

A Comparison of VET Teachers Training in Higher Vocational Education between China and Japan

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Abstract—The teacher procession is the fundamental of the quality of education. Higher vocational education in Japan is well developed. In supporting the domestic economy, It has been accumulated rich experience in Vocational education and training (VET). This paper used content analysis and comparative education methods to compare the VET teachers training between Japan and China, in order to understand and learn from these experiences. From four dimensions which included systems, characteristics, laws and trends to compare the relevant of policies and regulations, teacher and training process, course system, professional standards, development status, characteristics, problems and development trends. Based on the results of this comparison, recommendations were proposed for cultivating higher vocational teachers in China, which included strengthening the construction of laws and regulations, the quality evaluation and construction of the guarantee system. Adapted to the needs of industrial development, established relatively independent professional qualification standards and training systems, and fostered “dual-qualified” teachers in cross-border collaboration.

Index Terms—Vocational Education and Training (VET), higher vocational education, teacher cultivation, comparison

I. INTRODUCTION

The quality of teachers determines the quality of higher vocational education, and it is an important path to promote the shift of higher vocational education from extensive development to intensive development. Affected by traditional culture and education systems, the development of vocational education in China was relatively weak. From a global perspective, neighbor Japan, as a modern industrial and advanced manufacturing powerhouse. A large number of mature industrial workers had been cultivated by its successful vocational education, especially accumulated valuable experience in vocational education and training (VET). These facts effectively supported the economic

development miracle after World War II. Currently, China is at a critical stage of industrial restructuring and the transition of higher education from extensive development model to intension-type development. Under the background of Industry 4.0 and China's manufacturing of 2025, building a socialist modernized country requires the construction of highly qualified vocational teachers.

II. LITERATURE REVIEW

Currently, the literature on higher vocational teachers in China and Japan presented a phenomenon of “three more and three less”: Local scholars had more research literatures than foreign scholars; there were more articles on vocational education in the two countries, and there were fewer literatures in specialized studies on VET teacher of higher vocational education. More research literature focused on the experience and inspiration of each other's vocational education, and there were few research papers that systematically compare VET teachers cultivating in both countries.

A. Research on the Training of Teachers in Higher Vocational Colleges in China

Y Liu, J Hou, Y Gao, G Wang, Y Cao (2017) and other studies focused on the professionalization of higher vocational teachers and the development of standards, and put forward specialization development strategies on the basis of clarifying the connotation of specialization [1]. Zhang Lizhong (2016) and others focused on the study of the connotation, status qua, problems, and construction paths of the “dual-professional” teachers' construction in higher vocational colleges [2]. Zhang Ning Xin (2017) and others analyzed the composition, system, categories, and problems of higher vocational teacher training system and put forward corresponding countermeasures [3]. Many scholars advocate the development of teacher education through the “integration of production and teaching” strategy. Some researchers believe that the establishment of a teacher

training system should be guided by vocational and technical teachers' colleges [4]. Some scholars also proposed to give play to the advantages of key normal universities to cultivate teachers of higher vocational education [5], and other studies combed the evolution, existing problems and development trends of the teacher training system in vocational education in China.

B. Research on the Training of Teachers in Higher Vocational Education in Japan

Sasaki, Susumu (2009) [6], and Alexander, P. J., & Pilz, M. (2004)[7] and others introduced the characteristics, development and changes of the Japanese VET teacher education team. Li Mengqing, An Pei (2015) [8] focused on teacher qualifications, recruitment evaluations, and pre-employment training, Yoshimoto, K. (2018) [9], Terajima Teruko, Yan Zhiyong, Lu Suju, Zhu Lijia (2012) researched the problems and challenges faced by Japan's vocational education, training system, and the differences of post-secondary education from international perspectives [10]; Uehara Shinichi (2017) pointed out that Japanese vocational teacher training paid more attention to practical teaching guidance[11], as well as the improvement of practical ability and academic credentials. Hibi Y, Matoba M. (2004) and other researchers introduced the new quality, professional reforms, and policies of Japanese vocational teachers in the new era [12].

C. Literature on the Comparison of Teachers' Training in Vocational Education between China and Japan

The literature on the comparison of higher vocational education between China and Japan was mostly based on the institutional system of vocational education in countries, development history and reform trends, scale and schooling, personnel training and curriculum models, industry and university cooperation, vocational training, and career guidance. Drawing on the experience of Japan's special characteristics, we should make recommendations based on the status quo and inadequacies of our country. For example, Zheng Wei and Shi Weiping (2008) compared the differences of higher vocational education between China and Japan from the perspectives of scale, type, and historical basis [13]; Cai Lingling (2015) compared the status and differences of the "dual-qualification" teachers training between China and Japan, which from the connotation and system construction [14].

From the above literature, there were two major gaps in the study of the comparison between Chinese and Japanese teachers in higher vocational education. First, there was little literature on the comparison of teachers in higher vocational education, and lack of systematic comparative methods and comparative indicators; lacking an objective position and combining with the actual situation of the country, some of them blindly pursued foreign experience. It also lacked comprehensive and objective analysis of the strength, weaknesses, opportunities and challenges of teacher training in China. Therefore, it was necessary to redefine the scope of the comparison, to construct a comparative index system, and

to present the characteristics and differences of the teacher training in higher vocational education of both countries, which used by taking the objective position and scientific methods.

III. METHODS AND FRAMEWORK

In this paper, higher vocational education in Japan mainly referred to three types of higher specialized schools, short-term universities (or junior colleges) and specialized colleges. They were mainly formal schools and did not include enterprise self-run educational institutions. Higher vocational education in China mainly referred to the educational institutions that cultivate associate bachelor degree talents. Higher vocational teachers included a variety of categories in Japan and China. In order to compared with the same kind, higher vocational teachers in this paper mainly refer to teachers who were responsible for guiding students' professional knowledge and skills, as well as the teachers of the professional accomplishment education and training (VET teachers).

The paper used the methods of comparative education research, combined the views and methods of dialectical materialism and historical materialism, combining the interdisciplinary, cross-cultural and interdisciplinary logic [15], and compared the higher vocational education between China and Japan on the basis of their political, economic and national cultural traditions. The framework of this paper mainly included the following aspects, as the table 1 below:

TABLE I. COMPARISON AND INDEX OF VET TEACHER TRAINING BETWEEN CHINA AND JAPAN

Facets	Indicators
Law and system	1. Relative legislation and system design 2. VET teacher qualification and professional development standards 3. Teacher training system
Status and Characteristics	1. Teacher quantity and quality 2. Teacher training standards and curriculum design 3. Source of VET teachers 4. Training methods and approach
Problems, Regulations and causes	1. Traditional culture and values differences 2. The idea of Teacher training system and professional standards construction 3. Teacher training implementation and management
Development trends	1. Attach importance to legislation and system construction 2. Independent teacher training system and professional standards 3. The integration of industry and education is deepening 4. Strengthen Enhance local research and school-based practice 5. Presenting internationalization, lifelong, balanced, and informational

IV. RESULTS AND FINDINGS

A. System Design

1) National legislation and policy system

The training of VET teachers in China's higher vocational colleges was mainly based on the teacher qualification ordinance. Since 2014, the State Council's

decision on accelerating the development of modern vocational education and the construction Plan of modern vocational education system (2014-2020) had proposed to improve the qualification standards of teachers according to the characteristics of vocational education. In order to strengthen the construction of teachers' team, the State Council suggested that the construction of teachers in vocational schools should focus on the teachers of "dual-qualification", and establish a system of enterprise technicians to colleges as teachers [16]. These policies had laid the institutional foundation for the cultivation of teachers in higher vocational education. In addition, the Ministry of education had launched the National training program for professional backbone teacher in vocational education (hereafter this text would be abbreviated as the "backbone project"), Outstanding (Vocational Education) project of reform plan for teacher training (hereinafter referred to as "excellent project") in recent years, in order to promote the high-level VET teachers to play greater positive roles. The keys to the success of Japan's higher vocational education were the national guarantee system for vocational teachers. (Li Yaping, 1994) Japan established teacher qualification standards by law [17].

Through the Education Talent Assurance Act to ensure that teachers get a higher social status and salary. The "Teacher Licensing Law" promulgated in 1947 had undergone six major revisions; the "Special Law on Education Public Servants" had special provisions for higher vocational teachers' training, and a teacher education system had been implemented from the central to the local level. Japan Vocational Ability Development Promotion Act clearly stipulated vocational training instructor qualifications and certification standards. Formulated and implemented a strict hiring and examination system for higher vocational teachers and a qualification recognition system. It was required that VET teachers in higher vocational colleges must obtain the qualifications of teachers' qualifications or vocational training instructors, and required teachers' qualifications must to be updated every 10 years. In recent years, Japanese government has successively released the "Professional Capacity Enhancement Strategy" and "Rejuvenating Japan" Recovery Plan, and the Cabinet Minister led to establishing "Practical Ability Enhancement Strategy Promotion Team." Drawing on the experience of the United Kingdom and Germany, Japan implemented a new vocational qualification system which named the "Professional grading System".

2) *Teacher qualification and professional development standards*

Entry qualifications and recruitment selection standards for Chinese higher vocational teachers were similar to general undergraduate colleges. There was no unified national standard for the qualification of higher vocational VET teachers. Compared with Japan's higher vocational schools, China's current qualifications for higher education teachers were relatively low, and the identification process was not standardized. The "double-qualified" teachers are the most important professional standards for teachers in higher vocational colleges in

China, but all walks of life did not have a consistent view of their connotations and standards. In general, "double-qualified" teachers mainly referred to compound teachers who possess profound professional theories, solid professional skills and superb teaching skills, and were capable of fulfilling both teaching, scientific research and production practices[18].

Teachers' professional development standards usually included professional theories, practices, ethics, beliefs, and teaching practices. The establishment of standardized entry qualification standards was the first step to promote the professional development of teachers. The entry qualifications of teachers in different types of vocational schools in Japan had different characteristics. Qualifications and standards for teachers were mainly set on the basis of the "setting benchmarks" for special schools or junior colleges or short-term universities. For example, specialization schools recruited teachers whom focused to the assessment of the candidates technical skills and practical work experience; short-term university teacher recruitment paid more attention to academic qualifications and professional skills. For higher specialized schools teachers, their academic qualifications appear to be more important, followed by the requirements for scientific research capabilities, skills and experience.

3) *Teacher training system*

Currently, China has formed three models of vocational teacher training which included "Technical Normal University Training, National Vocational Teachers Training Base and Teacher Enterprise Practice", However, there was no establishment of a VET teacher education system that integrated "higher education, professionalism, teacher education, and academicism"[19]. In contrast, Japanese vocational VET teachers have developed a comprehensive and comprehensive standard system, and covered all processes of the teacher's career. For example, the specific contents of pre-entry training and post-entry training were clarified. The former focused on academic qualifications, education and internship experience. The latter focused on teaching ability and professional behavior. Particularly, the off-campus training and entry into corporate learning exercises were made mandatory. Horizontally, it covered the abilities and standards that should be possessed by higher vocational teachers' literacy, including ideological and moral qualities and professional behavior literacy. There was no uniform teaching materials and standards for VET teacher training of higher vocational schools in China. The specific standards for training courses, textbooks, equipment, and training time for vocational training instructors in Japan were regulated by the state and referenced throughout the country.

B. *Status and Characteristics*

1) *The size and quality of teachers*

The shortage of teachers in higher vocational colleges had not been completely resolved in China; especially the highly qualified high-level professional teachers were seriously under-resourced. At present, the attainment rate

of academic qualifications for higher vocational professional teachers was low, and the academic level was behind 3-4.5 percent behind ordinary universities. Although the number of "dual-qualified" teachers in China's vocational schools had increased significantly in recent years, there were obviously problems with the quality of the team, including age, unreasonable title structure, and weak practical teaching ability [20]. Through legislation and supporting systems, Japan had ensured a wide range of sources of teaching resources for higher vocational colleges. It had adopted strict entry selection and on-the-job training assessment systems to ensure the quality of teachers. The number of full-time and part-time jobs was relatively balanced, especially through the increase of treatment to attract outstanding talents from society to join the part-time faculty team, so the VET teacher structure is continuously optimized.

2) *Teacher training standards and curriculum design*

China's vocational VET teacher's qualification threshold was relatively low. There was no clear standard for the assessment of actual teaching ability. Some teachers lacked teaching ability, and most of the higher vocational colleges were facing practical difficulties. China's current VET teacher professional categories were significantly less. It was not significantly different from ordinary higher education in professional teaching content, teaching plans, etc. The VET teacher training course in Japanese vocational colleges integrated theoretical course, practical operations, and normal education. It required higher vocational education disciplines to earn more credit than general subjects. For example, the "Teacher Graduate School" as the main training venue for VET teachers in Japanese vocational education required more professorships than general graduate schools. Teachers who had rich practical experience would be accounted for 25% of all full-time teachers at least and teacher training must be accepted for external evaluations. Polytechnic University (PTU or Vocational University), which divided teacher training course into teaching subjects and training subjects. Basic course, professional courses, and teacher education classes made up the total academic hours accounted for 31.3%, 55.8%, and 12.9% respectively." [21]

3) *Training methods and approaches*

Chinese Technical Normal University, some comprehensive universities or key engineering colleges, and normal universities offered vocational education teachers' classes or cultivated graduate students of vocational and technical education majors. Most of the national backbone teachers' training was based on higher education institutions, and enterprises did not take part in the process of vocational teacher training. The total number of training programs launched at the national level was relatively low, and the coverage of training teachers and the training profession were limited. The VET teachers in Japanese vocational colleges were cultivated the "dual track" approach. Firstly, the "Teacher Graduate School" under the jurisdiction of the Ministry of Education, Culture, Sports, Science and Technology was responsible for postgraduate academic education the

faculty of graduate school could be set up separately or be built in the Faculty of Engineering of a comprehensive university. Its teachers were mainly composed of full-time teachers and business experts. Instructors required profound professional knowledge, rich practical experience and high technical skills. The second is the "professional university" affiliated to the Ministry of Health, Labor and Welfare and various vocational training institutions, mainly responsible for "professional universities" and short-term universities.

4) *Problems, regulations, and causes*

Influence of cultural tradition of "Valuing Theoretic Knowledge more than Craftsmanship" on Chinese Vocational Education, Vocational teachers' economic, social status and career stability were not the same as those of general university teachers. The society had been prejudiced against vocational education and regarded as a secondary education. Japan promoted the spirit of artisans as one of the important connotations of the country's character, and emphasizes the inheritance of skills and the sharing of spiritual culture.

The design of the VET teacher training system in China lacked overall planning from the central government to the regions. Particularly, local government lacked supportive policies for the construction of professional teacher training and did not establish a "school-enterprise coordination mechanism". The proportion of "double-qualified teachers" in China was not enough. Currently, most of the evaluation and assessment systems for higher vocational teachers were no independent. In contrast, higher vocational teacher training in Japan had a higher degree of professionalism and it was self-contained in terms of theory, practice, and spirit.

In recent years, China had established hundreds of national key construction bases and a number of skill training demonstration units, enterprise practice units, and provincial and municipal level training bases, which provided specialized platforms for the training of higher vocational teachers [22]. During the "Twelfth Five-Year Plan" (2011-2015), 2.6 billion yuan of special funds were invested to upgrade the quality of vocational school teachers, optimize the structure of the vocational school teachers [23]. China had not flexibly adjusted the demand for teachers in different professional fields according to the differences in economic and industrial development. Most of the funds for teacher training programs were coordinated by the Ministry of Education and were not allocated according to professional categories [24]. There was a wide range of professional training for VET teachers in Japanese vocational colleges. The Ministry of Education, the Ministry of Education, the Local Education Commission and the relevant principal associations were responsible for coordinating and arranging teacher training. According to the teacher's years of teaching (3 years, 10 years and 20 years), the course and activities were arranged separately.

5) *Development trends*

First, China attached great importance to strengthening the legal protection of vocational teacher training, and government departments at all levels were actively explored the supporting system for promoting school-

enterprise cooperation. Japan continued to improve the qualifications of higher vocational teachers and the vocational training instructor qualification system, introducing a classification and graded training system.

Second, the degree of professionalization of VET teachers in higher vocational education had been continuously improved. In general, the educational circles of both China and Japan had attached importance to the professionalization of VET teachers. All attached importance to teacher ethics, technical ability and professional ethics training. More than 20 teacher graduate schools had been set up in Japan. The teacher evaluation system did not only focus on diploma certificate and qualifications, but also on values Teaching behavior and work attitude.

Third, both China and Japan were aware of the importance of enterprises' participation in the cultivation of vocational teachers, and emphasized the integration of production and education in the teachers training. China's higher vocational teachers and industrial companies had been deepening cooperation in production, learning and research in recent years. The exchange of talents in universities and enterprises had become increasingly frequent. In Japan, higher vocational education had always been closely integrated with the needs of companies, and teachers' training course had been constantly reformed, highlighting the "practical" orientation [25]. In the future, it will may also promote the "merger" between school vocational education and enterprise vocational education, and realize the connection between vocational qualification certificate and education certificate [26].

Fourth, highlight the focus of the "double-qualified" team construction. China regarded the construction of "dual-qualified" teachers as an important content and key link for higher vocational teachers training, teaching evaluation, and exemplary construction of vocational colleges.

Fifth, China and Japan both paid attention to learning from the advanced experience of international vocational education, and also emphasized the combination with the actual situation in the country and adopt selective absorption strategies for "exotic products ". For example, Japan's professional qualification system absorbed the experience from Britain, Germany and other countries, and established a local qualification certification system. China developed a series of top-level design solutions after studying much foreign experience.

V. CONCLUSIONS AND INSPIRATION

1. Strengthen the establishment of systems, regulations, and quality assurance systems. Currently, the relevant legal system for teacher training in higher vocational education of China is not standardized. Therefore, it is recommended that the national legislature should formulate specific laws for the cultivation of higher vocational teachers. In terms of policies and systems, China would furtherly expand the paths for the promotion of academic qualifications for higher vocational teachers, further open the sources of higher vocational VET

teachers, and unify the criteria for the identification of "dual-qualified" teachers. Drawing on Japan's experience, Chinese qualification standards and salary guarantee system for higher vocational teachers could be formulated to increase professional attractiveness.

2. China should establish a vocational education teacher training system to meet the needs of industrial development. It is necessary to set development goals of higher vocational teachers in accordance with the domestic industry and the actual situation of the colleges. Higher vocational schools and teachers should strengthen the concept of "serving for supporting and contributing to development" and actively provided enterprises with diversified technology and consulted services. Drawing on Japan's experience, internship teaching was carried out in cooperative schools, and teachers' professional practice and teaching ability were effectively improved. Further expanded professional education graduate degree training.

3. Establish a long-term mechanism for the professional development of higher vocational teachers in China. To learn from the professional development and qualification standards of Japanese higher vocational teachers, and to perfect the teacher education curriculum system that includes professional knowledge and skills, craftsmanship, professional ethics, and industry standards. Additionally, China should adhere to a broad-based and deep professional balance and set up graded development standards for teachers of different foundations.

4. Cross-border linkage to foster "dual-qualified" teachers. Firstly, it is necessary for the Chinese government to play a leading and coordinating role in the key links of the cooperation between government and industry, and guide enterprises to participate in the training of VET teachers. Relying on large and medium-sized enterprises, establish a number of exemplary "dual-qualified" teacher training bases. Secondly, higher vocational schools select and hire a group of high-level training teams consisted of well-known universities of professors and technical elites to carry out demonstration teaching. Finally, it is recommended that practice training should be advanced. The pre-employment of the fresh graduates who are about to enter the vocational school will be pre-employed, and they are required to practice in the company or cooperative schools before formal work, and to accumulate professional practice experience through training.

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