

Research on the Cultivation Path of Vocational College Students Craftsman Spirit

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Abstract: Exploring the cultivation path of vocational school student craftsman spirit, based on the structural equation model, this paper analyzes the relationship between cultural accomplishment, professional skills and craftsmanship, and puts forward the cultivation strategy of craftsmanship of Vocational College students. The empirical analysis of this paper confirms the significant relationship between the factors of cultural accomplishment and professional skills and the spirit of the craftsman's lean and innovative. In view of this, the path of cultivating craftsman spirit in vocational colleges is put forward.

1. Introduction

Vocational college students are faced with jobs, and the purpose is to nurture professional talents. Culture and skills, which are the two important requirements for professional personnel in various posts, like "able to write and martial arts", "both civil and martial arts", can satisfy the Chinese culture's yearning for harmony. In the report of the 19th National Congress of the CPC, it was pointed out that "building a large army of knowledgeable, skilled and innovative workers, carrying forward the spirit of model workers and craftsmen, creating a glorious social fashion of labor and a professionalism of striving for perfection", among which the spirit of craftsmen was respected by many vocational colleges and became a quality of skilled personnel after cultural quality and professional skills. Another standard of quality is imperceptibly integrated into the cultural and practical teaching of Vocational and technical education. Craftsman spirit, as its name implies, is the spiritual qualities that craftsmen need to achieve professional success, including dedication, leanness, concentration, innovation and so on. Habits need to be accumulated, and spiritual qualities, as part of one's personality, need to be accumulated over a long period of time. The cultivation of craftsmanship in vocational colleges is necessarily based on the actual teaching activities, which consist of a cultural course, training courses. Therefore, it is particularly necessary to find the influence of cultural accomplishment and professional skills on the cultivation of craftsmanship.

At present, there have been many researches on Vocational and technical personnel training in the academic circles, which have made a more in-depth exploration of Vocational and technical personnel training strategies. Among them, most scholars pay attention to the common development of students' cultural quality and professional skills in Vocational colleges, such as advocating the organic unity of "students' vocational skills training" and "students' cultural quality improvement" (Sun Sui, 1999). expounds the strategy of cultivating talents with the organic combination of cultural quality and practice from the logical perspective of "value-practice community" (Hu Yingqin, 2017). put forward the main line of cultivating students' cultural quality and practical ability in Higher Vocational mathematics (Zhu Xiang, 2016). thinks that vocational and technical education should change the misunderstanding of "knowledge-based" or "ability-based" to the concept of "quality-based" personnel training (Peng Yuanwei, 2017). Among them, many scholars put forward the cultivation strategy of cultural quality. For example, pointed out in his research that the development of cultural quality courses in higher vocational colleges should be based on the core curriculum of school-based cultural quality, and should pay attention to the

curriculum of teachers'original intellectual property rights, regional culture and folk culture, the prosperity and protection of local culture. The development of regional traditional culture courses, popular science education and intellectual property education courses, and network cultural quality courses should also pay attention to the combination of cultural quality education with practice, self-cultivation and doing things by oneself (Qi Lihui, 2016). In conclusion, the academic circles have summarized the training requirements of students'cultural quality in Higher Vocational colleges, including the following aspects: first, basic knowledge and professional knowledge related to the major; second, cultural tastes, knowledge horizons, humanistic feelings and aesthetic tastes related to cultural accomplishment; third, emotional attitudes and ideas related to human development Fourth, we should pay attention to drawing nutrients from traditional culture and customs. As for the professional skills of students in Higher Vocational colleges, the academic circles not only pay attention to the action skills and intelligence skills of Vocational and technical personnel, but also excavate deeper professional qualities, such as ideological and moral quality, cultural quality, physical quality, aesthetic quality, psychological quality, creative quality, etc(Lu Yongsheng, 2016). Since Premier Li Keqiang put forward in his report on the work of the government in 2016 that "enterprises should be encouraged to carry out customized, flexible production and cultivate the craftsman spirit of excellence", the academic circles have set off a wave of research on "craftsman spirit" in the field of Vocational and technical education. Its connotation mainly involves dedication, lean, focus, innovation and persistence. Academic research agrees that the cultivation of craftsmanship is inseparable from the improvement of cultural quality and professional skills. As mentioned in the study, the cultivation of craftsmanship is inseparable from professional knowledge and skills(Yi Zhongqi and Yi Chuanpei, 2017). On the contrary, the academic circles have also shown that craftsmanship can also promote cultural quality compensation and professional skills, such as in the study of the "craftsmanship" of dedication, pleasure, focus on three levels as the basis and principles of Vocational and technical personnel training(Wu lan, 2017).

However, in view of the previous studies on the quality of Vocational and technical personnel, most of them used in-depth interviews or qualitative analysis of theoretical elaboration, and did not build a complete quantitative model of the quality of Vocational and technical personnel, so it is difficult to analogize the results to the general enterprise demand for Vocational and technical personnel. Although some studies use quantitative methods to study the quality of Vocational and technical personnel, but often only use demographic variables such as gender and age of vocational college students to do difference analysis, can not further study the quality of Vocational and technical personnel elements. In view of this, this study combs the literature to summarize the quality requirements of Vocational and technical personnel, constructs the quality model of Vocational and technical personnel through structural equation model (SEM), and further understands the quality requirements of Vocational and technical personnel, explores the relevant factors of vocational college personnel quality and puts forward training strategies.

2. Research method

2.1 Establishment of Index System

Cultural accomplishment, as its name implies, is culture-related accomplishment. According to the research mentioned, the core accomplishment of Chinese students' development must comply with the principles of science, epoch and nationality, and pursue the all-round development of human beings. Therefore, the scope of cultural accomplishment has also expanded from simple achievements in cultural courses to independent learning and social participation. In terms of humanities, scientific spirit, learning how to study, healthy life, responsibility and practice innovation, the comprehensive performance is shown in six aspects. Any text or material outside the aforementioned margins will not be printed(Fan Quanming, 2016). Professional skills as the name implies is the ability to do, according to the study pointed out that in order to do a good job, must have a solid basic skills, eye, hand, brain, to achieve a sense of practice makes perfect. Specifically,

professional skills in the study summarized the professional skills including reasoning and thinking flexibility, shape perception, hand kinesthetic feedback ability, hand-eye coordination ability, spatial generalization and memory ability, planning and execution ability(Huang Weihong, 2014). Craftsman spirit is a kind of spiritual culture accumulated over millions of years and reached its peak in the handicraft industry era. According to the definition of a craftsman, craftsmanship should consist of two parts: the pursuit of the ultimate spirit and creative ingenuity(Zhao Xinsheng, 2016). Therefore, the essence of craftsman spirit is creativity and perseverance.

By using the method of literature induction, this paper compiles an open-ended questionnaire to investigate the relevant persons in charge of manufacturing, high-tech enterprises and Vocational Colleges in A city, to understand the changing forms of industry demand for talents, to summarize the quality elements of Vocational colleges, and to form 16 indicators including humanistic accomplishment, professional skills and craftsman spirit. The questionnaires of Quality Needs of Vocational College Students were measured by Likert's Scale 5. Firstly, 50 pre-surveys were conducted in enterprises. The scale was mainly distributed to human resource managers in manufacturing and high-tech enterprises and directors of teaching and research departments in vocational colleges to ensure the quality of pre-survey data.

2.2 Sample and Data Collection

The research objects are mainly manufacturing and high-tech enterprises in A city. The questionnaires were sent out on-the-spot paper documents. In order to ensure the rationality of the data structure, electronic links and e-mail were used to supplement the questionnaires. A total of 230 questionnaires were sent out and 200 questionnaires were recovered, of which 200 were valid, with an effective recovery rate of 87.0%. SPSS 20 was used to analyze the samples, and the results showed that the reliability and content validity of the questionnaire were good.. The total variance explained by factor analysis is shown in Table 1 and rotated component matrix, as shown in Table 2. The cumulative variance contribution rate of the three main factors extracted from Table 1 is 56.453%, which can explain most of the information of the original structure. According to the component score coefficient matrix and the significance of each item contained in each main factor, the three main factors were named as three dimensions: cultural accomplishment, professional skills and craftsman spirit. After finishing, the index system of quality requirements of Vocational and technical personnel is shown in Table 3.

Table 1: Total variance explained.

components	Initial eigenvalue			Extracting sum of squares			Rotation squared sum loading		
	Total	variance %	accumulate %	Total	variance %	accumulate %	Total	variance %	accumulate %
1	4.899	30.616	30.616	4.899	30.616	30.616	3.591	22.447	22.447
2	2.330	14.563	45.179	2.330	14.563	45.179	3.080	19.251	41.698
3	1.805	11.284	56.463	1.805	11.284	56.463	2.362	14.765	56.463

Table 2: Rotated component matrix A.

Index	Components		
	1	2	3
X16	.826	.068	.119
X14	.825	.027	-.039
X12	.792	.180	.076
X11	.695	.042	.217
X13	.674	.049	.163
X15	.588	.224	.029
X5	.141	.797	.061
X4	.222	.764	.060
X6	-.053	.681	.016
X1	.105	.677	.226
X3	.289	.644	.150
X2	-.007	.604	.084
X9	.028	.046	.823
X8	.128	.186	.813
X7	.055	.123	.711
X10	.363	.115	.578

Extraction method: principal component. Rotation method: orthogonal rotation method with Kaiser standardization.

A. rotation converges after 4 iterations.

Table 3: Quality index system of Vocational and technical talents.

dimension	index
Cultural accomplishment	X1 humanities X2 scientific spirit X3 learning X4 healthy life X5 responsibility X6 practical innovation
Professional skills	X11 reasoning and thinking flexibility, X12 shape perception and image rotation, X13 hand kinesthetic feedback, X14 hand-eye coordination, X15 spatial generalization and memory, X16 planning and execution
Craftsman spirit	X7 dedication, X8 lean, X9 focus, X10 innovation

2.3 Structural Equation Modeling Analysis

Based on the above analysis, this paper establishes a hypothetical model between the various dimensions of Vocational and technical personnel quality needs, and analyzes the hypothetical model using AMOS 21.0. The main indicators of model fitting are shown in Table 4.

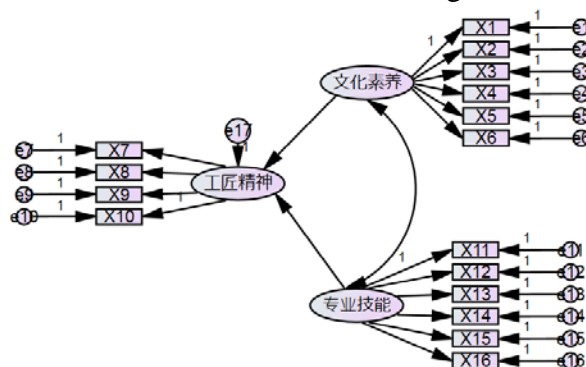


Figure 1: Path chart of quality standardization of vocational technical talents.

Table 4: Main indicators of model fitting.

Chi-square	Degrees of freedom	RMR	GFI	AGFI	PGFI	NFI	RFI	IFI	TLI	CFI	PRATIO	PNFI	PCFI
124.295	74	0.106	0.922	0.889	0.65	0.873	0.844	0.944	0.93	0.943	0.813	0.71	0.767

Compared with the adaptation criteria or the critical values, the indicators in Table 4 are not ideal. Therefore, this paper modifies the model and gets the correction diagram as shown in Figure 2. After correction, the main indicators of model fitting are shown in Table 5. Compared with the adaptation criteria or critical values, the normalization coefficients between paths in Figure 2 are higher, and all the data pass the significance test, which indicates that the hypothesis model fits well.

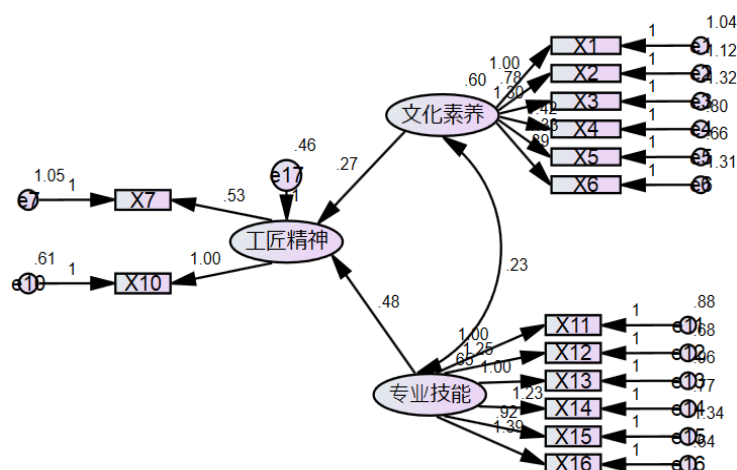


Figure 2: Correction chart of path coefficient for quality standardization of vocational technical personnel.

Table 5: Main indicators of model fitting after revision.

RMR	GFI	AGFI	PGFI	NFI	RFI	IFI	TLI	CFI	PRATIO	PNFI	PCFI
0.121	0.897	0.861	0.666	0.837	0.806	0.913	0.895	0.911	0.842	0.704	0.767

2.4 Discuss

Based on the results of empirical analysis, the relationship between the factors of cultural accomplishment and professional skills and the spirit of the craftsman's lean and innovative is significant, that is, the spirit of craftsman can be nurtured from the two aspects of cultural accomplishment and professional skills. The craftsmanship given by the small artisan should include the pursuit of the ultimate spirit and ingenuity of the two aspects of the same work. Vocational college students are selected from the compulsory education system. On the surface, there is only one difference between vocational college students and ordinary college students. The reason is that we can analyze the characteristics of vocational college students from a deeper perspective. Combined with my teaching experience and academic research results, the author concludes as follows: be included after the section title number.

2.4.1 Degree of Intention

To do things earnestly can only do things right and work hard to accomplish things well. Many vocational school students in compulsory education or high school learning most of the teachers or learning attitude, think that the completion of the teacher's assignments on everything, even the teacher's assignments can not be completed. This attitude to cope with the problem is the direct embodiment of the lack of lean spirit. It can be said that lean spirit is essentially a kind of progressive spirit, which follows the law of the development of things and develops upwards in a cycle. But this progressive spirit needs to rely on the coexistence of the subject of things, such as deepening at a certain point of knowledge, and constantly improving in some skills. This also explains the remarkable relationship between the factors of cultural accomplishment, professional skills and the lean spirit of the craftsman spirit.

2.4.2 Ability to Draw Inferences from Others

Compulsory education or high school learning process can be seen as the teacher cites one, students against the three process, teaching quality testing process is a concentrated reflection of the ability test. This ability to cite one thing against the other is also in line with the craftsman's spirit of innovation, as mentioned in the study, innovation is the ability to create new results (TaoXuezhong, 2002). This ability directly determines the value of the workers themselves and the quality of the products or services they provide.

3. Cultivation path of craftsman spirit in Vocational Colleges

The empirical analysis of this paper confirms the significant relationship between the factors of cultural accomplishment and professional skills and the spirit of the craftsman's lean and innovative. Based on this, this article gives the lean path of craftsman spirit and the way to cultivate innovative quality.

3.1 Cultivation Path of Artisan Spirit Based on Cultural Quality

Cultural accomplishment, as its name implies, is culture-related accomplishment. The core accomplishment of Chinese students' development must follow the principles of science, epoch and nationality, and pursue the all-round development of human beings. Therefore, the scope of cultural accomplishment also extends from simple achievements in cultural courses to independent study and social participation, which is manifested in humanities. This kind of structure has broken through the limitation of the supremacy of school teaching and cultural course achievements, which is also consistent with the concept of Vocational education.

Currently, the curriculum subjects of vocational colleges include cultural courses and training courses, and the curriculum design also takes into account the various aspects of Vocational posts' demand for talents. However, this kind of consideration for the quality of professional positions is mainly reflected in the relevant professional knowledge and ideological education of workers, which are far from the connotation of cultural literacy. According to the author's observation, there are obvious differences in abstract and concrete thinking between vocational school students and ordinary college students. A similar result was proposed in the study(Zhang Jing, 2017). In the view of the same thing, ordinary college students' understanding will be more abstract, while vocational school students are accustomed to understand things from a concrete point of view, which directly leads to the differences in learning methods between the two. Therefore, it is suggested that vocational colleges should reduce abstract knowledge as far as possible in cultural curriculum design, or shift the order of learning abstract knowledge backwards. Therefore, the author believes that the teaching process of cultural courses in secondary vocational schools should also be changed from "classroom-based" to "practice-based". There are many models for reference in the specific process, such as the training mode for new employees of enterprises, the training mode for officers of Huangpu Military Academy, etc., but we must abandon the classroom-oriented teaching mode.

The new employee training mode of the enterprise and the officer training mode of Huangpu Military Academy have a common feature: "short-term quick success", and the key to this quick success lies in the reality of the situation. Through the real situation to increase students' concrete cognition of the post, so that students to a variety of labor tools, labor relations to form a solid concept, which is the basis for the formation of cultural literacy. With this foundation, students can deepen their understanding of the position through working meetings, seminars, exchanges, social activities, competitions and other forms of teaching, and begin to think about some problems. For example, in the process of working conference, we should think about the difference between the present situation and the future and begin to pursue progress; deepen the abstract understanding of the concrete things related to the post; exchange views among the members of the meeting to form a more three-dimensional abstract understanding of the post; deepen the emotional exchange of the post in the social activities. Competition can cultivate students' deep research in a small range of professional fields. Team members' cooperation can naturally enhance students' responsibility, innovation and other qualities. Through the above "real situation, concrete cognition - Communication and discussion, concept solidification - competition activities, deepening the three-dimensional" process, let vocational school students' cultural literacy gradually, three-dimensional, effective promotion. In general, the cultivation of humanistic quality is a process from concretion to abstraction.

3.2 Cultivation Path of Artisan Spirit based on Professional Skills

Professional skills reacted to the level of hard work. As mentioned above, professional skills should be combined with eyes, hands and brains, flexible reasoning and thinking, sensitive shape

perception, quick hand-eye feedback, hand-eye coordination and harmony, spatial generalization and memory, and high planning and execution. The acquisition of professional skills must initially rely on imparting, the teacher has imparted the correct operation steps, students then carry out professional skills training, to achieve eye, hand, brain coordination. Detailed process of professional skill training can be divided into the process of "knowledge imparting-practical operation-making-correcting-acquiring skill upgrading". From this process, knowledge imparting is the form of hand-to-mouth transmission by teachers, which imparts existing operation methods or experiences to students, and the students' brain receives Abstract knowledge. After learning and experiencing, coordinated training of hand, brain, eye and other organs is started, so that each organ can meet the needs of the post at a certain stage. Of course, this stage will inevitably go through a lot of errors to the stage of correction. It is precisely in this process of circular upward, students' professional skills are also. Got promoted. From the initial abstract knowledge and experience, through a process of development, students can finally give skilled works or services through professional skills. Correspondingly, the upgrading of professional skills is the process of abstraction to concrete.

4. Conclusion

The humanistic accomplishment and professional skills should be integrated. The process of forming humanistic accomplishment from concrete to abstract and the process of upgrading professional skills from abstract to concrete forms the process of developing students' abstract-concrete-abstract-concrete cycle, which also follows vocational education. The educational concept of combining education with work. The author thinks that the weak link in the cultivation of craftsmanship in vocational colleges lies in the node of this cycle. Everyone knows that the common development of cultural accomplishment and professional skills is the highest level of Vocational education, but there is no good answer on how to develop together. In this paper, the cultural literacy, professional skills training, and then to the craftsman spirit of the cultivation of the path, made in-depth thinking, hoping to be able to communicate with vocational education peers.

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