

Analysis on the Specialty Construction of Higher Vocational Colleges under the “1+X” Certificate System

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Abstract: “The Implementation Plan of National Vocational Education Reform” clearly defines vocational education as type education, and designs a system of "academic certificate + Vocational skill grade certificate" (i.e. “1+X” certificate system) for this type of education. “1+X” certificate system, being a basic system for guiding vocational education activities in the future, is an important mechanism for connecting the development trend of science and technology with market demand, and is also an institutional guarantee for deepening the integration of industry and education and school-enterprise cooperation. since the country launched the “1+X” certificate system pilot, Relevant departments and universities responded positively. As a new vocational education evaluation system, the “1+X” certificate system will inevitably bring about the reform of personnel training mode in vocational education. This paper, focusing on professional construction which is considered as the "ballast stone" of talent training, analyzes the new structure of vocational specialty construction based on “1+X” certificate system.

1. Introduction

According to the “Pilot Scheme for Implementing the System of ‘Diploma Certificate + Several Vocational Skill Certificates’ in Colleges and Universities” (from public document, 2019), since 2019, in accordance with 10 market demand areas, the pilot work of 1+X certificate system is being launched in vocational and secondary vocational colleges. On the basis of marketization operation, it is committed to develop several vocational skill grade standards and certificates, and to integrate academic certificates with grade certificates, which in turn will improve the employability of vocational students and the quality of vocational education^[1]. in fact, on the way to implement the “1+X” certificate system, the vocational colleges is facing kinds of opportunities and challenges. Thus, based on the comprehensive interpretation of the system, faced with this major initiative in vocational education reform, the work must be gradually promoted with the focus on the corresponding new professional construction framework.

2. The Connotation of “1+X” Certificate System

In the “1+X” certificate system, “1” means Vocational education certificate, “X” refers to “Vocational Skill Level Certificate”. The system is designed to make vocational college students graduate with “Diploma certificate + Vocational Skill Level Certificate”, which is abbreviated to the “1+X” system. Wang Jiping, the former director of Department of Vocational and Adult Education, Ministry of Education, stated that: “we need to overcome the popularization and skillalization of vocational education. Education and training should be combined.” To evaluate student’s cognitive level with only one diploma certificate cannot reflect the connotation and characteristics of vocational education, and is difficult to distinguish the former from general education as well. Since vocational education is employment-oriented, the evaluation of the learning results should be the combination of standardization and universality in school education

and particularity of occupational requirement in different enterprises, which is the internal logic of establishing 1+X certificate system^[2]. Through this system, we can highlight the educational process of combining people with occupation in vocational colleges, realize the task of facing market, serving development and promoting employment based on strengthening educational target of vocational education, and can promote the implementation of the talent training mode of integration of industry and education, school-enterprise cooperation, combination of work with study, and dual education.

3. Specialty Construction Path Based on “1+X” Certificate System

3.1. Talent Training Plan and Curriculum Construction

3.1.1. The perfection of Integrated Professional Talent Training Plan

Professional Talent Training Plan is a normative document for vocational colleges to implement the general requirements of the state on technical and technical personnel training, organize teaching activities and arrange teaching tasks, and it is the basic fact for the implementation of professional talent training and quality evaluation^[3]. usually, professional talent training plans are formulated by professional teachers in vocational colleges and professional construction committees composed of experts from enterprises or industry associations. The talent training plan based on “1+X” certificate system (figure 1), focuses on ensuring that students acquire basic professional skills and humanistic qualities in moral, intellectual, physical, aesthetic and labor aspects, while acquiring targeted vocational skills. In other words, the whole process of talent cultivation is divided into several modules, some of which are undertaken by the training and evaluation organizations responsible for X certificate.

The “1+X” certificate system is a major reform of the training mode and evaluation system in vocational colleges. Thus, The design of talent training plan need to reflect the following two aspects: firstly, the combination of school-based diploma education module and training institutions-oriented vocational skill level module, secondly, to combine the school training standard with the professional basic ability and sustainable development ability, and the social employment standard with the professional special ability. Only by taking “1+X” as a whole, can we make a talent training plan in line with the goal of complete vocational education.

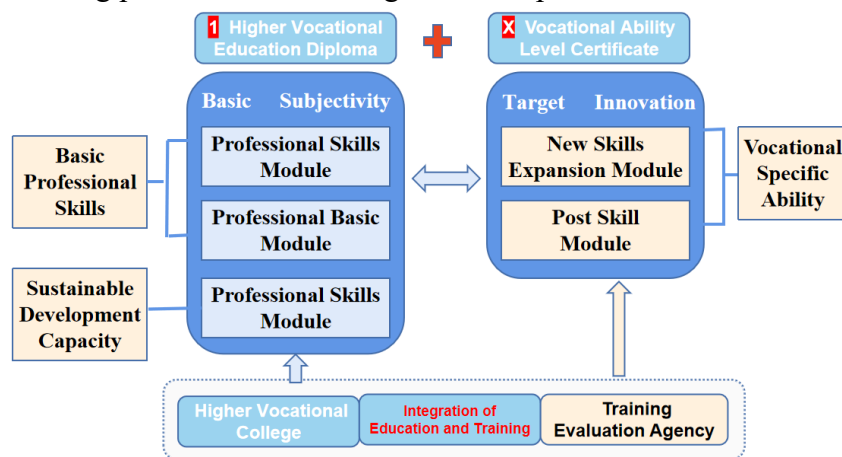


Figure 1 The model of talent training plan based on "1+X" certificate system.

3.1.2. The Reconstruction of the Curriculum System Based on Integrating Education and Training

For realizing the talent training plan based on the integration of “1+X”, we need to integrate knowledge and skill of X certificate with teaching standards for professional courses, and integrate curricula of academic education with content of vocational training, which will form a curriculum system combining education and training, and will eventually ensure the match between knowledge and skill in “X” certificate with Knowledge, literacy and ability requirements in professional

courses. Besides, we need to reorganize the content of the course into modules, and grade the difficulty of the course into layers. The above can enable students to complete the relevant knowledge points in the training content synchronously through the course learning in a limited time, and focus on training practical skills according to their own grasp of the situation, so that students can achieve the assessment requirements of “X” skill level certificate while obtaining “1”. The implementation of “1+X” curriculum content in vocational colleges should be carried out according to different types, such as exemption, reinforcement, remedial and ability transformation. Exemption can be implemented in the case that the knowledge and skill points in the specialized courses can be fully covered; reinforcement refers to that although there are relevant knowledge points and skills in the course, they should be strengthened in teaching due to the particularity and different emphasis of vocational skills related to X certificate; Remedial work refers to the need for additional study that is not covered by the existing course; Ability transformation refers to the ability to apply acquired knowledge in combination with job requirements. taking the “1+X’ pilot project for elderly care” for example, in the process of constructing the integrated curriculum system, a scheme is firstly designed to integrate the work tasks of vocational skill level certificates into the curriculum of academic education, and then the original curriculum content is integrated and reconstructed, and finally an integrated curriculum system combining education and training is formed. This will not only save teachers’ resources and reduce training costs, but also greatly save students’ learning time and improve learning efficiency.

Table1 Table for the contrast between vocational skill level certificates and the curriculum of academic education in “1+X’ pilot project for Elderly Care(intermediate level).

Vocational Skill Level Certificates		The Curriculum of Academic Education		“1+X” Integration schemes
Task	Project code	Course	Course code	
Post positioning	1 LN ZH 02 FZ 01 A	Career Development and Employment Guidance	1709015	Exemption
Cognition of Quality and Ability	1 LN ZH 02 FZ 02 A	Sinology Cultivation Elderly Service Ethics and Etiquette Introduction to Elderly Service and Management	1807076 1807165 1807163	Exemption
Cognition of Care Services	1 LN ZH 02 ZZ 01 A	Elderly Care	1807167	Exemption
Organizational Cognition of Care Services	1 LN ZH 02 ZZ 02 A	Elderly Care	1807167	Exemption
Care Service Management System and Tool Application	1 LN ZH 02 ZZ 03 A	Operation and Management of Pension Institutions	1707166	Reinforcement
Capability Evaluation	1 LN ZH 02 SS 01 A			Remedial work
Care Service Content Determination	1 LN ZH 02 SS 02 A	Operation and Management of Pension Institutions	1707166	Exemption
Care services Management	1 LN ZH 02 SS 03 A	Operation and Management of Pension Institutions	1707166	Reinforcement
Medication Assistance	1 LN ZH 02 YY 01 A	Elderly Care	1807167	Exemption
aerosol inhalation	1 LN ZH 02 YY 02 A	Elderly Care	1807167	Reinforcement
External Drug Use(Eyes, ears, nose, etc.)	1 LN ZH 02 YY 03 A	Elderly Care	1807167	Reinforcement
Psychological Coping	1 LN ZH 02 XL 01 A	Psychological Maintenance and Service for the Elderly	1807166	Exemption
Care for Common Psychological Problems	1 LN ZH 02 XL 02 A	Psychological Maintenance and Service for the Elderly	1807166	Exemption

Cognition of Dysfunction	1 LN ZH 02 GN 01 A	Geriatric Rehabilitation Care		Exemption
Rehabilitation Cognition of Dysfunction	1 LN ZH 02 GN 02 A	Geriatric Rehabilitation Care		Exemption
Cooperation with professional rehabilitation personnel to assist in rehabilitation training	1 LN ZH 02 GN 02 A	Geriatric Rehabilitation Care		Ability transformation
Cognitive Impairment Cognition	1 LN ZH 02 RA 01 A	Geriatric Rehabilitation Care		Reinforcement
Nursing Cognition of Cognitive Impairment	1 LN ZH 02 RA 02 A	Geriatric Rehabilitation Care		Reinforcement
Initial Management After Fall Injury	1 LN ZH 02 YJ 01 A	Elderly Care	1807167	Exemption
Initial Hemostasis of Trauma	1 LN ZH 02 YJ 02 A	Elderly Care	1807167	Exemption
Initial Fixation and Handling After Fracture	1 LN ZH 02 YJ 03 A	Elderly Care	1807167	Exemption
Oxygen inhalation assists operation	1 LN ZH 02 YJ 04 A	Elderly Care	1807167	Reinforcement
Sputum Aspiration Assisted Operation	1 LN ZH 02 YJ 05 A	Elderly Care	1807167	Reinforcement
Hospice Care Operations	1 LN ZH 02 AN 01 A	Elderly Care	1807167	Ability transformation

Throughout the curriculum, if “1” is the foundation, then “X” is the complement, reinforcement and extension of “1”. When students complete their academic education and receive their graduation certificate, they can obtain several vocational skill certificates of the same level or different levels after meeting the assessment standards by means of exemption or strengthening of certain courses, etc. This approach enables students to meet the different needs of different vocational positions and provides intellectual support for students' personalized growth.

3.2. Construction of Teaching Staff

The smooth implementation of the pilot of 1+X certificate system requires an innovative teaching team that can accurately grasp the advanced concept of 1+X certificate system, conduct in-depth research on vocational skill level standards, do a good job in the overall design of professional teaching, and meet the training needs of new technology and new skills. Front-line teachers' learning, understanding and transformation ability determines whether the pilot work can form a benign relationship with the existing education and teaching work, as well as the quality and effectiveness of the pilot work^[4].

3.2.1. Construction of Professional Teaching Team

The teaching staff of higher vocational colleges mainly consists of full-time teachers and part-time ones. First of all, the leader in the professional teaching team is the professional backbone and academic authority of the team, and his main work is to guide and engage in professional curriculum reform and construction, teaching staff training, theoretical and practical teaching research to ensure the continuous and rapid development of the specialty. Therefore, the group leader need to do the top-level design of pilot work well by learning the new idea of 1+X certificate system, understanding its background and significance, grasping the connotation of professional certificate and standard, and guiding the professional team to develop the integration of talent training plan and vocational qualification training courses, of professional teaching and training standard. The second, professional teachers play roles in professional construction, teaching management, and scientific research, and they are indispensable to the team. They can improve their teaching, training and assessment ability through participating in professional training on teaching capacity and vocational skill, being familiar with the new concept of 1+X certificate

system, understanding the background and significance of the pilot work, as well as mastering the connotation and requirements of vocational skill grade certificates and standards. It can be said that the comprehensive quality of team members determines whether a teaching team is capable of the talent training mode based on the 1+X certificate system.

3.2.2. Perfecting the Cultivation Approach for Double-qualified Teachers

At present, there is no authoritative standard for the definition of double-qualified teachers, the basic requirements for it can be summarized as teachers with general ability, professional theoretical teaching ability, practical experience and other qualities. The talent reserve of higher vocational colleges, for one thing, is from undergraduate, master's and doctoral graduates who have excellent theoretical skills and strong ability to teach, but lack practical experience in solving practical problems; for another, is from technical backbone of industrial enterprises who have rich practical experience, master relevant enterprise manufacturing standards, and are familiar with the production process and process. The latter are familiar with typical work tasks and complete work process in the actual production process, and they can teach practical experience to students, but their teaching level is low, their induction ability is poor, and their ability to control the class is poor. Besides, these group face the pressure of their own work, and the quality of lesson preparation is generally not high. The pilot of 1+X certificate system provides a new solution for training double-qualified teachers. By participating in professional training, full-time teachers can systematically master the latest post operation skills and technological processes, and guide students to constantly consolidate and improve their skills through training. By participating in the formulation of training standards, part-time teachers (including 1+X trainers) can sort out and refine their original practical skills, so as to continuously improve their teaching and training abilities.

3.3. Practice System Construction

The content of X certificate examination mainly includes theoretical knowledge and practical skills. The assessment of practical skills should not only stop at proficient operation, but also pay attention to professional quality, organization and coordination ability and the ability to use skills flexibly. It is necessary to strengthen the cooperation with training and evaluation institutions and improve the practical teaching system for the purpose of improving students' professional skills and professional accomplishment to ensure the implementation of 1+X certificate system.

3.3.1. University-enterprise joint training base

Schools, enterprises and training institutions cooperate to build productive training bases on campus, which can effectively meet the demand of professional talents for professional posts. At the same time, it can also provide students with high-quality teaching services, practical operation guidance, and create a real productive practice environment for students. All above enable students to master job skills in the process of production and become professionals needed by society. In addition, in the construction of the base, under the national vocational qualification skill level standard, the school can encourage industry enterprises to participate in standardization, and promote university-enterprise cooperation "project management", which will make the training site adapt to the national vocational qualification and skill level standard assessment requirements, and will eventually form the mode of Joint contribution and Sharing between teaching resources and training assessment resources.

3.3.2. School-enterprise Joint Construction of Practical Teaching System

It is necessary to strengthen the cooperation with well-known enterprises and training and evaluation institutions at home and abroad, so that the channels of cooperation between the two sides are unblocked, the space of cooperation between the two sides is broadened, and the long-term mechanism of cooperation between the two sides is established. Through regular discussions, front-line enterprise experts and teachers jointly develop curriculum teaching resources such as training modules, skills assessment standards and supporting textbooks that integrate the latest enterprise technologies, management concepts and vocational requirements, so as to achieve closed

joint between curriculum teaching and vocational capabilities.

3.4. Evaluation System Construction

According to the “20 Items in Vocational Education”(a public document),the training and evaluation organization shall be responsible for the implementation of vocational skill assessment, evaluation and certificate issuance. Pilot schools should cooperate with training evaluation organizations to do a good job of assessment work together to prevent the inaction phenomenon in certificate assessment. First, the evaluation standard and index of 1+X certificate system evaluation system should be established on the basis of professional teaching standard, and professional teaching standard should be integrated with vocational skill grade standard, and the demand of vocational post should be integrated into the evaluation standard and index.

The second is to do a good job in the overall design of the assessment, assessment content should reflect the typical post (group) required professional literacy, professional knowledge and professional skills, assessment methods should be flexible and diverse, the assessment is focused on the ability to complete typical work tasks. In short, the whole assessment system should not only reflect students’ humanistic quality and moral accomplishment, but also evaluate students’ theoretical knowledge and practical ability.

Third, evaluation standards and indicators should have personalized characteristics. For example, different evaluation standards and evaluation index systems should be developed according to different majors and different sources of students. In addition, the evaluation system should adopt a combination of qualitative and quantitative methods, and the evaluation results can be used as the curriculum examination and certificate examination results.

Fourth, actively introduce third-party evaluation, such as inviting industrial enterprises and third-party evaluation institutions to participate in the teaching evaluation process according to the professional standards of industrial enterprises, especially the evaluation of part X. At the same time, members of the society who have obtained skill-oriented certificates can also be exempted from taking part of the courses according to their certificates level, and obtain academic certificates after completing the prescribed courses and credits.

4. Some Problems in the Course of Specialty Construction

4.1. Setting up the Correct Professional Construction Concept

The integration of industry and education is the logical starting point of professional construction in higher vocational colleges. As the type education, the professional construction of vocational education cannot be separated from the industry, trade and enterprise on which the specialty depends. Whether it is the core elements of professional construction such as talent cultivation, curriculum teaching, faculty team, practical conditions and social services, or the accumulation of technical skills, innovation and entrepreneurship, informatization and internationalization in line with the requirements and characteristics of The Times, the construction content and construction measures should be established based on the requirements of professional posts. With the rapid development of the new generation of information technology revolution represented by artificial intelligence, a large number of new technologies, new forms of business, new occupations, new posts and new types of work have been emerging, and new standards of technical skills and new requirements for occupational positions have also been issue, the traditional talent training mode of “have a skill” is no longer in line with the practical needs of “acquire a variety of skills ,be the versatile”^[5]. The pilot of the 1+X certificate system introduces training and evaluation institutions into the vocational education system. These institutions, with their unique industrial and enterprise backgrounds, make the professional construction of the college more accurate and timely docking with the vocational positions of the industrial and enterprise.

4.2. Building a Curriculum Resource Library, and Implementing the Mixed Teaching Mode of “Online Learning” and “Offline Doing”

Without the extensive support of curriculum resources, no matter how beautiful the idea of curriculum reform is, it is difficult to turn it into practical teaching achievements of vocational education. The richness and adaptability of curriculum resources determine the realization range and level of curriculum objectives. Therefore, it is necessary to develop and build a curriculum resource base based on work process and integrated with training contents of different levels of X certificate in combination with national vocational skill standards, industry development trends and job demands. At the same time, in order to do a hybrid teaching mode, it is necessary to change the way and concept of education and teaching, to explore the use of mixed teaching, such as blended teaching, flipped classroom, open online courses, integration of science and practice, in-school and out-of-school training, enterprise job practice and other forms of teaching. Through these means, students will be brought into the professional post, so as to improve the professional quality.

4.3. Steadily Carrying out Credit Bank Trials

Credit bank is a new type of credit and school system which takes credit accumulation as its main feature and demand as its orientation. It embodies many new requirements in the age of information technology, such as the speed of updating technical skills and the characteristics of students' fragmented learning. Credit bank, demonstrating its value by certifying learning outcomes, aims to effectively link different types of educational institutions, and unify the learning results obtained by schools and educational institutions through the certification, so as to obtain recognition. Through the Internet platform set up by the credit bank, learners can independently log in and register their accounts, save their learning achievements, and form lifelong learning achievement files. In other words, credit bank provides individuals with various learning achievement authentication, accumulation and conversion services, realizing the traceability, inquiry and conversion of learning achievement. Meanwhile, it relies on accurate analysis of big data to grasp the status and needs of learners of 1+X certificate system and provide a basis for government decision-making.

The 1+X certificate development agency will deliver a large number of online courses to the Internet, creating ubiquitous learning conditions for a large number of learners, reducing overall costs and generating economies of scale. In this case, credit bank online learning can become a gathering place and distribution center of 1+X certificate courses, that is, credit bank supports students of vocational colleges, industries and enterprises to select courses across schools, institutions and majors on a large scale, so that learners can complete their studies through distance, online and offline combination. Credit bank can also organize 1+X certificate institutions to join the Alliance for mutual recognition of Learning Outcomes. In the alliance, training and evaluation organizations and colleges realize the integration of documents and certificates through developing standards, constructing professional courses, negotiating conversion schemes and signing conversion agreements. The main characteristics of credit bank under the 1+X certificate system are accumulation system and lifetime tenure. It realizes the goal of lifelong learning by promoting the organic combination of professional skills training and academic education.

References

- [1] Ministry of Education, National Development and Reform Commission, Ministry of Finance, General Administration of Market Supervision. On the Pilot Scheme of Implementing the System of “Diploma Certificate + Several Vocational Skill Certificates” in Colleges and Universities [Z]. 2019-04-15.
- [2] Sun Shanxue. Understanding of 1+X Certificate System [J]. Chinese Vocational and Technical Education, 2019 (07): 72-76.
- [3] Ministry of Education. Guidance on the Formulation and Implementation of Professional Talent Training Plan in Vocational Colleges [Z]. 2019-06-05.

- [4] Li Qian, Lu Wei and Yin Xingjin. 1+X Certificate System: Progress and Outlook---On the Construction of China's National Qualification Framework [J].Journal of National Academy Of Education Administration, 2019 (12): 18-25.
- [5] Qin Chuan. 1+X Certificate System: An Important Guarantee to Promote the Connotation Development of Type Education [J]. Journal of Chinese Higher Education Research, 2020 (01): 104-108.