



Construction of “Dual-Qualified” Teachers in Higher Vocational Colleges from the Perspective of the Integration of Industry and Education

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Abstract. Teachers are the first resource for the development of vocational education and the key force to support the national vocational education reform in the new era. Strengthening the construction and training of “dual-qualified” teachers in higher vocational colleges is of great significance to the improvement of teachers’ ability and quality and the high-quality development of Vocational Education. Based on the perspective of industry education integration, this paper analyzes the concept, connotation and identification standards of “dual-qualified” teachers, and puts forward the methods and measures for the construction of “dual-qualified” teachers, which provides a useful path reference for higher vocational colleges to strengthen the construction of “dual-qualified” teachers.

Keywords: Integration of industry and education · “Dual-qualified” teachers · Path

1 Introduction

The integration of industry and education is the national strategy of vocational education, and it is the essence, soul and essence of vocational education. The teaching team is an important resource for the development of vocational education. The construction of the “dual-qualified” teacher team in higher vocational colleges is of great significance to the high-quality development of vocational education. In recent years, the state has issued a series of documents to promote the integration of education and industry and implement a college-enterprise cooperation talent training model combining work and learning. In 2019, the State Council promulgated the “Vocational Education Reform Implementation Plan”, suggesting that colleges and enterprises should comprehensively strengthen in-depth cooperation, use enterprises and social forces to organize high-quality vocational education, take multiple measures to create a “dual-qualified” teacher team, and implement teachers in vocational colleges. On October 12, 2021, the General Office of the Central Committee of the Communist Party of China issued the “Opinions on Promoting

the High-Quality Development of Modern Vocational Education”, conducted the Quality improvement plan and proposed to formulate standards for dual-qualified teachers, improve teacher recruitment, professional and technical job evaluation and performance evaluation standards, and build a training base for dual-qualified teachers. Higher vocational colleges need to conduct in-depth exploration and research on the integration of industry and education and the construction of “dual-qualified” teachers [1].

2 The Connotation of Integration of Industry and Education and “Dual-Qualified” Teachers

Vocational education is an important part of the national education system and human resource development, and shoulders the important responsibility of cultivating diverse talents, passing on technical skills, and promoting employment and entrepreneurship. The integration of industry and education and the construction of faculty in vocational colleges are an important part of vocational education. The integration of industry and education determines the way of talent training in vocational education, and the construction of the teaching team is the guarantee for supporting the training of talents in colleges. The integration of industry and education refers to the close integration of colleges and industries, the construction of integrated carriers in personnel training, technical services, scientific research, cultural inheritance, and employment innovation, forming a college-running model in which colleges and industry diversified entities jointly promote and coordinate education. “Dual-qualified” teachers refer to vocational teachers who have the ability to teach theoretical knowledge of the subject, as well as the professional practical skills guidance and scientific and technological service capabilities of the subject. The capacity structure of the “dual-qualified” teachers is as shown in the “Fig. 1”. The integration of industry and education is the main way to train professional talents, and it is also an important way for higher vocational colleges to build a team of “dual-qualified” teachers [2].

The integration of industry and education in higher vocational colleges needs to be service-oriented, employment-oriented, and vigorously promote the integration of

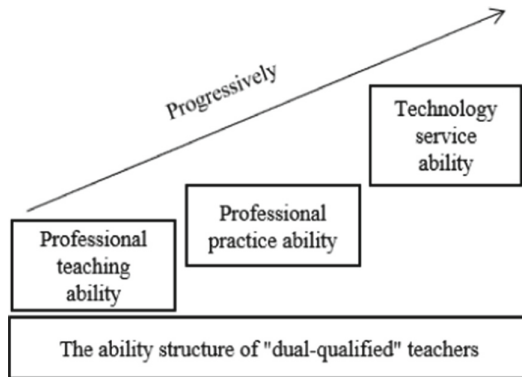


Fig. 1. The ability structure of “dual-qualified” teachers.

work and study, and college-enterprise cooperation. At the same time, the integration of industry and education in higher vocational colleges needs to serve the country's major strategies and socio-economic development as the goal, and to cultivate high-quality compound technical and technical talents required for the high-quality development of the regional economy and the transformation and upgrading of the industrial structure. The idea of "cooperation, double-win, and common development" of the integration of industry and education goes deep into the entire process of vocational professional talent training, and continuously improves the role of industry and education integration in the training of technical and skilled talents. In terms of the construction of the "dual-qualified" teacher team in higher vocational colleges, it is necessary to integrate the "dual-qualified" teacher identification, teacher enterprise practice, teacher technical skills training, college-enterprise mutual part-time work, college-enterprise teaching team, and scientific and technological services [3]. The work of the integration of industry and education needs to establish a teacher team construction mechanism for the overall management of the government, implements the in-depth integration of industry enterprises and academies, improves the higher vocational education teacher training and training system, opens up the two-way flow channel for college and enterprise personnel, and constructs a "dual-qualified" teacher team with the two sides of the college and enterprise.

3 The Practical Dilemma of the Construction of "Dual-Qualified" Teachers in Higher Vocational Colleges

The faculty of higher vocational colleges is the fundamental guarantee for the training of professional talents, but at present, the "dual-qualified" faculty of higher vocational colleges in China generally has inconsistent certification standards, insufficient number of teachers, weak practical ability, and comprehensive quality [4]. For issues such as promotion, some teachers directly teach at the school after graduating from school, which is difficult to meet the needs of the college for training high-quality technical and technical personnel.

First, it is necessary to formulate the certification standards for "dual-qualified" teachers. In 2019, the Ministry of Education and other four departments issued a notice on the "Implementation Plan for Deepening the Reform of the Construction of "dual-quality" Teachers in Vocational Education in the New Era", requiring all localities to formulate standards for the certification of "dual-qualified" teachers, but most vocational colleges still at the stage of exploration and exploration, no mature plan has been formed for reference and reference.

Second, the leading role of "dual-professional" teacher team building with enterprises as the main body has not yet been truly manifested. Enterprises are social and economic units with the purpose of making profits. In the process of integrating industry and education with colleges, most of them are still at a loose and shallow level of cooperation, and they are not very motivated. Most companies are unwilling to accept college teachers to exercise their practical abilities, and are unwilling to participate in the training of college professionals. Third, the environment, atmosphere, and system for the integration of industry and education in the entire society need to be further improved,

and it is necessary to open up the channels for the flow of talents between colleges and enterprises to achieve mutual part-time jobs for both colleges and enterprises. Finally, for the introduction of teachers in higher vocational colleges, it is difficult to introduce teachers with practical experience from enterprises. At the same time, due to teaching requirements, it is difficult for teachers to spare time to work part-time in enterprises. Colleges also lack corresponding training systems and measures. To a certain extent, it also restricts the improvement of the practical ability of “dual-professional” teachers. Based on the above problems, higher vocational colleges urgently need to innovate the methods of “dual-qualified” teacher team construction, carry out college-enterprise collaborative training, and give play to the role of enterprises in the construction of “dual-qualified” teacher team.

4 The Construction Path of “Dual-Qualified” Teachers in Higher Vocational Colleges

The construction path of the “dual-qualified” teacher team mainly includes the formulation of certification standards, college-enterprise service platform, comprehensive ability training, college-enterprise teaching team, and assessment and evaluation system, etc., as shown in “Fig. 2”.

4.1 Establishing Standards for the Certification of “Dual-Qualified” Teachers

The “dual-qualified” teacher team is not only an individual teacher, but also includes the college’s entire teaching team, as well as part-time teachers from enterprises. The criteria for the certification of “dual-qualified” teachers not only include teaching ability, but also practical ability and social service ability. In practice, the certification standards

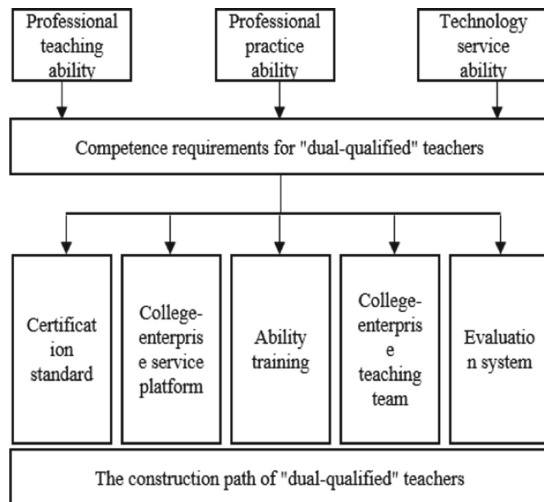


Fig. 2. The construction path of “dual-qualified” teachers.

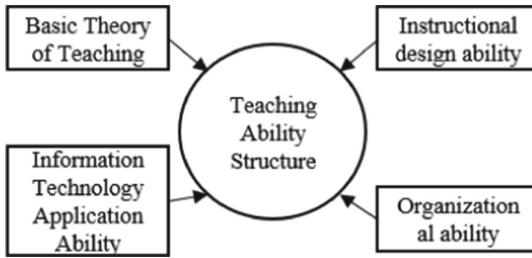


Fig. 3. Teaching ability of “dual-qualified” teachers.

of “dual-qualified” teachers in some colleges and universities pay more attention to the various certificates obtained by teachers, but there are few inspections on practical ability and social service ability [5].

4.1.1 The Teaching Ability of “Dual-Qualified” Teachers

Teaching ability refers to the subjective conditions that teachers should have to complete the teaching tasks of theoretical courses, which mainly include the cognitive ability of basic education and teaching theory, teaching design ability, organization and implementation ability, modern information technology application ability, etc., as shown in “Fig. 3”. “Dual-qualified” teachers must first have a series of intermediate and above professional technical positions for college teachers, and have the ability to carry out curriculum development, curriculum design, curriculum implementation, and curriculum evaluation based on professional talent training programs and curriculum standards [6]. In terms of curriculum development capabilities, you should have the ability to investigate job positions in industry enterprises, the ability to formulate curriculum goals, and the ability to organize curriculum content, be able to train professional talents, set teaching goals reasonably, and select appropriate teaching content for organization and implementation. In terms of curriculum design, one should have the ability to design the overall curriculum and the design of teaching units, be able to use appropriate teaching models, design teaching situations and learning tasks, and formulate teaching plans suitable for academic conditions. In terms of curriculum implementation ability, it should have basic education and teaching concepts and knowledge, curriculum classroom teaching implementation ability, curriculum resource construction ability and teaching activity organization ability, and be able to organize and implement classroom teaching according to the teaching design plan. In terms of curriculum teaching evaluation ability, it has the ability of self-reflection and evaluation of curriculum implementation and the ability of evaluation of students, can establish evaluation indicators in a targeted manner, and conduct process evaluation and summative evaluation of teaching.

4.1.2 The Practical Ability of “Dual-Qualified” Teachers

Practical ability refers to the subjective conditions that teachers should have to complete practical tasks, which mainly include practical teaching ability, practical work ability, engineering practice ability, and practical service ability, as shown in “Fig. 4”.

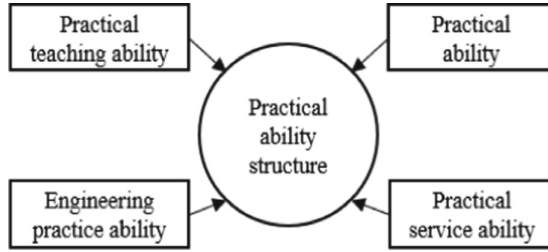


Fig. 4. Practical ability of “dual-qualified” teachers.

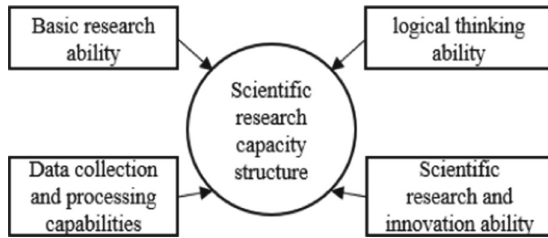


Fig. 5. Scientific research ability of “dual-qualified” teachers.

The content of practical ability inspection includes practical operation ability in practical teaching, practical work guidance and evaluation ability, cognition ability of new technologies, new processes, new standards, new norms, new achievements in related industries, and transform enterprise projects. It is the ability of classroom teaching content and the ability to solve practical problems in the industry and enterprises. The practical abilities of “dual-qualified” teachers mainly include technical services, technology development, project and product research and development in the professional field. They are able to practice the corresponding professional technical skills, and at the same time they must guide students in professional hands-on practice [7].

4.1.3 The Scientific Research Ability of “Dual-Qualified” Teachers

Scientific research ability refers to the comprehensive ability of independent and creative problem-solving. The practical ability of “dual-qualified” teachers mainly includes basic scientific research ability, scientific research data collection and processing ability, scientific research logical thinking ability and scientific research innovation ability, as shown in “Fig. 5”. The cultivation of the scientific research ability of “dual-qualified” teachers should be through learning basic theoretical research methods, cultivating analytical thinking skills, using methods such as induction, deduction, analysis and synthesis, and using the actual project cooperation with enterprises to obtain new ideas, new methods, and exercise teacher’s scientific research ability [8].

According to the difference in teaching ability, practical ability and scientific research ability of “dual-qualified” teachers, the “dual-qualified” teachers of vocational colleges can be divided into elementary, intermediate and advanced. In this way, targeted ability training is carried out for different types of “dual-qualified” teachers in the practical

ability and scientific research ability. At the same time, the practical ability and scientific research ability of the “dual-professional” teacher certification standards need to rely on industry enterprises, and through the project carrier of college-enterprise cooperation and the integration of production and education, to enhance the “dual-qualified” teachers in cooperation projects with enterprises [9].

4.2 Building a College-Enterprise Technical Skills Service Platform to Unblock the Channels for College-Enterprise Personnel to Work Part-Time with Each Other

4.2.1 Uniting Industry Enterprise to Build Industry-Colleges and Promoting “Dual-Qualified” Teachers to Provide Technical Services for Enterprise

Higher vocational colleges strengthen cooperation with industry enterprises through the integration of college-enterprise co-construction of dual-subject colleges, industrial parks, technology application and service centers and other related platform functions, and through technology development, technology transfer, technology consulting, and technology services. Through the establishment of an enterprise innovation and application engineering research center, it will help enterprises to transform and upgrade, improve the overall technical level of “dual-qualified” teachers to use professional technology to solve the actual needs of enterprises, reduce enterprise operating costs, and improve enterprise operating efficiency and economic benefits. Higher vocational colleges need to carry out the training of talents in the professional field of “dual-professional” teachers, organize experts and teams to carry out professional technical consultation and services for cooperative enterprises, promote enterprise product, technology and application innovation, and provide data, case support and special research for government departments at all levels to promote scientific decision-making for social and economic development.

4.2.2 Creating a Technological Innovation Service Platform and Unblocking the Communication Channels Between Colleges and Enterprises

Higher vocational colleges need to explore the establishment of an “integrated” operating mechanism and service model for talent cultivation, technological innovation, achievement transformation, and application promotion, and strengthen in-depth cooperation with local governments and related industries and enterprises around the elements of technical services, talent cultivation, scientific and technological research, and innovation cultivation. In accordance with the logical main line of technology application and service, technology research and development and innovation, and technical skills training, colleges gather existing resources to create a technology innovation service platform through upgrading, transformation, expansion, and new construction. Higher vocational colleges take the technological innovation service platform as the carrier to enhance the practical ability and scientific research ability of “dual-qualified” teachers. First, they serve the industry enterprises in the region, and the second, they serve the cultivation of students and teachers’ practical ability.

Higher vocational colleges need to focus on talent training, technology research and development, industrial services, innovation and entrepreneurship and other elements, strengthen in-depth cooperation with government departments, industries, and enterprises, establish a technology innovation platform management system and performance evaluation index system based on big data, and realize platform management. The process needs to be visible, controllable, checkable and quantitative evaluation of performance. At the same time, industries and colleges can realize the corporate management and market-oriented operation by innovating the platform operating mechanism and exploring the self-hematopoietic mechanism of sustainable development of the platform.

4.3 Strengthening the Training of Teachers’ Comprehensive Ability

On January 24, 2019, the “National Vocational Education Reform Implementation Plan” document requires multiple measures to be taken simultaneously to create a “dual-qualified” teacher team, and implement a vocational college teacher quality improvement plan. Vocational colleges and application-oriented colleges and Universities teachers should practice in enterprises or training bases at least one month a year, and implement the full rotation training system of teachers every five years.

4.3.1 Establishing a Teacher Training Management Platform

First, colleges need to establish a teaching assistance system for newly recruited “dual-qualified” teachers, establish a special training platform for newly recruited teachers, and combine online and offline training to assist newly recruited teachers in their career planning. Newly recruited teachers select and guide teachers to establish a “one-to-one” guidance system. Second, for all full-time teachers, colleges need to establish a full-time teacher network training platform, carry out special training on curriculum design and development, education and teaching reform, curriculum ideology, information teaching ability, excellent works in teaching competitions, etc., and invite domestic experts in the field of vocational education Conduct lectures on teaching topics. Through training, colleges will further promote the ability of college teachers to adapt to the continuous development of vocational education and professional construction, and continuously improve the quality of college education and teaching.

4.3.2 Carrying Out “Dual-Qualified” Teachers’ Teaching Innovation Ability Training

Higher vocational colleges need to cooperate with international education institutions to promote teachers’ understanding of educational concepts and application practices, educational teaching methods, design thinking and creative thinking models, etc., in the application of vocational education, and further promote teachers to update vocational education concepts, broaden their thinking, and improve education and teaching management and teaching innovation ability.

4.3.3 College-Enterprise Cooperation to Carry Out the “Dual-Qualified” Teacher Enterprise Practice

Young and middle-aged backbone teachers need to rely on national and provincial training programs, participate the higher training, visits, and enterprise practice training for professional leaders organized by the national and provincial teacher training centres, and rely on projects to improve teachers' teaching and research level and creativity. At the same time, higher vocational colleges need to create conditions to support teachers to participate in work, exercise and research in enterprises and institutions, enhance practical experience, establish college-enterprise alliances, adopt concentrated or scattered time for practice, and cultivate “dual-qualified” teachers. Professional full-time teachers conduct corporate practice in practice units or training bases at least one month a year, and conduct corporate practice for no less than 6 months in a five-year cycle. Public basic course teachers and ideological and political teachers will visit relevant practice units for inspection, investigation and study for no less than one week each year, deepen college-enterprise collaboration, and jointly carry out “dual-qualified” teachers' practical ability training.

4.3.4 Strengthening the Teaching Ability of Part-Time Teachers of Enterprises

Higher vocational colleges need to further standardize the employment conditions and procedures of part-time teachers, clarify the job responsibilities of part-time teachers, and strengthen the employment, training and management of part-time teachers outside the college. The teaching department must organize and carry out relevant training for the teaching of part-time teachers. Through the establishment of a “one-to-one” docking system, colleges can help part-time teachers familiarize themselves with the college's teaching standards, improve teaching documents, and carry out the management and results of the teaching process of part-time teachers. Also, colleges can assess, supervise and supervise lectures and students' evaluation of teaching, guide and check the teaching situation of part-time teachers.

4.4 Building a College-Enterprise Integrated Teacher Teaching Team

4.4.1 Implementing Modular Teaching for Both Colleges and Enterprises, and Implementing a Task-Based Training Model

Through the formation of a college-enterprise integration teacher team, the use of productive experimental training bases inside and outside the college, the use of centralized teaching, corporate training, work-study alternation, project training and job training, colleges can carry out work tasks in the real production environment of the enterprise, and carry out a task-based training model that combines knowledge and action with a combination of work and learning for the real production environment of the enterprise. According to the training goals of professional talents and the skill requirements of professional positions, and following the principle of “typical tasks-work standards-implementation plan”, the typical tasks are extracted from corporate jobs, the professional knowledge system and skill structure are constructed, and the learning content is divided into different task modules and skill unit, design task-based teaching content and

teaching methods. Colleges need to utilize the resources of teachers from both colleges and enterprises to implement modular teaching to form a college-enterprise joint task-based training model with more flexible training methods, more complex professional fields, more flexible teaching methods, and more satisfactory student employment.

4.4.2 Strengthening the Cultivation of Famous Teaching Teachers and the Construction of Teaching Teams

By gathering high-quality resources, giving play to the leading role of radiation, demonstration and leading secondary colleges to build a teaching innovation team for teachers, colleges establish a college-enterprise integrated teacher team, form a teacher team selection, appointment, and assessment work mechanism. The teaching innovation team for project construction is centred on teaching. By carrying out research on teaching reform of full-time and part-time teachers, carrying out thematic teaching and research activities, collective lesson preparation, seminars and teaching content, teaching methods, teaching methods and other related teaching issues, part-time teachers exchange teaching experience with each other, and promote university education and teaching mode and talent training mode point-to-point reform [10].

Through the formation of a college-enterprise integrated teacher team, full-time teachers directly participate in enterprise production management, new technology and new technology promotion and application, technical research and project development, etc., promote the integration of college education and teaching activities and enterprise production practices, and enhance the function of college-enterprise joint education.

4.5 Establishing a “Dual-Qualified” Teacher Assessment System

In the “dual-qualified” teacher evaluation system, a multi-dimensional comprehensive evaluation is formed, which mainly involves teacher job setting and employment, annual evaluation, appointment period evaluation and performance rewards. The first is to adhere to the principle of classified evaluation, establish a post-based evaluation system, continue to revise the “dual-qualified” teacher evaluation document system, adhere to post-based salary, remuneration based on work, preferential remuneration, according to different categories of personnel, establish different evaluation index systems and implement classified evaluation for different positions. The second is to adhere to the principles of evaluation of teacher ethics and style. Continue to strengthen the long-term construction mechanism, promote the inspection of teachers’ ideological and political quality, establish a negative list of teachers’ ethics and style, and highlight teacher ethics and style as the first criterion in the evaluation of professional titles, job appointments, and awards.

In terms of the setting and employment of “dual-qualified” teachers, the teacher team is the main body, the proportion of various personnel structure is optimized, human resources are rationally allocated, the construction of high-level talents is strengthened, and the quality and efficiency of employment are improved. In the assessment of “dual-qualified” teachers, a combination of annual assessment and appointment period assessment is implemented. The annual assessment completes the required teaching and scientific research tasks, and the overall performance requirements for the assessment

during the appointment period. In terms of performance rewards, a special performance appraisal program is set up to reward and motivate “dual-qualified” teachers.

5 Conclusion

The integration of industry and education is the fundamental way of cultivating talents in vocational colleges, and it is also an important way for vocational colleges to train “dual-qualified” teachers. Only based on the integration of industry and education, higher vocational colleges can cultivate high-quality “dual-qualified” teachers and technical talents. Higher vocational colleges need to establish a “dual-qualified” teacher certification standard, create a technological innovation service platform, build a college-enterprise joint carrier such as industrial colleges and practice bases, develop teachers’ comprehensive ability training, and build a college-enterprise integrated teacher teaching innovation team. Colleges need to innovate the teacher evaluation system, promote the construction of the “dual-qualified” teacher team and the collaborative education of production and education, and make the due contributions of higher vocational colleges to the national development strategy and regional economic development.

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