work tasks, so as to feel the real work situation.

The last is to build the second classroom. The second classroom is relative to classroom teaching. If according to the teaching materials and syllabus, the classroom teaching activities carried out within the specified teaching time are called the first classroom. The second classroom refers to the teaching activities related to the first classroom carried out outside the first classroom. The teaching content of the second classroom pays more attention to the improvement of comprehensive literacy.

4.4 Strengthen students' vocational guidance

After students are enrolled, career counselors should be arranged to guide them, so that students can have a comprehensive understanding of their interests, characteristics and career development direction as soon as possible. So that students can choose a suitable post as their career goal after graduation. At the same time, they also choose the training scheme and path of the corresponding post. This evaluation before the training process is particularly important for the social students of Higher Vocational expansion.

4.5 Build a closed-loop feedback mechanism for talent training quality

Schools and enterprises cooperate to build an evaluation and feedback mechanism to obtain the employment information of graduates in time through the analysis of relevant information. If there is a poor match between talents and positions, diagnostic analysis can be carried out at the first time. The first is the revision of the post competency model, and the second is the diagnosis and optimization of the construction of professional groups. Realize the dynamic adjustment of professional group construction through closed-loop feedback mechanism.

5. Summary

At present, the employment counterpart rate of graduates majoring in equipment manufacturing in many higher vocational colleges is not high, and there is a structural dislocation in the supply of relevant professionals. The main reason is that there are defects in the talent training mode, resulting in the mismatch between people and posts. Under the opportunity of Higher Vocational enrollment expansion, the construction of personalized talent training mode based on competency theory can solve this problem. Firstly, build the competency model of key counterpart positions in the professional group, and refine the competency indicators from the five dimensions of knowledge, ability, quality, motivation and psychology. Secondly, integrate competency elements in all links of professional group construction. Finally, let students choose their future positions and suitable training programs according to their own characteristics. In this way, the precise connection between talent training and post demand can be realized.

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